

# Water Resources Data

## Puerto Rico and the U.S. Virgin Islands

### Water Year 1998



**CALENDAR FOR WATER YEAR 1998**

1997

| OCTOBER |    |    |    |    |    |    | NOVEMBER |    |    |    |    |    |    | DECEMBER |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|----------|----|----|----|----|----|----|
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| 12      | 13 | 14 | 15 | 16 | 17 | 18 | 9        | 10 | 11 | 12 | 13 | 14 | 15 | 14       | 15 | 16 | 17 | 18 | 19 | 20 |
| 19      | 20 | 21 | 22 | 23 | 24 | 25 | 16       | 17 | 18 | 19 | 20 | 21 | 22 | 21       | 22 | 23 | 24 | 25 | 26 | 27 |
| 26      | 27 | 28 | 29 | 30 | 31 |    | 23       | 24 | 25 | 26 | 27 | 28 | 29 | 28       | 29 | 30 | 31 |    |    |    |
|         |    |    |    |    |    |    | 30       |    |    |    |    |    |    |          |    |    |    |    |    |    |

1998

| JANUARY |    |    |    |    |    |    | FEBRUARY |    |    |    |    |    |    | MARCH |    |    |    |    |    |    |
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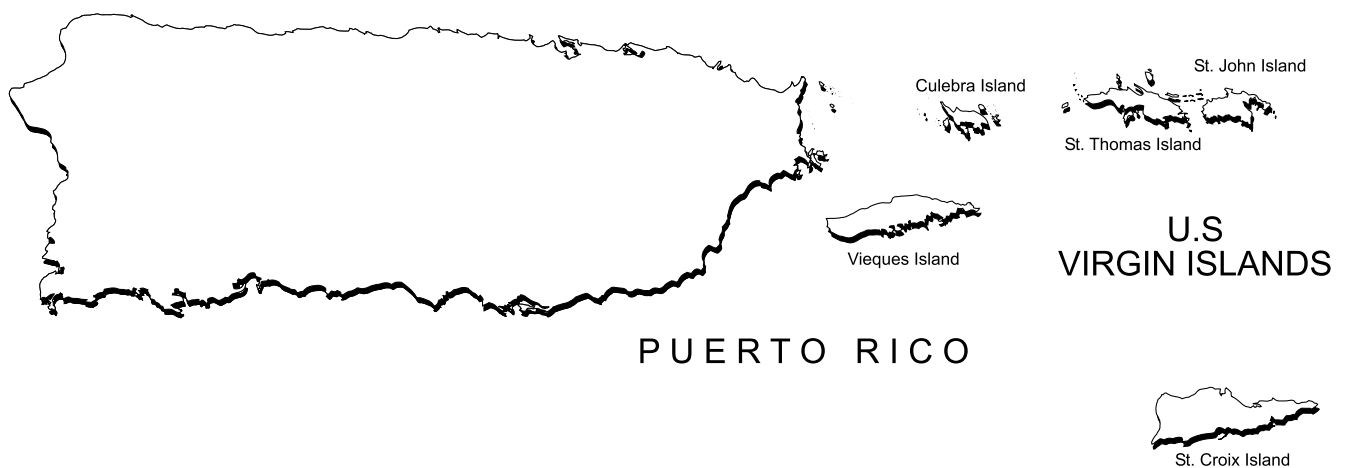
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|       |    |    |    |    |    |    | 31  |    |    |    |    |    |    |      |    |    |    |    |    |    |

| JULY |    |    |    |    |    |    | AUGUST |    |    |    |    |    |    | SEPTEMBER |    |    |    |    |    |    |
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| 19   | 20 | 21 | 22 | 23 | 24 | 25 | 16     | 17 | 18 | 19 | 20 | 21 | 22 | 20        | 21 | 22 | 23 | 24 | 25 | 26 |
| 26   | 27 | 28 | 29 | 30 | 31 |    | 23     | 24 | 25 | 26 | 27 | 28 | 29 | 27        | 28 | 29 | 30 |    |    |    |
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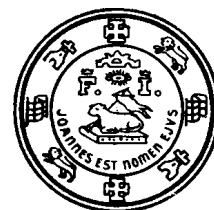
# Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1998

By Pedro L. Díaz, Zaida Aquino, Carlos Figueroa-Alamo, Ricardo J. Vachier,  
and Ana V. Sánchez

Water-Data Report PR-98-1



Prepared in cooperation with the Commonwealth of Puerto Rico,  
the Government of the U.S. Virgin Islands, and with other agencies



**U.S. DEPARTMENT OF THE INTERIOR**  
**BRUCE BABBITT, Secretary**

**U.S. GEOLOGICAL SURVEY**  
**Charles G. Groat, Director**

**For additional information on the water resources investigation programs  
in Puerto Rico and the U.S. Virgin Islands write to:**

**Chief, Caribbean District, Water Resources Division**

**U.S. Geological Survey**

**GSA Center, 651 Federal Drive**

**Suite 400-15**

**Guaynabo, Puerto Rico 00965**

**Telephone: (787) 749-4346**

**1999**

## PREFACE

This annual hydrologic data report of Puerto Rico and the U.S. Virgin Islands is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each state, Puerto Rico, the U.S. Virgin Islands, and the other Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by state, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey, Water Resources Division, who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to the U.S. Geological Survey policy and established guidelines, the Caribbean District would like to acknowledge Heriberto Torres-Sierra, Surface-Water Specialist, for his dedication and long hours of hard work. With the help of the Hydrologic Studies Section, he determined peak discharges for the Hurricane Georges floods. The following personnel contributed significantly to the collection, processing and tabulations of the data:

|                    |                      |
|--------------------|----------------------|
| José M. Agis       | Rafael Peña-Cortez   |
| George Arroyo      | Ronald T. Richards   |
| Gregory Cherry     | Carlos C. Rodríguez  |
| Iris M. Concepción | Julio A. Rodríguez   |
| Israel Cruz        | Miguel Rodríguez     |
| Angel G. Ferrer    | Rafael M. Rodríguez  |
| Robert Fitzhugh    | José René Sánchez    |
| Wilfredo García    | Luis Santiago-Rivera |
| Hector Guardiola   | Carlos Santos        |
| Evelyn S. Guevara  | Luis Soler           |
| Senén Guzmán-Ríos  | Angel Torres         |
| Felipe Hernández   | James Torres         |
| Sandra Lagares     | José A. Torres       |
| José Merced        | Ahmed Valencia       |
| Carlos Narvaez     | Luis Vega            |
| Victoria Nuñez     |                      |

Ruth I. Guzmán typed the text of the report. Francisco Maldonado prepared the illustrations.

This report was prepared in cooperation with agencies of the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and with other federal agencies under the general supervision of Rafael W. Rodríguez, District Chief, Caribbean District, San Juan, Puerto Rico.

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**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,  
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME**

(Letter after station name designates type of data:  
(d) discharge, (c) chemical, (b) biological, (s) sediment, (p) pesticide, (e) elevation, gage heights)

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**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,  
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

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| Río de Bayamón near Bayamón (d).....                            | 50047850       | 179  |
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| Quebrada Blanca at El Jagual (d,s) .....                        | 50051150       | 210  |
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| Río Valenciano near Juncos (d,s).....                           | 50056400       | 271  |
| Río Gurabo at Gurabo (d,s).....                                 | 50057000       | 277  |
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**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998 DISCONTINUED  
STREAMFLOW STATIONS**

The following continuous-record streamflow stations in Puerto Rico and the U.S. Virgin Islands have been discontinued or converted to partial-record stations. Daily streamflow or stage records were collected for the period of record shown for each station.

| <b>Station number</b> | <b>Station name</b>                         | <b>Drainage area (mi<sup>2</sup>)</b> | <b>Period of record</b> |
|-----------------------|---------------------------------------------|---------------------------------------|-------------------------|
| 50007000              | Quebrada de los Cedros near Isabela         | 6.91                                  | 1970                    |
| 50010600              | Río Guajataca above Lago de Guajataca       | --                                    | 1984-89                 |
| 50011000              | Canal Diversion Lago Guajataca              | --                                    | 1970                    |
| 50011200              | Río Guajataca below Lago Guajataca          | --                                    | 1969-70,1984-87         |
| 50011400              | Río Guajataca above mouth near Quebradillas | --                                    | 1969-70,1984-89         |
| 50013000              | Río Camuy near Lares                        | 7.62                                  | 1969-71                 |
| 50014000              | Río Criminales near Lares                   | 4.68                                  | 1969-70                 |
| 50014600              | Río Camuy at Tres Pueblos Sinkhole          | --                                    | 1990-96                 |
| 50015700              | Río Camuy near Hatillo                      | --                                    | 1984-96                 |
| 50016000              | Río Camuy near Camuy                        | --                                    | 1969-73                 |
| 50021000              | Río Pellejas at Central Pellejas            | 5.46                                  | 1968-70                 |
| 50021050              | Río Pellejas below Central Pellejas         | 7.89                                  | 1972-75                 |
| 50021500              | Río Pellejas near Utuado                    | 9.55                                  | 1969-71                 |
| 50023000              | Río Viví near Central Pellejas              | 5.66                                  | 1969-75                 |
| 50027200              | Río Grande de Arecibo blw. Lago dos Bocas   | 169                                   | 1970-71                 |
| 50029000              | Río Grande de Arecibo at Central Cambalache | 200                                   | 1969-83                 |
| 50031500              | Río Sana Muerto near Orocovis               | 3.68                                  | 1965-70                 |
| 50035200              | Río Grande de Manatí at Hwy 145 at Ciales   | 132                                   | 1972                    |
| 50035950              | Río Cialitos at Hwy 649 at Ciales           | 17                                    | 1970-82                 |
| 50038360              | Río Mavilla near Corozal                    | 9.51                                  | 1969-70                 |
| 50038600              | Río Unibón near Morovis                     | 5.29                                  | 1969-70                 |
| 50038700              | Río Morovis at Morovis                      | 1.26                                  | 1968                    |
| 50038900              | Río Indio at Vega Baja                      | --                                    | 1963,66,71              |
| 50039600              | Río Cibuco at Central San Vicente           | --                                    | 1969-72                 |
| 50043200              | Río Usabon near Barranquitas                | 9.15                                  | 1968-69,71              |
| 50043400              | Río Aibonito Tributary near Aibonito        | 1.13                                  | 1968-71                 |
| 50044600              | Río Guadiana near Naranjito                 | 1.73                                  | 1971                    |
| 50044650              | Quebrada del Toro near Naranjito            | 0.54                                  | 1971                    |
| 50044800              | Quebrada Anones near Naranjito              | 2.32                                  | 1971                    |
| 50045700              | Río Lajas at Toa Alta                       | 8.65                                  | 1966-75                 |
| 50047820              | Río de Bayamón at Hwy 174 near Bayamón      | 31.90                                 | 1966                    |
| 50048000              | Río de Bayamón at Bayamón                   | 71.90                                 | 1963-67                 |
| 50049000              | Río Piedras at Río Piedras                  | 12.5                                  | 1971-82, 1987-93        |
| 50049310              | Quebrada Josefina at Piñero Avenue          | 3.84                                  | 1988-91                 |
| 50053050              | Río Turabo at Borinquen                     | 7.89                                  | 1984-90                 |
| 50054000              | Quebrada de las Quebradillas near Caguas    | 6.25                                  | 1969-71,73              |
| 50055170              | Río Cagüitas near Caguas                    | 8.27                                  | 1992-97                 |
| 50055650              | Quebrada Caimito near Juncos                | 0.82                                  | 1984-87                 |
| 50056000              | Río Valenciano near Las Piedras             | 6.85                                  | 1971                    |
| 50056900              | Quebrada Mamey near Gurabo                  | 2.30                                  | 1984-92                 |

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998**  
**DISCONTINUED STREAMFLOW STATIONS--Continued**

| <b>Station number</b> | <b>Station name</b>                   | <b>Drainage area (mi<sup>2</sup>)</b> | <b>Period of record</b>   |
|-----------------------|---------------------------------------|---------------------------------------|---------------------------|
| 50058300              | Quebrada Arena near Caguas            | --                                    | 1971                      |
| 50059000              | Río Piedras at Río Piedras            | 12.5                                  | 1971-82, 1987-93          |
| 50061300              | Río Canovanillas near Loíza           | 14.40                                 | 1968-73                   |
| 50062500              | Río Herrera near Colonia Dolores      | 2.75                                  | 1968-72                   |
| 50063300              | Río Espíritu Santo near El Verde      | 2.23                                  | 1968-73                   |
| 50063500              | Quebrada Toronja at El Verde          | 0.064                                 | 1983-96                   |
| 50065700              | Río Mameyes at Hwy 191 at Mameyes     | 11.80                                 | 1967-85                   |
| 50072000              | Río Fajardo at Fajardo                | 21.60                                 | 1960-63                   |
| 50073200              | Río Dagua at Dagua                    | 2.26                                  | 1966-82                   |
| 50073400              | Quebrada Palma at Dagua               | 4.84                                  | 1972-77                   |
| 50074000              | Río Santiago at Naguabo               | 4.99                                  | 1966-82                   |
| 50075500              | Río Blanco at Florida                 | 11.00                                 | 1966-82                   |
| 50076000              | Río Blanco near Florida               | 12.30                                 | 1983-85                   |
| 50077000              | Río Blanco at Río Blanco              | 17.60                                 | 1973-77                   |
| 50077400              | Río Blanco at Colonia La Fe           | 18.80                                 | 1967-70                   |
| 50078500              | Río Anton Ruíz at Central Pasto Viejo | 4.33                                  | 1968                      |
| 50081500              | Río Humacao near Humacao              | 9.23                                  | 1973                      |
| 50082000              | Río Humacao at Hwy 3 at Humacao       | 17.30                                 | 1983-85                   |
| 50082200              | Río Humacao near La Suiza             | 19.90                                 | 1965-66, 1969-71          |
| 50082800              | Río Guayanés near Colonia Laura       | 4.69                                  | 1969-82                   |
| 50083500              | Río Guayanés near Yabucoa             | 17.20                                 | 1969-71                   |
| 50084000              | Río Limones near Yabucoa              | 7.89                                  | 1969-71                   |
| 50085100              | Río Guayanés at Central Roig          | 26.60                                 | 1965-66, 1968,70          |
| 50086100              | Río del Ingenio at Comunas            | 5.50                                  | 1965-66, 1968-69          |
| 50086500              | Río Guayanés at Playa Guayanés        | 34.00                                 | 1965-66, 1968-71          |
| 50087200              | Caño Santiago near Central Roig       | 6.04                                  | 1965-71                   |
| 50091000              | Río Maunabo at Maunabo                | 12.40                                 | 1965,67, 1969-82          |
| 50091200              | Río Maunabo near Maunabo              | 12.70                                 | 1971-72                   |
| 50091400              | Río Jacoboa near Lamboglia            | 4.13                                  | 1965-73                   |
| 50091700              | Río Chico at Patillas                 | 6.82                                  | 1965, 1969-72             |
| 50091800              | Río Chico at Providencia              | 4.90                                  | 1965, 1967-69, 1971       |
| 50094200              | Río Grande de Patillas at Patillas    | 27.90                                 | 1967, 1969, 1971          |
| 50094300              | Río Grande de Patillas at Providencia | 29.00                                 | 1971                      |
| 50094400              | Río Nigua at Pitahaya                 | 5.86                                  | 1965, 1969, 1970-71, 1973 |
| 50095200              | Río Guamaní at Guayama                | 8.22                                  | 1969-71                   |
| 50095500              | Río Guamaní near Guayama              | 12.30                                 | 1969-70                   |
| 50099000              | Quebrada Aguas Verdes near Salinas    | 0.39                                  | 1989                      |
| 50106500              | Río Coamo near Coamo                  | 46.00                                 | 1967-68, 1984-85, 1986    |
| 50106900              | Río Coamo below Lago Coamo near Coamo | 65.40                                 | 1967-68                   |
| 50107200              | Río Coamo at mouth near Santa Isabel  | 69.30                                 | 1967-68                   |
| 50108200              | Río Descalabrado at Las Ollas         | 13.90                                 | 1965, 1967-71             |
| 50108500              | Río Descalabrado near Santa Isabel    | 18.10                                 | 1966-67                   |
| 50111200              | Río Toa Vaca near Villalba            | 21.40                                 | 1966-70                   |
| 50111700              | Río Jacaguas near Juana Díaz          | 53.20                                 | 1966-68                   |
| 50111750              | Río Jacaguas below Quebrada Guanábana | 56.30                                 | 1989                      |

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998**  
**DISCONTINUED STREAMFLOW STATIONS--Continued**

| <b>Station number</b> | <b>Station name</b>                                 | <b>Drainage area (mi<sup>2</sup>)</b> | <b>Period of record</b> |
|-----------------------|-----------------------------------------------------|---------------------------------------|-------------------------|
| 50112100              | Río Jacaguas near Arús                              | 59.60                                 | 1966-67                 |
| 50112600              | Río Inabón at Coto Laurel                           | --                                    | 1967-71                 |
| 50113100              | Río Guayo near Coto Laurel                          | 11.80                                 | 1965, 1968-71           |
| 50113500              | Río Inabón near Arús                                | 30.20                                 | 1964-65                 |
| 50114400              | Río Bucaná near Ponce                               | 25.60                                 | 1965-81                 |
| 50114700              | Río Bucaná near Playa de Ponce                      | 28.40                                 | 1964-67                 |
| 50115000              | Río Portugués near Ponce                            | 8.82                                  | 1964-97                 |
| 50116500              | Río Portugués at Highway 2 Bypass at Ponce          | 20.50                                 | 1964-65                 |
| 50119000              | Río Matilde at Ponce                                | 19.40                                 | 1965-66                 |
| 50121000              | Río Tallaboa at Peñuelas                            | 24.20                                 | 1959-82                 |
| 50122000              | Río Tallaboa at Tallaboa                            | 31.50                                 | 1959-63                 |
| 50124000              | Río Guayanilla nr Guayanilla                        | 18.50                                 | 1961-69                 |
| 50124500              | Río Guayanilla at Guayanilla                        | 20.80                                 | 1971-82                 |
| 50125900              | Río Duey above Diversion near Yauco                 | 8.93                                  | 1977-80                 |
| 50126150              | Río Yauco above Diversion Monserrate near Yauco     | 27.20                                 | 1978-85                 |
| 50128000              | Río Yauco near Yauco                                | 45.50                                 | 1962-64, 1977-85        |
| 50129000              | Río Loco near Yauco                                 | 8.50                                  | 1963-67                 |
| 50129500              | Río Loco near Guánica                               | 21.00                                 | 1963-69                 |
| 50129900              | Laguna Cartagena near Boquerón                      | --                                    | 1984-86                 |
| 50130320              | Quebrada Mamey at Joyuda                            | 0.38                                  | 1986-88                 |
| 50136000              | Río Rosario at Rosario                              | 16.40                                 | 1975-86                 |
| 50141000              | Río Yahuecas near Adjuntas                          | 15.40                                 | 1980-85                 |
| 50145000              | Río Grande de Añasco at El Espino                   | 108.00                                | 1959-66, 1961-63        |
| 50147000              | Río Culebrinas at San Sebastian                     | 16.70                                 | 1960-82                 |
| 50214500              | Quebrada Resaca near Monte Resaca, Culebra          | 0.23                                  | 1991-93                 |
| 50215000              | Drainage Canal at Culebra Airport, Culebra          | 0.08                                  | 1991-93                 |
| 50231000              | Quebrada Confresí Tributary near Isabel II, Vieques | 0.28                                  | 1991-93                 |
| 50232000              | Quebrada La Mina near Esperanza, Vieques            | 0.68                                  | 1991-96                 |
| 50233000              | Quebrada Pilón at Colonia Puerto Real, Vieques      | 0.67                                  | 1991-96                 |
| 50276000              | Turpentine Run at Mariendal                         | 2.97                                  | 1963-69, 1978-86        |
| 50292600              | Lameshur Bay Gut at Lameshur, St. John              | 0.38                                  | 1992-94                 |
| 50294000              | Fish Bay Gut at Fish Bay, St. John                  | 1.48                                  | 1992-94                 |
| 50295500              | Cruz Bay Gut at Cruz Bay, St. John, V               | 0.09                                  | 1992-93                 |
| 50332000              | River Gut at River                                  | 1.42                                  | 1991-93                 |
| 50333500              | River Gut near Golden Grove                         | 5.40                                  | 1990-93                 |
| 50333700              | River Gut at Hwy 66 at Fairplanes                   | 5.89                                  | 1990-96                 |
| 50334500              | Bethehem Gut at Hwy 66 at Fairplanes                | 4.11                                  | 1990-96                 |
| 50337500              | Gut 4.5 at Cane Valley                              | 0.2                                   | 1991-93                 |
| 50348000              | Salt River at Canaan                                | 0.36                                  | 1991-93                 |
| 50349000              | Gut 10 near Altona                                  | 0.13                                  | 1991-93                 |

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

### INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with local and federal agencies obtains a large amount of data pertaining to the water resources of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the area. To make these data readily available to interested parties outside the U.S. Geological Survey, the data are published annually in this report series entitled "Water Resources Data for Puerto Rico and the U.S. Virgin Islands, 1998."

This report includes records on both surface and ground water. Specifically, it contains: (1) discharge records for 76 streamflow gaging stations, daily sediment records for 27 streamflow stations, 99 partial-record or miscellaneous streamflow stations, stage records for 17 reservoirs, and (2) water-quality records for 16 streamflow-gaging stations, and for 42 ungaged stream sites, 11 lake sites, 2 lagoons, and 1 bay, and (3) water-level records for 97 observation wells.

Water-resources data for Puerto Rico for calendar years 1958-67 were released in a series of reports entitled "Water Records of Puerto Rico." Water-resources data for the U.S. Virgin Islands for the calendar years 1962-69 were released in a report entitled "Water Records of U.S. Virgin Islands." Included were records of streamflow, ground-water levels, and water-quality data for both surface and ground water.

Beginning with the 1968 calendar year, surface-water records for Puerto Rico were released separately on an annual basis. Ground-water level records and water-quality data for surface and ground water were released in companion reports covering periods of several years. Data for the 1973-74 reports were published under separate covers. Water-resources data reports for 1975-76, 1977, 1978, 1979-80, 1981-82, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, and 1997 water years consist of one volume each and contain data for streamflow, water quality, and ground water.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report PR-98-1." These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of the title page or by telephone (787) 749-4346.

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998****COOPERATION**

The U.S. Geological Survey has had cooperative agreements with organizations of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands for the systematic collections of water resources data since 1958. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the U.S. Geological Survey are:

- Puerto Rico Environmental Quality Board
- Puerto Rico Aqueduct and Sewer Authority
- Puerto Rico Department of Agriculture
- Puerto Rico Industrial Development Company
- Puerto Rico Department of Housing
- Puerto Rico Highway Authority
- Puerto Rico Department of Natural and Environmental Resources
- Puerto Rico Department of Health
- Puerto Rico Electric Power Authority
- Puerto Rico Solid Waste Management Authority
- Puerto Rico Legislature
- Puerto Rico Civil Defense
- U.S. Virgin Islands Department of Planning and Natural Resources

Funds were also provided by the U.S. Army, Corps of Engineers, for the collection of records at six gaging stations published in this report.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

### SUMMARY OF HYDROLOGIC CONDITIONS

#### Rainfall

Rainfall throughout Puerto Rico during water year 1998 (October 1997 to September 1998) averaged about 117 percent above normal. Rainfall was above normal during the months of October, January, February, March, July, August, and September (table 1). Significant above-normal rainfall conditions were recorded during September as rainfall averaged 225 percent above normal, mostly due to the passage of Hurricane Georges over Puerto Rico during September 21-22, 1998. As much as 25 inches of rain fell on some of the island's interior municipios during a 24-hour period. Severe floods and landslides resulted from the intensive rainfall and serious damages to homes, businesses, and infrastructure were reported. During the months of November, December, April, May, and June, rainfall was deficient with averages that ranged from 28 to 97 percent of normal. Rainfall, during the 1998 water year, averaged 102 percent of normal in northern Puerto Rico, 126 percent of normal in southern Puerto Rico, 123 percent of normal in western Puerto Rico, and 121 percent of normal in eastern Puerto Rico. Monthly average rainfall islandwide for the 1998 water year and for the 30-year period (1961-1990) used to define normal rainfall, as reported by the National Oceanic and Atmospheric Administration are listed in table 1.

**Table 1.** Islandwide monthly rainfall for the water year 1998 and annual averages for the 30-year reference period, 1961-1990

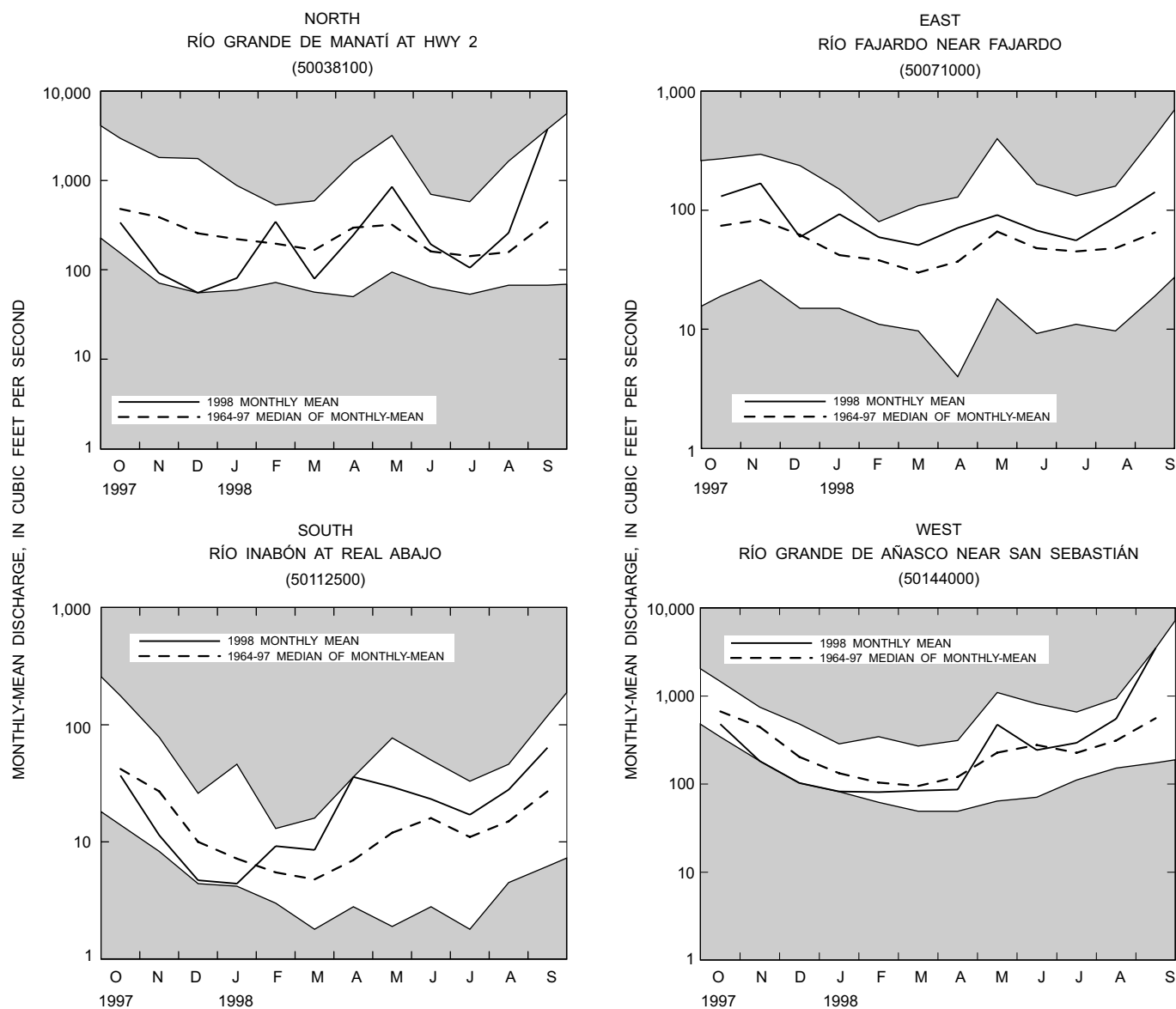
| Month     | 1998 Water Year<br>(inches) | 30-year normal<br>(inches) |
|-----------|-----------------------------|----------------------------|
| October   | 9.52                        | 8.29                       |
| November  | 4.68                        | 6.55                       |
| December  | 1.23                        | 4.38                       |
| January   | 4.16                        | 2.86                       |
| February  | 4.08                        | 2.52                       |
| March     | 3.59                        | 3.02                       |
| April     | 4.32                        | 4.46                       |
| May       | 6.46                        | 6.96                       |
| June      | 4.66                        | 4.99                       |
| July      | 5.39                        | 5.08                       |
| August    | 9.52                        | 6.89                       |
| September | <u>16.04</u>                | <u>7.14</u>                |
| TOTAL     | 73.65                       | 63.14                      |

#### Surface Water

Streamflow in Puerto Rico during most of the 1998 water year was, in general, above normal in southern and eastern Puerto Rico, but below normal in the northern and western regions, based on the four index stations. A comparison of the monthly-mean flows during the 1998 water year with the long-term minimum, median and maximum of the monthly mean flows, for the period of record at the index stations on the Río Grande de Manatí (north), the Río Fajardo (east), the Río Inabón (south), and the Río Grande de Añasco (west) is shown in figure 1. During December, below normal flows were recorded at the four index stations. At the Río Grande de Manatí and Río Grande de Añasco index stations these below normal flows established new historical minimum monthly-mean flows. Excessive flows occurred at the four index stations during September due to intensive rainfall produced by the passage of Hurricane Georges over Puerto Rico. Historical maximum monthly-mean flows for September, were recorded at the Río Grande de Manatí and Río Grande de Añasco.

In the northern area, the Río Grande de Manatí index station recorded flows below the long-term monthly median during October to January, March, April, and July. Monthly mean flows during these months ranged from 22 to 82 percent of the long-term median of the monthly mean flows. Monthly mean flow during February, May, June, August, and September was above normal, and ranged from 121 to 1,100 percent of normal. Historical minimum and maximum monthly mean flows were recorded at this index station during December and September, respectively.

In the eastern area, the index station on the Río Fajardo, recorded monthly mean flows above the long-term median during eleven of the twelve months of the 1998 water year. At this station, only the December mean flow was slightly below the long-term monthly median. The flow in December was 96 percent of normal. The rest of the year, monthly mean flows ranged from 124 to 220 percent of the long-term median.



Unshaded area indicates range between highest and lowest monthly-mean discharges for the period of record to water year 1998.

**Figure 1.** Monthly-mean discharge of selected streams in Puerto Rico.

# WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

In the southern area, the Río Inabón index station recorded monthly mean flows below the long-term median during October to January. During these months, the monthly mean flows ranged from 42 to 88 percent of normal. During April, a new historical minimum monthly mean flow was recorded. The rest of the year, the monthly mean flows were above the long-term monthly median, and ranged from 145 to 510 percent of normal.

In the western area, the index station on the Río Grande de Añasco, recorded monthly mean flows below the long-term median during the first seven months of the 1998 water year. A below normal monthly mean flow was also recorded during June. During these months, the monthly mean flows ranged from 41 to 89 percent of the long-term median. Historical minimum monthly mean flows were recorded during November and December at this index station. Mean monthly flows were above normal during May and from July to September. Monthly mean flows during these months ranged from 226 to 560 percent of the long-term median. A historical maximum monthly mean flow was recorded during September.

The most important hydrologic event that happened during the 1998 water year was the flooding caused by the intense rainfall generated by the passage of Hurricane Georges over Puerto Rico. The eye of Hurricane Georges made landfall near the municipios of Humacao and Yabucoa on the east coast of Puerto Rico and moved over the mountainous central region of the Island during September 21-22. Hurricane Georges produced heavy rains over Puerto Rico, especially in the mountainous interior. This heavy rain produced moderate to severe floods through the island. Almost all of the island's 78 municipios were affected by the floods. The most severe flooding occurred within the basins of the north and west areas: the Río Grande de Arecibo, the Río Grande de Manatí, the Río de la Plata, the Río Grande de Añasco, and the Río Culebrinas. Floodwaters inundated urban areas and communities, washing away and damaging homes, businesses, vehicles, bridges, and roads. Fortunately, there were no deaths directly associated with the passage of the hurricane over Puerto Rico. Damage to the island infrastructure was enormous. The U.S. Geological Survey data network was highly affected with many stations destroyed or severely damaged. Historical maximum peak stages and discharges were recorded during this event in several streamflow gaging stations. Peak stages and discharges at selected streamflow gaging stations in Puerto Rico are listed in table 2.

**Table 2.** Summary of peak stages and discharges prior to and during September 21-22, 1998, at selected U.S. Geological Survey streamflow gaging stations in Puerto Rico

[mi<sup>2</sup>, square miles; ft<sup>3</sup>/s, cubic feet per second; mm/dd/yy, month/day/year]

| Station number and name                                  | Drainage area (mi <sup>2</sup> ) | Period of record       | Previous maximum discharge |                   |                                        | Flood of September 22, 1998 |                                     |
|----------------------------------------------------------|----------------------------------|------------------------|----------------------------|-------------------|----------------------------------------|-----------------------------|-------------------------------------|
|                                                          |                                  |                        | Date mm/dd/yy              | Peak stage (feet) | Maximum discharge (ft <sup>3</sup> /s) | Peak stage (feet)           | Peak discharge (ft <sup>3</sup> /s) |
| 50034000<br>Río Bauta near Orocovis                      | 16.7                             | 1970-1982<br>1989-1998 | 9/10/1996                  | 25.14             | 25,900                                 | 25.93                       | 28,200                              |
| 50050900<br>Río Grande de Loíza at Quebrada Arenas       | 6.0                              | 1978-1998              | 9/10/1996                  | 25.93             | 44,000                                 | 26.37                       | 45,000                              |
| 50061800<br>Río Canóvanas near Campo Rico                | 9.84                             | 1967-1998              | 9/13/1982                  | 13.10             | 15,000                                 | 15.90                       | 17,300                              |
| 50064200<br>Río Grande near El Verde                     | 7.31                             | 1967-1998              | 9/16/1975                  | 15.50             | 17,400                                 | 19.30                       | 22,000                              |
| 50074950<br>Quebrada Guaba near Naguabo                  | 0.05                             | 1992-1998              | 9/10/1996                  | 10.74             | 102                                    | 10.78                       | 104                                 |
| 50106100<br>Río Coamo at Coamo                           | 3.5                              | 1987-1998              | 1/8/1992                   | 25.67             | 51,600                                 | 25.94                       | 52,700                              |
| 50113800<br>Río Cerillos above Lago Cerrillos near Ponce | 15.4                             | 1989-1998              | 9/10/1996                  | 10.62             | 10,600                                 | 12.42                       | 16,200                              |
| 50124200<br>Río Guayanilla near Guayanilla               | 18.9                             | 1981-1998              | 9/12/1982                  | 20.40             | 14,700                                 | 21.88                       | 18,700                              |
| 50131990<br>Río Guanajibo at Hwy 119 at San Germán       | 34.6                             | 1991-1998              | 1/6/1992                   | 13.23             | 6,610                                  | 19.53                       | 24,900                              |
| 50144000<br>Río Grande de Añasco near San Sebastián      | 94.3                             | 1963-1998              | 9/16/1975                  | 33.90             | 140,000                                | 34.50                       | 163,000                             |

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998****Ground Water**

Ground-water levels in most aquifers in Puerto Rico and the U.S. Virgin Islands followed seasonal fluctuations associated with rainfall patterns during water year 1998. Generally, late into the water year, the ground-water levels increased in response to above-normal rainfall from July through November, especially during the passage of Hurricane Georges, on September 21-22, 1998, which caused flooding throughout most of the coastal plains. Ground-water levels generally declined during the months of April, May, and July through August in response, primarily, to ground-water withdrawals for public and industrial use in the north coast, and irrigation in the south coast. Record-low and record-high water levels were recorded at several wells in Puerto Rico during water year 1998 (tables 3 and 4).

Ground-water levels in the North Coast Limestone aquifer system of Puerto Rico fluctuated from October to August in response to seasonal rainfall patterns and sustained ground-water withdrawals. This trend was altered by the rainfall produced by Hurricane Georges in late September, which caused water levels to rise significantly at the Sabana Hoyos index well, where the ground-water levels rose 1.20 ft (fig. 2).

In the South Coastal Plain aquifer system of Puerto Rico, the ground-water levels remained relatively stable from October to August, in response to above-normal rainfall runoff which may have neutralized the drawdown trend from sustained ground-water withdrawals for agricultural, public, and industrial use. A significant rise was recorded during September, when Hurricane Georges affected the area and ground-water levels rose 2.50 ft at the Alomar index well (fig. 2).

In the U.S. Virgin Islands (St. Croix, St. Thomas, and St. John) ground-water levels rose significantly from mid-October to early December as heavy rainfall was recorded in the area. The ground-water levels generally declined from early December to mid-September in response to below-normal rainfall and sustained ground-level withdrawals. The declining trend was reversed by above-normal rainfall produced by the passage of Hurricane Georges by the area. At the Guinea Gut well, the ground-water levels rose about 15.50 ft (fig. 2).

# WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

**Table 3.** Highest ground-water levels recorded during 1998 water year and previous high ground-water levels at selected wells in Puerto Rico

[PR, Puerto Rico; mm/dd/yy, month/day/year; ft-blsd, feet below land-surface datum; mm/yy, month/year]

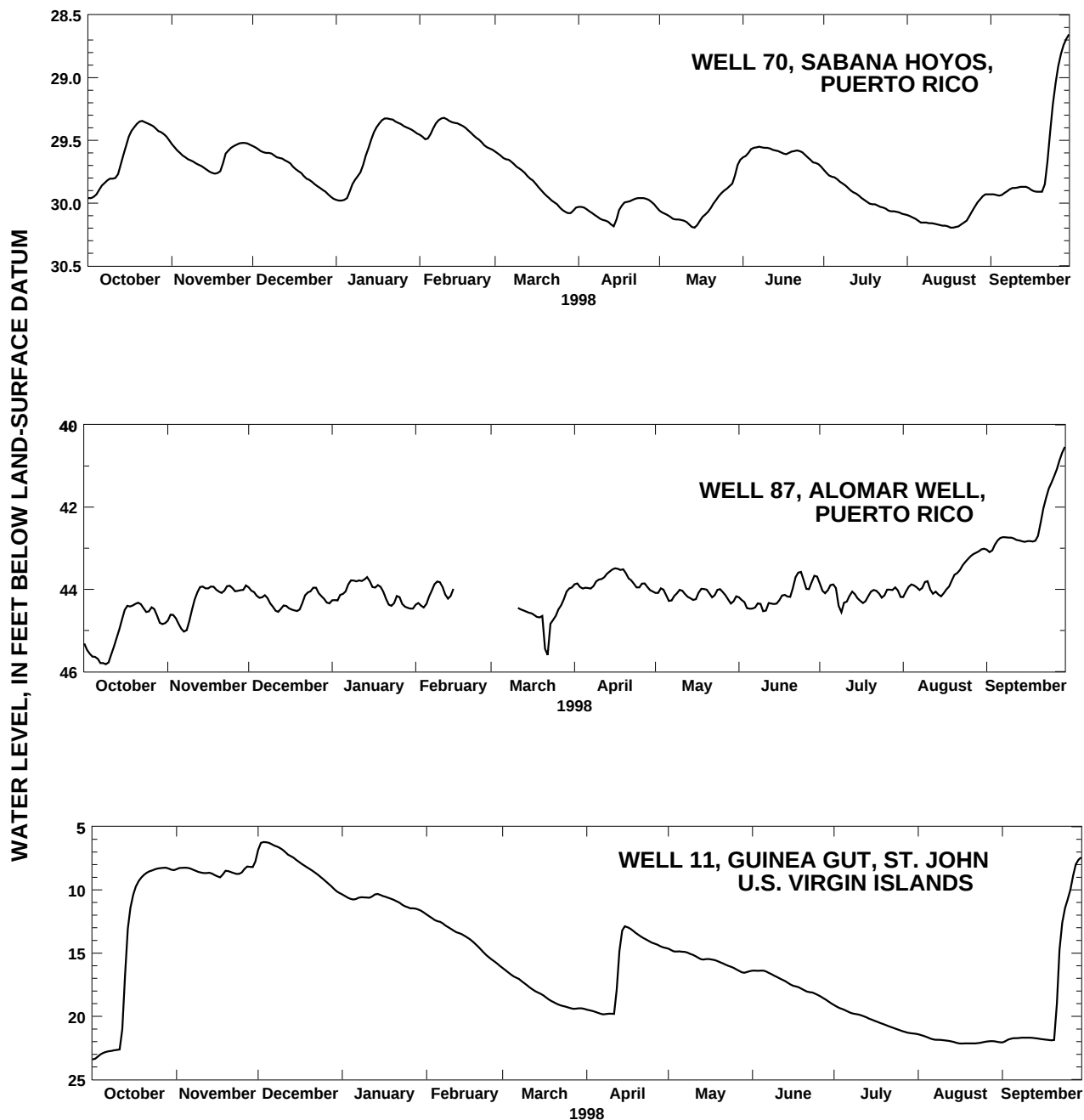
| Well name or number     | Local number | Location | Period of record (mm/yy) | Previous highest water level (ft-blsd) | Date (mm/dd/yy)      | 1998 Highest water level (ft-blsd) | Date (mm/dd/yy)                  |
|-------------------------|--------------|----------|--------------------------|----------------------------------------|----------------------|------------------------------------|----------------------------------|
| Florida #01             | FL-1         | PR       | 08/96 to 09/98           | 139.90                                 | 09/20/96             | 137.91                             | 09/22/98                         |
| La Esperanza 2          | PN-2         | PR       | 07/89 to 09/98           | 8.01                                   | 12/30/92<br>12/31/92 | 7.71                               | 09/23/98                         |
| CJ-TW-19A               | CJ-TW-19A    | PR       | 06/92 to 09/98           | 22.60                                  | 09/14/96             | 22.07                              | 09/25/98<br>09/26/98<br>09/27/98 |
| Jardín Botánico #3      | PN-19        | PR       | 06/91 to 09/98           | 3.06                                   | 09/11/96             | 2.84                               | 09/22/98<br>09/23/98             |
| Yabucoa 7               | 96           | PR       | 04/78 to 09/98           | 13.10                                  | 12/02/87             | 9.67                               | 09/30/98                         |
| HW-TW-5B                | HW-TW-5B     | PR       | 04/88 to 09/98           | 7.89                                   | 05/26/92             | 5.93                               | 09/22/98                         |
| Albergue de Niños Ponce | AN-1         | PR       | 03/92 to 09/98           | 35.29                                  | 06/22/92             | 28.57                              | 09/27/98                         |
| Aguadilla Cement        | 200          | PR       | 10/85 to 09/98           | 2.24                                   | 08/25/88             | 1.61                               | 09/22/98                         |

**Table 4.** Lowest ground-water levels recorded during 1998 water year and previous low ground-water levels at selected wells in Puerto Rico

[PR, Puerto Rico; mm/dd/yy, month/day/year; ft-blsd, feet below land-surface datum; mm/yy, month/year]

| Well name or number | Local number | Location | Period of record (mm/yy) | Previous lowest water level (ft-blsd) | Date (mm/dd/yy)            | 1998 lowest water level (ft-blsd) | Date (mm/dd/yy) |
|---------------------|--------------|----------|--------------------------|---------------------------------------|----------------------------|-----------------------------------|-----------------|
| Encantada 1         | EN-1         | PR       | 08/96 to 09/98           | 313.74                                | 07/05/98<br>07/06/97       | 313.84                            | 04/03/98        |
| Palo Alto 2         | PA-2         | PR       | 05/96 to 09/98           | 240.04                                | 08/12/96<br>to<br>08/15/96 | 240.14                            | 08/18/98        |
| Phillips 13         | P-13         | PR       | 09/91 to 09/98           | 28.88                                 | 09/22/95                   | 31.22                             | 08/24/98        |
| HW-TW-13            | HW-TW-13     | PR       | 04/88 to 09/98           | 48.10                                 | 11/06/92<br>11/07/92       | 48.12                             | 09/03/98        |
| Vivoni Col. Amistad | 143          | PR       | 10/85 to 09/98           | 40.70                                 | 09/26/97<br>10/09/97       | 40.85                             | 10/08/97        |
| CR-TW-9A            | CR-TW-9A     | PR       | 05/96 to 09/98           | 7.22                                  | 08/14/97                   | 8.53                              | 03/21/98        |

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998



**Figure 2.** Ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

### Water Quality

In the water year 1998 the U.S. Geological Survey, in cooperation with several local government agencies, collected water-quality data at 73 surface-water stations in Puerto Rico. The water-quality data collected at these stations included the major chemical constituents, such as calcium, magnesium, sodium, chloride and sulfate. The data also included constituents listed in table 5. The highest concentration for each of these constituents detected during water year 1998 and the station where it was detected are summarized in table 5.

**Table 5.** Surface-water quality stations in Puerto Rico with highest concentration of selected constituents during water year 1998

[All constituent concentrations are in milligrams per liter; MBAS, Methylene blue active substance]

| Station number | Station name                            | Constituent | Concentration |
|----------------|-----------------------------------------|-------------|---------------|
| 50144000       | Río Grande de Añasco near San Sebastián | Sulfide     | 1.2           |
| 50047530       | Río Hondo at Flood Channel              | Boron       | 1.9           |
| 50147600       | Río Culebrinas near San Sebastián       | Manganese   | 1.1           |
| 50025000       | Río Grande de Arecibo near Utuado       | Iron        | 8.4           |
| 50055400       | Río Bairoa near Caguas                  | Zinc        | 0.60          |
| *              | *                                       | Cyanide     | <0.01         |
| 50049100       | Río Piedras at Hato Rey                 | Phenols     | 0.04          |
| 50055400       | Río Bairoa near Caguas                  | MBAS        | 0.91          |

\* Cyanide concentrations at all water-quality stations were below the detection limit (<0.010).

The presence of high concentrations of fecal coliform (fig. 3) and fecal streptococcal (fig. 4) bacteria continued to be the principal surface-water quality problem in Puerto Rico during water year 1998. The highest concentrations observed during this year occurred in stations located in the San Juan Metropolitan area which has the highest population concentration in Puerto Rico. The main sources of contamination in surface-water systems in Puerto Rico are discharges of liquid wastes from industrial and municipal sources. The highest concentration of fecal coliform and fecal streptococcal bacterial in surface waters in Puerto Rico generally occurred in streams draining densely populated and industrialized areas.

Suspended-sediment concentration were monitored at 27 stations in Puerto Rico during water year 1998 as part of the cooperative program between the U.S. Geological Survey and various local and federal agencies. High suspended-sediment concentrations are a common problem in many streams in Puerto Rico. Most of the streams with high suspended-sediment concentrations were related to land use, especially urban development, agriculture, and activities where soil movement was involved. The high suspended-sediment concentrations affect the quality of drinking water sources and the storage capacities of reservoirs used for water supply.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

### SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites on NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in more than one-third of the study units and ultimately will be conducted in 60 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Radiochemical Programs is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

### EXPLANATION OF RECORDS

The surface- and ground-water records published in this report are for the 1998 water year that began October 1, 1997 and ended September 30, 1998. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 3 to 9. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998****Station Identification Numbers**

Each data station, whether stream site or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

**Downstream Order System**

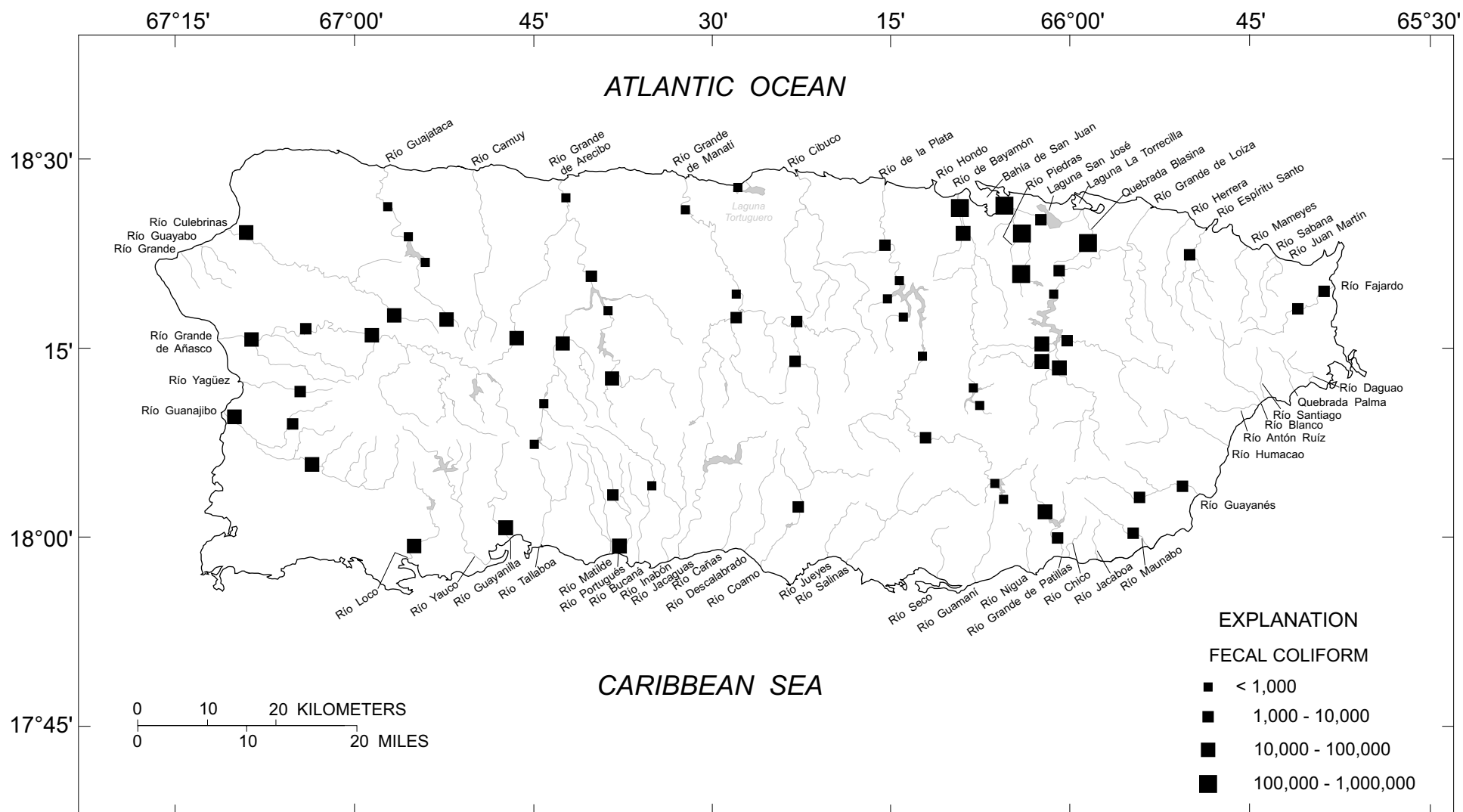
Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations in first rank, second rank, and other ranks of tributaries.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 50028000, which appears just to the left of the station name, includes the 2-digit part number "50" plus the 6-digit downstream order number "028000."

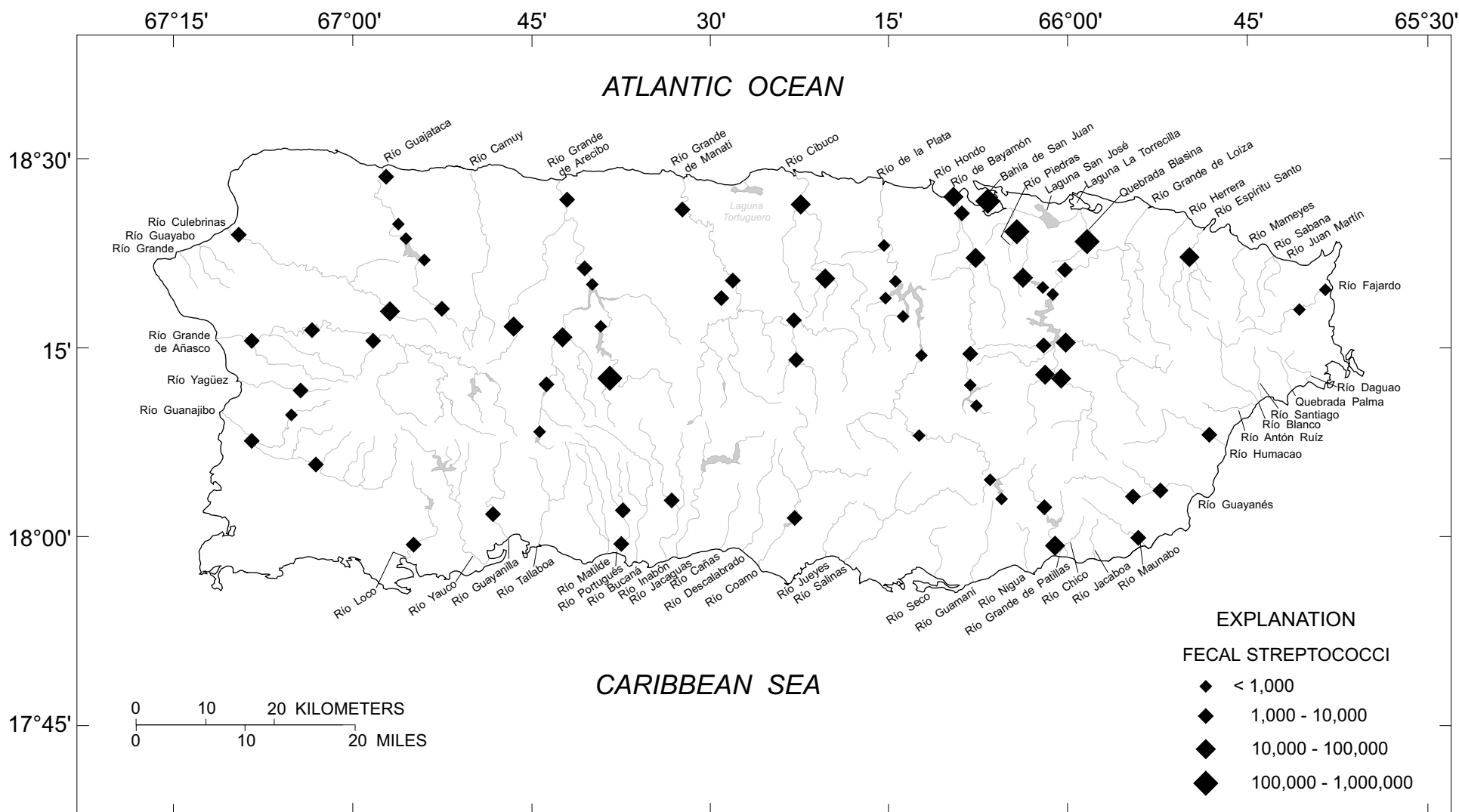
**Latitude-Longitude System**

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

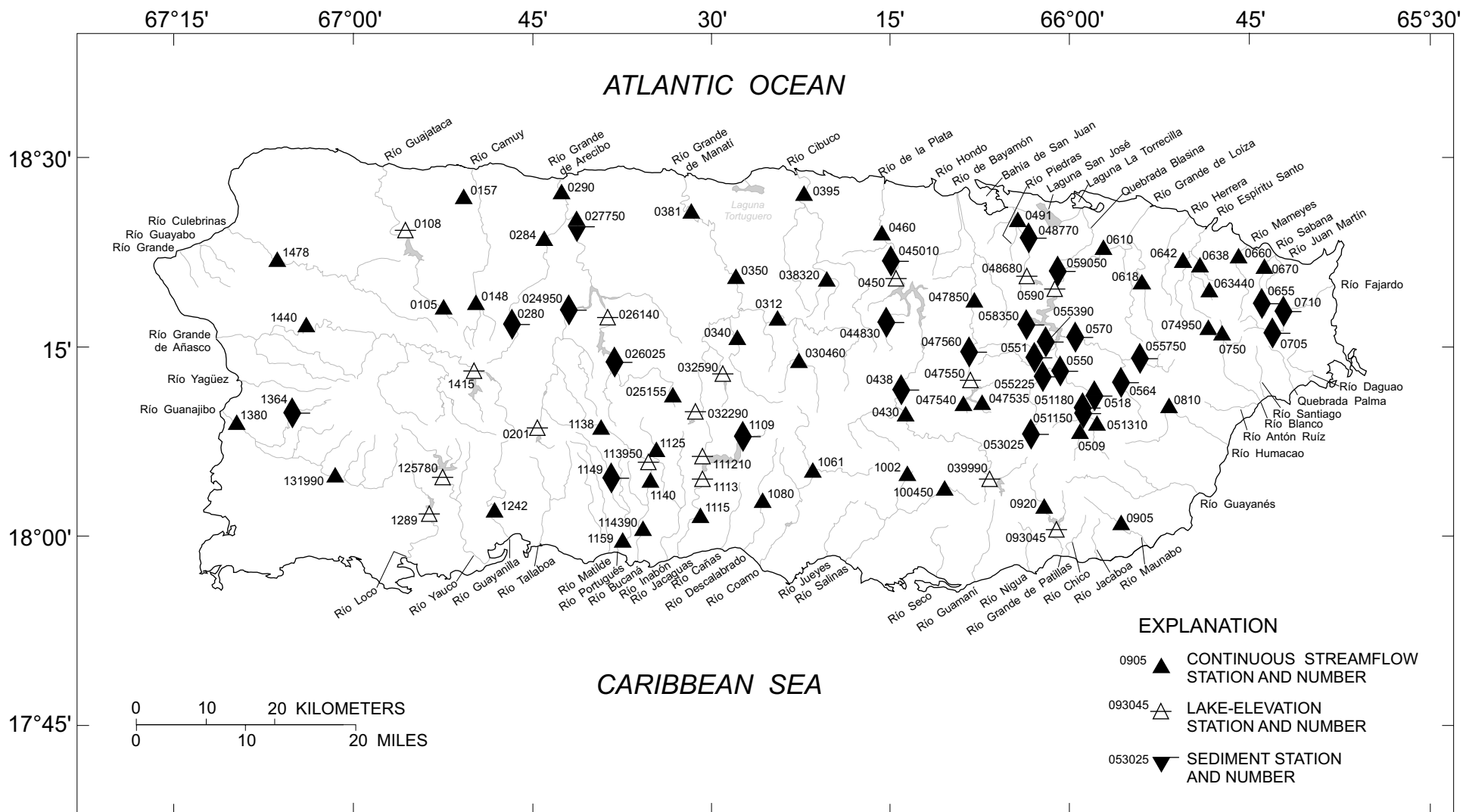
The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. The numbers shown in the grid correspond to the local numbers assigned to each well as visited in the field. An example is well 16 (fig. 10).



**Figure 3.** Location of maximum concentration of fecal coliform bacteria at the water-quality sampling sites in Puerto Rico.

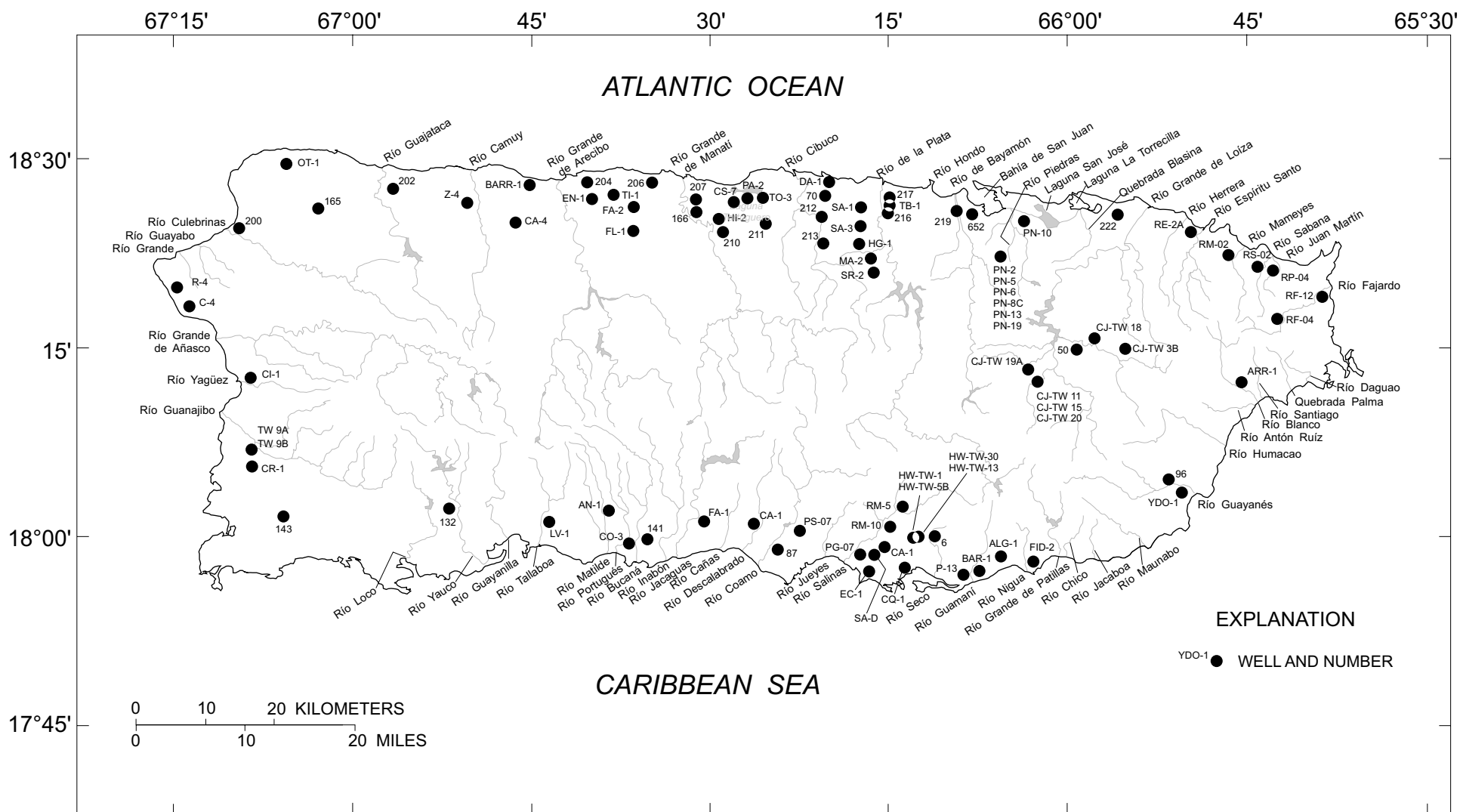


**Figure 4.** Location of maximum concentration of fecal streptococci bacteria at the water-quality sampling sites in Puerto Rico.



**Figure 5.** Location of surface-water stations in Puerto Rico.





**Figure 7.** Location of ground-water stations in Puerto Rico.

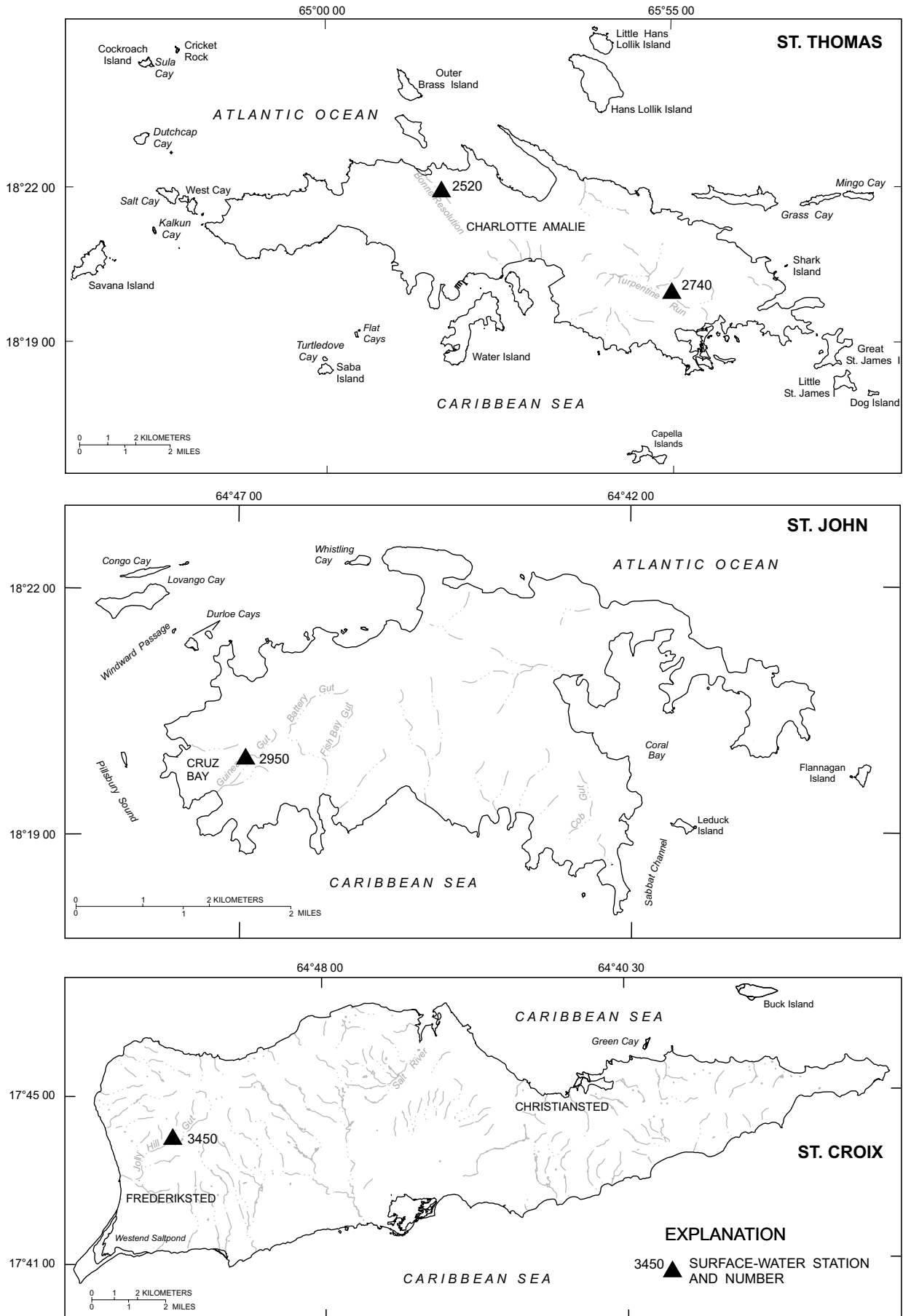
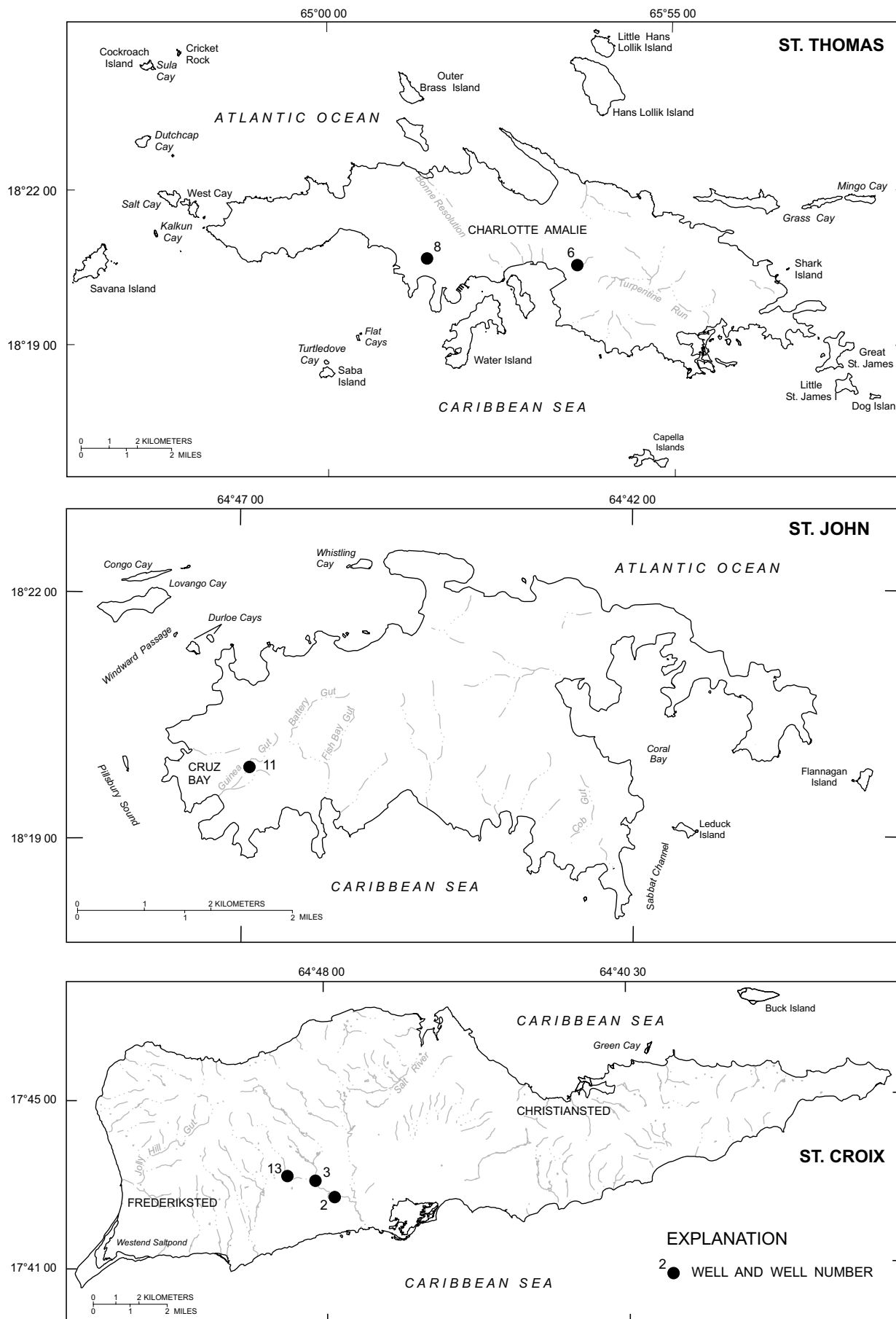
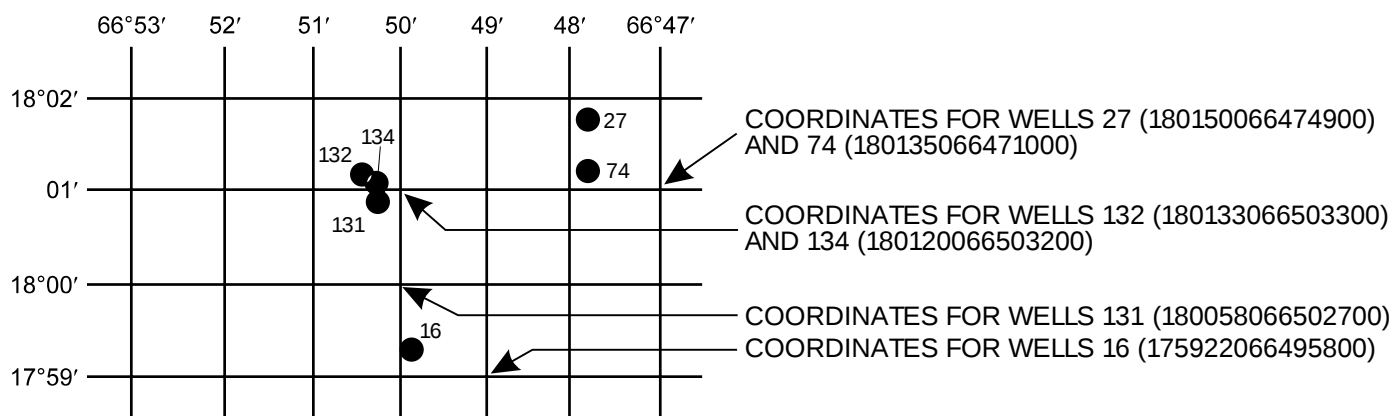


Figure 8. Location of surface-water stations in the U.S. Virgin Islands.



**Figure 9.** Location of ground-water stations in the U.S. Virgin Islands.

# WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998



**Figure 10.** Grid showing system for numbering wells and miscellaneous sites (latitude and longitude).

## Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this type of report. Location of all complete-record stations for which data are given in this report are shown in figures 5 and 8.

## Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consists of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals or electronic satellite data collector platforms that receive stage values at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and contents. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic surveys may be necessary to redefine it. Even when this is done, as time between the last survey increases, the contents computed may increase in error. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is loose in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

### Data Presentation

Steamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimum, and flow duration.

#### Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the stations descriptions.

**LOCATION.**--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

**DRAINAGE AREA.**--Drainage areas are measured using the most accurate maps available. Drainage areas are updated as better maps become available.

**PERIOD OF RECORD.**--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonable be considered equivalent with records from the present station.

**REVISED RECORDS.**--Because of new information, published records occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

**GAGE.**--The type of gage in current use, the datum of the current gage, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

**REMARKS.**--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computations, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

**COOPERATION.**--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

**REVISIONS.**--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

### **Data table of daily mean value**

The daily table of discharge records for stream gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"); or in inches (line headed "IN"); or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulations or diversion or if the drainage area includes large noncontributing areas.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

### Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flow are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS \_\_\_\_ - \_\_\_\_, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station records within the specified water years, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

### Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS \_\_\_\_ - \_\_\_\_," will consist of all of the station records within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistics).

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**INSTANTANEOUS PEAK FLOW.**--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of the title page of this report.)

**INSTANTANEOUS PEAK STAGE.**--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

**INSTANTANEOUS LOW FLOW.**--The minimum instantaneous discharge occurring for the water year or for the designated period.

**ANNUAL RUNOFF.**--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurements in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for given time period were uniformly distributed on it.

**10 PERCENT EXCEEDS.**--The discharge that is exceeded 10 percent of the time for the designated period.

**50 PERCENT EXCEEDS.**--The discharge that is exceeded 50 percent of the time for the designated period.

**90 PERCENT EXCEEDS.**--The discharge that is exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in a table of discharge measurements at low-flow partial-record stations. These measurements are generally made in times of drought to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

### Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables are identified by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated."

### Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft<sup>3</sup>/s; to the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures for more than 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the Caribbean District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

### Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

### **Classification of Records**

Water-quality data for surface-water sites are grouped into one of three classifications. A **continuing-record station** is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A **partial-record station** is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A **miscellaneous** sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

### **Arrangement of Records**

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurement at miscellaneous sites.

### **On-site Measurements and Sample Collection**

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. Detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records, when available, (hourly values) may be obtained from the U.S.G.S. District office whose address is given on the back of the title page of this report.

### **Water Temperature**

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

### **Sediment**

Suspended-sediment concentrations are determined from samples collected by using depth-integrating and pumping sediment samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, suspended-sediment loads for other periods of similar discharge, and computed by the subdivided-day method using the transport curves.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment are included for some stations.

### **Laboratory Measurements**

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Denver, Co. or Ocala, Fla. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998****Data Presentation**

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first, and tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence, when these parameters are studied.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

### Remark Codes

The following remark codes may appear with the water-quality data in this report:

| <u>PRINTED OUTPUT</u> | <u>REMARK</u>                                                                                  |
|-----------------------|------------------------------------------------------------------------------------------------|
| E                     | Estimated value                                                                                |
| >                     | Actual value is known to be greater than the value shown                                       |
| <                     | Actual value is known to be less than the value shown                                          |
| K                     | Results based on colony count outside the acceptance range (non-ideal colony count)            |
| L                     | Biological organism count less than 0.5 percent (organism may be observed rather than counted) |
| D                     | Biological organism count equal to or greater than 15 percent (dominant)                       |
| &                     | Biological organism estimated as dominant                                                      |

### Records of Ground-Water Levels

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

### Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 9.

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lstd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every day and as an instantaneous observation at noon.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

### Data Presentation

Each well record consists of three parts, the station description, the data table of water levels observed during the water year and a graph of the water levels for the current water year and other selected period. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings of the well description.

**LOCATION.**--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

**AQUIFER.**--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

**WELL CHARACTERISTICS.**--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

**INSTRUMENTATION.**--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

**DATUM.**--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision depending on the method of determination.

**REMARKS.**--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

**PERIOD OF RECORD.**--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

**EXTREMES FOR PERIOD OF RECORD.**--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, daily values tables are published for the instantaneous water-level observation at noon. The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level. A hydrograph for a selected period of record follows each water-level table.

### Records of Ground-Water Quality

Records of ground-water quality in this type of report differ from other types of records in that for most sampling sites they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

## **WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998**

### **Data Collection and Computation**

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed on a following page. The values reported in this type of report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples are obtained by trained personnel. The wells sampled are pumped long enough to assure that the water collected comes directly from the aquifer and has not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

### **Data Presentation**

The records of ground-water quality, when available, are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water level records. Data for quality of ground water are listed alphabetically by County, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

### **ACCESS TO U.S. GEOLOGICAL SURVEY WATER DATA**

The U.S. Geological Survey provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at

<http://water.usgs.gov>

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (see address on the back of the title page).

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998****DEFINITION OF TERMS**

Terms related to streamflow, water-quality, and other hydrologic data as used in this report, are defined below. See also the table for converting inch- pound units to the International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present a stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C  $\pm$  1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at  $44.5^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$  on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at  $35^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$  on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of  $500^{\circ}\text{C}$  for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ( $\text{g}/\text{m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g}/\text{m}^2$ ).

Dry mass refers to the mass of residue present after drying in an oven at  $105^{\circ}\text{C}$  for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass and represents the actual matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (ft<sup>3</sup>/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day (ft<sup>3</sup>/s/day) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Dissolved refers to that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculations of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$d = \frac{s}{\sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}}$$

Where  $n_i$  is the number of individuals per taxon,  $n$  is the total number of individuals, and  $s$  is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (gh) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Ground-water station is a well at which observations of ground-water level are made, either continuously by recorder, or periodically by hand. In addition, various chemical or physical parameters may be obtained, usually on a periodic basis.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ).

Hydrologic Bench-Mark Network is a network in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (LSD) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram ( $\mu\text{g/g}$ ) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter ( $\mu\text{g/L}$ ,  $\text{ug/L}$ ) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L,  $\text{mg/L}$ ) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in  $\text{mg/L}$ , and is based on the mass of sediment per liter of water-sediment mixture. Conversion of chemical concentrations in  $\text{Mg/L}$  to milliequivalents per liter can be done by using the factors in table 6.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

**Table 6.** Factors for conversion of chemical constituents in milligrams per liter to milliequivalents per liter

| <u>Ion</u>                              | <u>Multiply by</u> | <u>Ion</u>                           | <u>Multiply by</u> |
|-----------------------------------------|--------------------|--------------------------------------|--------------------|
| Aluminum (Al+3)* .....                  | 0.11119            | Iodide (I-1) .....                   | 0.00788            |
| Ammonia as NH <sub>4</sub> +1 .....     | .05544             | Iron (Fe+3) .....                    | .05372             |
| Barium (Ba+2) .....                     | .01456             | Lead (Pb+2) .....                    | .00965             |
| Bicarbonate (HCO <sub>3</sub> -1) ..... | .01639             | Lithium (Li+1) .....                 | .14411             |
| Bromide (Br-1) .....                    | .01251             | Magnesium (Mg+2) .....               | .08226             |
| Calcium (Ca+2) .....                    | .04990             | Manganese (Mn+2)* .....              | .03640             |
| Carbonate (CO <sub>3</sub> -2) .....    | .03333             | Nickel (Ni+2) .....                  | .03406             |
| Chloride (Cl-1) .....                   | .02821             | Nitrate (NO <sub>3</sub> -1) .....   | .01613             |
| Chromium (Cr+6)* .....                  | .11539             | Nitrite (NO <sub>2</sub> -1) .....   | .02174             |
| Cobalt (Co+2)* .....                    | .03394             | Phosphate (PO <sub>4</sub> -3) ..... | .03159             |
| Copper (Cu+2)* .....                    | .03148             | Potassium (K+1) .....                | .02557             |
| Cyanide (CN-1) .....                    | .03844             | Sodium (Na+1) .....                  | .04350             |
| Fluoride (F-1) .....                    | .05264             | Strontium (Sr+2) .....               | .02283             |
| Hydrogen (H+1) .....                    | .99209             | Sulfate (SO <sub>4</sub> -2) .....   | .02082             |
| Hydroxide (OH-1) .....                  | .05880             | Zinc (Zn+2)* .....                   | .03060             |

\*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

National Trends Network (NTN) is a network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meters (m<sup>2</sup>), acres, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Particle-size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

| <u>Classification</u> | <u>Size (mm)</u> | <u>Method of analysis</u> |
|-----------------------|------------------|---------------------------|
| Clay.....             | 0.00024 - 0.004  | Sedimentation             |
| Silt .....            | .004 - .062      | Sedimentation             |
| Sand.....             | .062 - 2.0       | Sedimentation or sieve    |
| Gravel....            | 2.0 - 64.0       | Sieve                     |

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second. A picocurie yields 2.22 disintegrations per minute (dpm).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

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Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m<sup>2</sup>.time)] for periphyton and macrophytes and [mg C/(m<sup>3</sup>.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mgO / (m<sup>2</sup>.time)] for periphyton and macrophytes and [mgO / (m<sup>3</sup>.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentrations (mg/L) x discharge (ft<sup>3</sup>/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (7Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electric current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimeted. All areas shown are those for the stage when the planimeted map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

|              |                          |
|--------------|--------------------------|
| Kingdom..... | Animal                   |
| Phylum.....  | Arthropoda               |
| Class.....   | Insecta                  |
| Order.....   | Ephemeroptera            |
| Family.....  | Ephemeridae              |
| Genus.....   | <u>Hexagenia</u>         |
| Species..... | <u>Hexagenia limbata</u> |

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table heading and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter by 0.00136.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1998

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in U.S. Geological Survey reports dealing with surface water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

### **Book 1. Collection of Water Data by Direct Measurement**

#### **Section D. Water Quality**

- 1-D1. *Water temperature—influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J.F. Ficke, and G. F. Smoot: USGS–TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI Book 1, Chapter D2. 1976. 24 pages.

### **Book 2. Collection of Environmental Data**

#### **Section D. Surface Geophysical Methods**

- 2-D1. *Application of surface geophysics to ground-water investigations*, by A.A. R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI Book 2, Chapter D2. 1988. 86 pages.

#### **Section E. Subsurface Geophysical Methods**

- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI Book 2, Chapter E2. 1990. 150 pages.

#### **Section F. Drilling and Sampling Methods**

- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI Book 2, Chapter F1. 1989. 97 pages.

### **Book 3. Applications of Hydraulics**

#### **Section A. Surface-Water Techniques**

- 3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS–TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI Book 3. Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI Book 3, Chapter A9. 1989. 27 pages.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS-TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS-TWRI Book 3, Chapter A12. 1986. 34 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS-TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS-TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS-TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS-TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS-TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A19. 1990. 31 pages.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS-TWRI Book 3, Chapter A20. 1993. 38 pages.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS-TWRI Book 3, Chapter A21. 1995. 56 pages.

### Section B. Ground-Water Techniques

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS-TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G.D. Bennett: USGS-TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS-TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS-TWRI Book 3, Chapter B4. 1990. 232 pages.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow --Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS-TWRI Book 3, Chapter B4. 1993. 8 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS-TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS-TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS-TWRI Book 3, Chapter B7. 1992. 190 pages.

### Section C. Sedimentation and Erosion Techniques

- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS-TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H.P. Guy and V.W. Norman: USGS-TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS-TWRI Book 3, Chapter C3. 1972. 66 pages.

## Book 4. Hydrologic Analysis and Interpretation

### Section A. Statistical Analysis

- 4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS-TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H.C. Riggs: USGS-TWRI Book 4, Chapter A2. 1968. 15 pages.

### Section B. Surface Water

- 4-B1. *Low-flow investigations*, by H.C. Riggs: USGS-TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS-TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS-TWRI Book 4, Chapter B3. 1973. 15 pages.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

**Section D. Interrelated Phases of the Hydrologic Cycle**

- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS-TWRI Book 4, Chapter D1. 1970. 17 pages.

**Book 5. Laboratory Analysis****Section A. Water Analysis**

- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS-TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS-TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS-TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greeson, editors: USGS-TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS-TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS-TWRI Book 5, Chapter A6. 1982. 181 pages.

**Section C. Sediment Analysis**

- 5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS-TWRI Book 5, Chapter C1. 1969. 58 pages.

**Book 6. Modeling Techniques****Section A. Ground Water**

- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS-TWRI Book 6, Chapter A1. 1988. 586 pages.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS-TWRI Book 6, Chapter A2. 1991. 68 pages.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS-TWRI Book 6, Chapter A3. 1993. 136 pages.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS-TWRI Book 6, Chapter A4. 1992. 108 pages.
- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS-TWRI Book 6, Chapter A5, 1993. 243 pages.
- 6-A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler. 1996. 125 pages.

**Book 7. Automated Data Processing and Computations****Section C. Computer Programs**

- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS-TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS-TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS-TWRI Book 7, Chapter C3. 1981. 110 pages.

**Book 8. Instrumentation****Section A. Instruments for Measurement of Water Level**

- 8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS-TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS-TWRI Book 8, Chapter A2. 1983. 57 pages.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

**Section B. Instruments for Measurement of Discharge**

- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS-TWRI Book 8, Chapter B2. 1968. 15 pages.

**Book 9. Handbooks for Water-Resources Investigations****Section A. National Field Manual for the Collection of Water-Quality Data**

- 9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements*, edited by F.D. Wilde and D.B. Radtke: USGS-TWRI Book 9, Chapter A6. 1998. Variously paginated.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, by D.N. Myers and F.D. Wilde: USGS-TWRI Book 9, Chapter A7. 1997. 49 pages.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS-TWRI Book 9, Chapter A8. 1998. 48 pages.
- 9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS-TWRI Book 9, Chapter A9. 1998. 60 pages.

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**Surface and Quality-of-Water  
Records  
for Puerto Rico**

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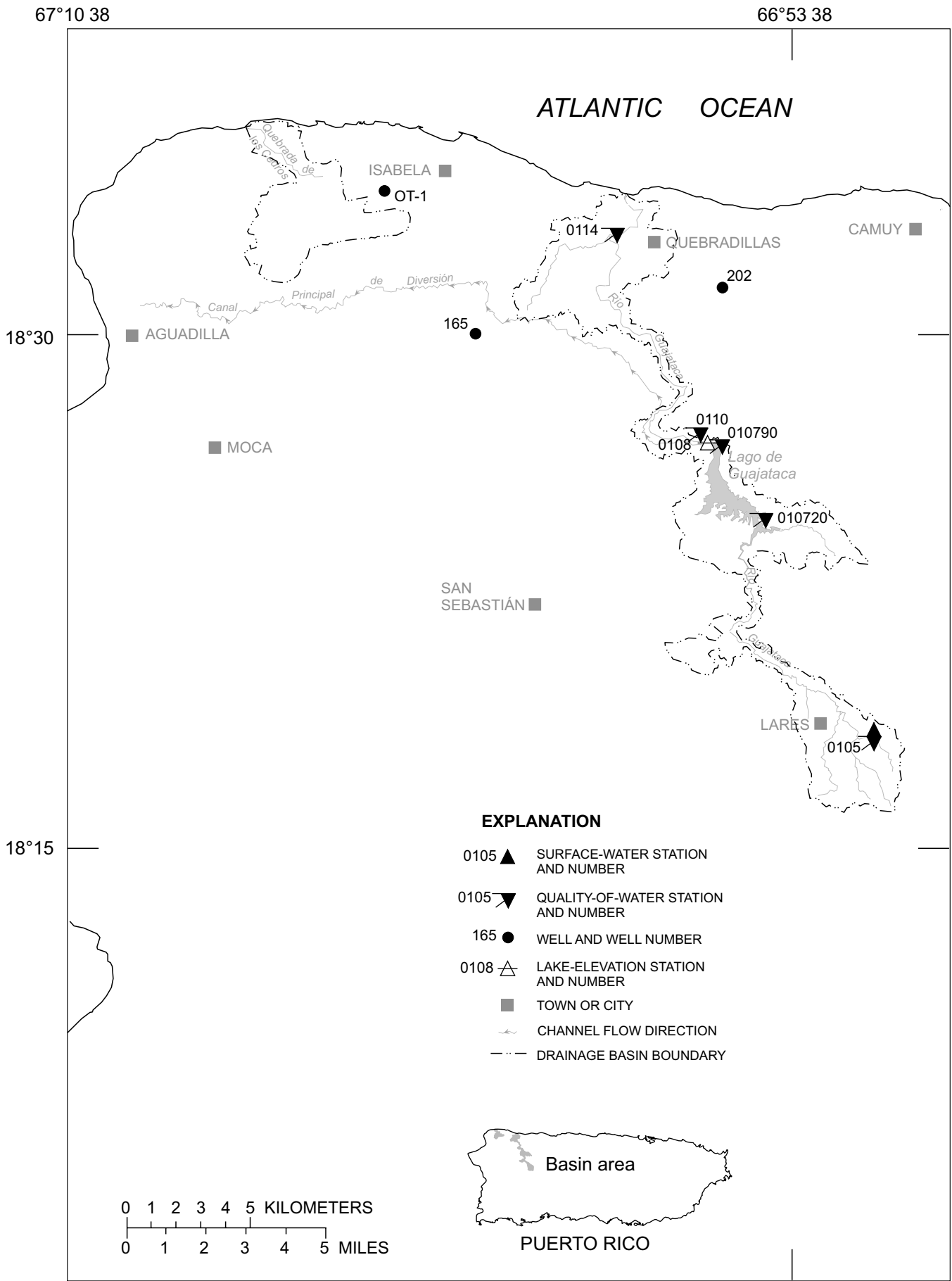


Figure 11. Río Guajataca basin.

## RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

LOCATION.--Lat 18°18'01", long 66°52'24", Hydrologic Unit 21010001 at bridge on Highway 111, 0.1 mi (0.2 km) upstream from Quebrada Anón, and 0.4 mi (0.6 km) east of Lares.

DRAINAGE AREA.--3.16 mi<sup>2</sup> (8.18 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1969 (monthly measurements only), May 1969 to December 1970 (February to May 1971 and March 1974 to November 1989, monthly measurements only), December 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 935 ft (285 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Small diversion above station for sewage treatment plant; effluent re-enters stream below station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB   | MAR   | APR   | MAY    | JUN   | JUL   | AUG   | SEP    |
|-------|-------|------|------|------|-------|-------|-------|--------|-------|-------|-------|--------|
| 1     | 18    | 3.4  | 2.7  | 2.6  | 1.8   | 1.3   | 1.1   | .98    | 2.8   | 1.2   | 1.8   | 5.9    |
| 2     | 11    | 2.4  | 2.3  | 2.2  | 1.7   | 1.2   | 1.2   | .98    | 2.5   | 1.3   | 1.6   | 71     |
| 3     | 6.0   | 2.3  | 1.6  | 2.3  | 1.7   | 1.1   | .73   | .92    | 5.7   | 4.0   | 1.7   | 25     |
| 4     | 3.7   | 2.2  | 1.6  | 2.2  | 4.0   | 1.0   | .61   | .69    | 2.4   | 2.9   | 2.4   | 16     |
| 5     | 3.6   | 2.0  | 1.5  | 2.4  | 7.4   | 1.1   | .59   | .68    | 20    | 2.1   | 2.0   | 12     |
| 6     | 6.5   | 2.4  | 1.3  | 2.5  | 2.6   | 1.1   | .55   | 5.0    | 4.6   | 3.5   | 1.5   | 32     |
| 7     | 15    | 1.7  | 1.3  | 3.8  | 2.0   | 1.7   | .77   | 3.3    | 1.8   | 3.3   | 4.7   | 20     |
| 8     | 6.5   | 1.7  | 1.4  | 2.6  | 5.4   | 1.1   | .80   | 1.7    | 1.6   | 5.2   | 3.0   | 12     |
| 9     | 3.9   | 1.7  | 1.5  | 2.2  | 3.0   | .91   | .75   | 1.7    | 2.4   | 2.2   | 30    | 9.6    |
| 10    | 2.9   | 1.9  | 1.6  | 2.2  | 1.6   | .84   | .74   | 1.2    | 2.6   | 2.2   | 11    | 7.8    |
| 11    | 6.8   | 1.8  | 2.1  | 5.5  | 1.5   | .85   | .66   | 1.1    | 2.6   | 2.0   | 11    | 7.2    |
| 12    | 49    | 2.4  | 1.4  | 3.5  | 1.6   | .85   | .76   | .98    | 2.3   | 13    | 3.5   | 77     |
| 13    | 20    | 2.6  | 1.5  | 2.5  | 1.6   | .80   | .66   | .97    | 19    | 21    | 2.0   | 18     |
| 14    | 39    | 4.9  | 1.4  | 2.6  | 1.8   | 2.3   | .62   | .80    | 7.1   | 8.8   | 1.9   | 11     |
| 15    | 49    | 3.2  | 1.4  | 2.0  | 1.8   | 2.3   | .57   | 1.6    | 4.3   | 9.8   | 1.9   | 8.3    |
| 16    | 27    | 1.8  | 1.4  | 1.8  | 1.8   | 1.5   | .81   | 1.1    | 81    | 24    | 2.1   | 17     |
| 17    | 27    | 1.4  | 1.7  | 6.2  | 1.7   | .92   | .74   | 15     | 9.7   | 22    | 19    | 15     |
| 18    | 18    | 1.3  | 3.0  | 8.2  | 1.6   | 1.1   | .73   | 8.3    | 19    | 11    | 3.8   | 41     |
| 19    | 12    | 1.4  | 2.9  | 4.9  | 1.5   | .77   | 8.5   | 10     | 7.4   | 5.4   | 2.2   | 13     |
| 20    | 9.2   | 1.6  | 3.1  | 3.0  | 1.8   | .73   | 4.9   | 36     | 3.9   | 4.3   | 1.9   | 8.2    |
| 21    | 6.8   | 1.2  | 2.3  | 2.2  | 1.6   | .68   | 1.1   | 26     | 3.6   | 3.3   | 11    | 43     |
| 22    | 6.1   | 1.1  | 4.3  | 2.0  | 1.2   | .61   | 1.1   | 17     | 2.8   | 2.3   | 4.2   | 505    |
| 23    | 5.3   | 1.6  | 5.8  | 2.1  | 1.1   | .64   | .93   | 9.9    | 2.2   | 2.3   | 2.3   | 91     |
| 24    | 5.5   | 1.2  | 4.2  | 2.0  | 1.0   | .79   | .87   | 3.7    | 2.0   | 2.3   | 7.2   | 57     |
| 25    | 4.2   | 1.2  | 3.4  | 2.0  | 1.1   | .80   | .82   | 2.1    | 1.9   | 2.0   | 17    | 44     |
| 26    | 3.9   | 2.2  | 2.8  | 2.7  | 1.2   | .73   | .94   | 2.6    | 1.8   | 1.8   | 3.6   | 37     |
| 27    | 4.4   | 3.6  | 2.3  | 1.6  | .95   | .78   | 1.0   | 2.4    | 3.5   | 1.8   | 3.1   | 32     |
| 28    | 3.7   | 2.2  | 2.3  | 1.6  | 1.3   | .73   | .83   | 2.0    | 1.9   | 1.8   | 50    | 36     |
| 29    | 3.8   | 9.8  | 2.2  | 2.1  | ---   | .76   | .72   | 2.3    | 1.4   | 1.5   | 12    | 44     |
| 30    | 3.5   | 4.4  | 3.7  | 2.1  | ---   | 2.4   | .82   | 4.4    | 1.4   | 1.4   | 15    | 39     |
| 31    | 3.1   | ---  | 2.7  | 1.7  | ---   | .81   | ---   | 2.9    | ---   | 7.6   | 16    | ---    |
| TOTAL | 384.4 | 72.6 | 72.7 | 87.3 | 57.35 | 33.20 | 35.92 | 168.30 | 225.2 | 177.3 | 250.4 | 1355.0 |
| MEAN  | 12.4  | 2.42 | 2.35 | 2.82 | 2.05  | 1.07  | 1.20  | 5.43   | 7.51  | 5.72  | 8.08  | 45.2   |
| MAX   | 49    | 9.8  | 5.8  | 8.2  | 7.4   | 2.4   | 8.5   | 36     | 81    | 24    | 50    | 505    |
| MIN   | 2.9   | 1.1  | 1.3  | 1.6  | .95   | .61   | .55   | .68    | 1.4   | 1.2   | 1.5   | 5.9    |
| AC-FT | 762   | 144  | 144  | 173  | 114   | 66    | 71    | 334    | 447   | 352   | 497   | 2690   |
| CFSM  | 3.92  | .77  | .74  | .89  | .65   | .34   | .38   | 1.72   | 2.38  | 1.81  | 2.56  | 14.3   |
| IN.   | 4.53  | .85  | .86  | 1.03 | .68   | .39   | .42   | 1.98   | 2.65  | 2.09  | 2.95  | 15.95  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

|      | MEAN | 16.4 | 8.03 | 3.69 | 3.36 | 2.65 | 2.13 | 3.18 | 8.85 | 7.26 | 4.26 | 6.29 | 14.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 33.7 | 16.7 | 7.31 | 8.91 | 7.21 | 6.38 | 7.63 | 20.2 | 16.4 | 9.85 | 11.1 | 45.2 |      |
| (WY) | 1991 | 1971 | 1971 | 1997 | 1996 | 1971 | 1993 | 1995 | 1995 | 1969 | 1996 | 1998 |      |
| MIN  | 8.52 | 2.42 | 1.35 | .66  | .93  | .92  | 1.09 | 2.37 | 1.70 | 1.73 | 3.34 | 5.95 |      |
| (WY) | 1995 | 1998 | 1991 | 1991 | 1992 | 1994 | 1994 | 1997 | 1997 | 1997 | 1970 | 1993 |      |

## SUMMARY STATISTICS

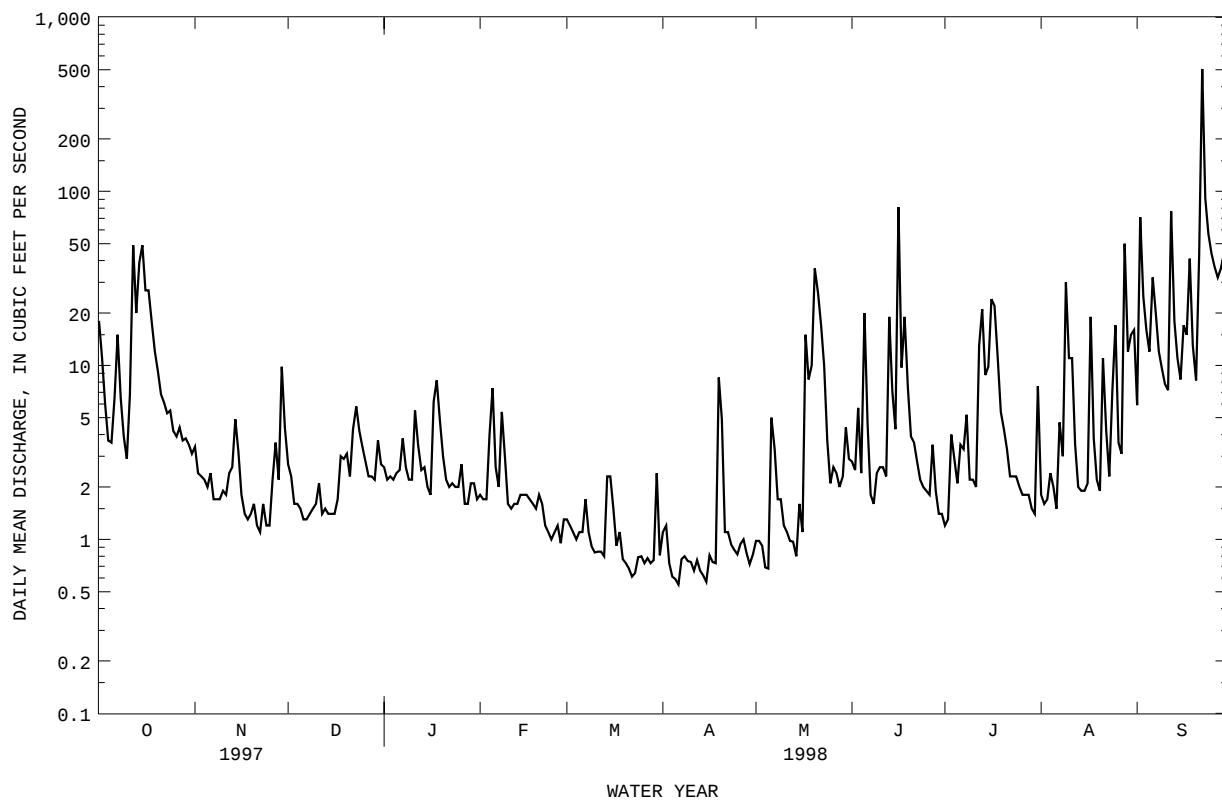
## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1969 - 1998

|                          |         |         |       |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL             | 1583.27 | 2919.67 |       |
| ANNUAL MEAN              | 4.34    | 8.00    | 6.58  |
| HIGHEST ANNUAL MEAN      |         |         | 9.08  |
| LOWEST ANNUAL MEAN       |         |         | 4.13  |
| HIGHEST DAILY MEAN       | 88      | 505     | 505   |
| LOWEST DAILY MEAN        | .50     | .55     | .47   |
| ANNUAL SEVEN-DAY MINIMUM | .56     | .68     | .51   |
| INSTANTANEOUS PEAK FLOW  |         | 3880    | 5300  |
| INSTANTANEOUS PEAK STAGE |         | 19.20   | 21.30 |
| ANNUAL RUNOFF (AC-FT)    | 3140    | 5790    | 4770  |
| ANNUAL RUNOFF (CFSM)     | 1.37    | 2.53    | 2.08  |
| ANNUAL RUNOFF (INCHES)   | 18.64   | 34.37   | 28.31 |
| 10 PERCENT EXCEEDS       | 9.3     | 18      | 15    |
| 50 PERCENT EXCEEDS       | 2.1     | 2.3     | 3.3   |
| 90 PERCENT EXCEEDS       | .95     | .84     | .96   |

RIO GUAJATACA BASIN  
50010500 RIO GUAJATACA AT LARES, PR--Continued



## RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'01", long 66°52'24", at bridge on Highway 111 (km 32.9), 0.1 mi (0.2 km) upstream from Quebrada Anón, and 0.4 mi (0.6 km) northeast of Lares plaza.

DRAINAGE AREA.--3.16 mi<sup>2</sup> (8.18 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 20... | 1310 | 7.9                                             | 227                                     | 8.0                                      | 24.0                               | 2.2                       | 7.3                               | 90                                                | <10                                                  | 40000                                               | K1200                                           |
| FEB 23... | 1245 | 1.6                                             | 255                                     | 7.7                                      | 21.5                               | 1.5                       | 7.5                               | 88                                                | <10                                                  | K1500                                               | 580                                             |
| MAY 21... | 1155 | 6.1                                             | 229                                     | 7.5                                      | 23.5                               | 14                        | 7.6                               | 92                                                | <10                                                  | 3400                                                | 7000                                            |
| AUG 31... | 1315 | 5.7                                             | 278                                     | 7.4                                      | 24.5                               | 6.9                       | 7.5                               | 93                                                | <10                                                  | 2400                                                | 2400                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 20... | 87                                      | 25                                      | 5.7                                         | 10                                      | .5                                | 2.5                                        | 82                                                  | <.5                               | 7.2                                      | 12                                         |
| FEB 23... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 97                                                  | --                                | --                                       | --                                         |
| MAY 21... | 84                                      | 25                                      | 5.1                                         | 9.6                                     | .5                                | 4.3                                        | 66                                                  | --                                | 16                                       | 12                                         |
| AUG 31... | 110                                     | 35                                      | 5.9                                         | 11                                      | .5                                | 2.9                                        | 110                                                 | <1.0                              | 13                                       | 11                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 20... | .11                                       | 29                                        | 141                                                     | 3.02                                      | 2                                                      | .570                                         | .190                                         | .760                                         | 1.70                                         | .40                                          |
| FEB 23... | --                                        | --                                        | --                                                      | --                                        | 3                                                      | --                                           | <.010                                        | .830                                         | .030                                         | .22                                          |
| MAY 21... | <.10                                      | 20                                        | 132                                                     | 2.16                                      | 20                                                     | 2.18                                         | .019                                         | 2.20                                         | .060                                         | .22                                          |
| AUG 31... | <.10                                      | 25                                        | 170                                                     | 2.60                                      | 9                                                      | --                                           | <.010                                        | 1.50                                         | .030                                         | --                                           |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM, TOTAL RECOV-ERABLE (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 20... | 2.1                                                     | 2.9                                  | 13                                     | .340                                  | <1                                 | <100                                            | 10                                            | <1                                               | <1                                                 | <10                                             |
| FEB 23... | .25                                                     | 1.1                                  | 4.8                                    | .030                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 21... | .28                                                     | 2.5                                  | 11                                     | .030                                  | <1                                 | <100                                            | <10                                           | <1                                               | <1                                                 | <10                                             |
| AUG 31... | <.20                                                    | --                                   | --                                     | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO GUAJATACA BASIN

50010800 LAGO GUAJATACA AT DAMSITE NEAR QUEBRADILLAS, PR

LOCATION.--Lat 18°24'02", long 66°55'25", Hydrologic Unit 21010002, on right bank, in a concrete intake tower at Damsite, 5.2 mi (8.4 km) southeast from Quebradillas plaza, 0.5 mi (0.8 km) northeast from Iglesia San Antonio de Padua and 2.8 mi (4.5 km) from Escuela Segunda Unidad Baldorioty de Castro.

DRAINAGE AREA.--24.6 mi<sup>2</sup> (63.71 km<sup>2</sup>)

## ELEVATION RECORDS

PERIOD OF RECORD.--April 1995 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guajataca was completed in 1928. The dam is a semihydraulic earthfill structure about 123 ft (37 m) high, a top width of 31 ft (9.5 m) at crest elevation of 664 ft (202.5 m), a base width of 623 ft (190 m), a crest length of 1,036 ft (316 m) and has a maximum storage capacity of 49,200 acre-feet (60.6 hm<sup>3</sup>). The Guajataca Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and provides water for the municipalities of Aguadilla, Isabela, Moca, Aguada and Quebradillas although its primary purpose is for agricultural irrigation for the flatlands of the area. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 648.3 ft (197.60 m), Sept. 23, 1998; minimum elevation, 608.07 ft (185.34 m), May 17, 1998.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 648.3 ft (197.60 m), Sept. 23; minimum elevation, 608.07 ft (185.34 m), May 17.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 593                | 0                      | 625                | 15,295                 |
| 600                | 2,405                  | 650                | 36,403                 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 614.32 | 625.22 | 624.56 | 620.40 | 616.57 | 611.36 | 611.87 | 608.92 | 621.82 | 629.34 | 634.67 | 641.96 |
| 2   | 615.67 | 625.10 | 624.44 | 620.20 | 616.39 | 611.20 | 611.77 | 608.75 | 621.83 | 629.21 | 634.57 | 642.71 |
| 3   | 616.31 | 625.00 | 624.33 | 620.02 | 616.21 | 611.02 | A      | 608.66 | 621.85 | 629.10 | 634.51 | 642.55 |
| 4   | 616.30 | 624.87 | 624.19 | 619.84 | 616.19 | 610.88 | 611.52 | 608.59 | 621.81 | 629.00 | 634.45 | 642.17 |
| 5   | 616.73 | 624.72 | 624.03 | 619.64 | 616.14 | 612.30 | 611.39 | 608.46 | 621.87 | 628.94 | 634.48 | 641.82 |
| 6   | 617.17 | 624.58 | 623.89 | 619.49 | 615.99 | 612.71 | 611.25 | 608.61 | 622.15 | 628.96 | 634.41 | 642.59 |
| 7   | 618.88 | 624.43 | 623.73 | 619.30 | 615.81 | 613.05 | 611.11 | 608.92 | 622.12 | 628.84 | 634.32 | 642.73 |
| 8   | 619.69 | 624.28 | 623.59 | 619.13 | 615.73 | 613.21 | 610.96 | 608.89 | 622.01 | 628.87 | 634.22 | 642.43 |
| 9   | 619.78 | 624.15 | 623.46 | 618.94 | 615.59 | 613.16 | 610.73 | 608.79 | 621.88 | 628.81 | 634.42 | 642.11 |
| 10  | 619.76 | 624.00 | 623.32 | 618.79 | 615.42 | 613.06 | 610.57 | 608.68 | 621.72 | 628.74 | 634.40 | 641.74 |
| 11  | 619.71 | 623.95 | 623.18 | 618.67 | 615.20 | 612.96 | 610.41 | 608.54 | 623.04 | 629.07 | 634.97 | 641.71 |
| 12  | 621.46 | 623.99 | 623.02 | 618.55 | 615.00 | 612.83 | 610.26 | 608.43 | 624.77 | 629.77 | 636.20 | 642.16 |
| 13  | 622.28 | 623.88 | 622.88 | 618.39 | 614.80 | 612.70 | 610.10 | 608.26 | 626.57 | 632.58 | 636.63 | 643.36 |
| 14  | 623.95 | 623.75 | 622.72 | 618.17 | 614.60 | 612.57 | 609.92 | 608.18 | 627.86 | 633.51 | 636.65 | 643.00 |
| 15  | 625.20 | 623.84 | 622.57 | 617.97 | 614.39 | 612.46 | 609.78 | 608.18 | 628.46 | 634.08 | 636.59 | 642.42 |
| 16  | 626.16 | 623.78 | 622.41 | 617.76 | 614.17 | 612.37 | 609.76 | 608.14 | 629.20 | 634.80 | 636.60 | 641.98 |
| 17  | 626.45 | 623.64 | 622.26 | 617.86 | 613.97 | 612.24 | 609.62 | 608.53 | 629.46 | 635.27 | 636.57 | 641.86 |
| 18  | 626.52 | 623.44 | 622.13 | 618.13 | 613.73 | 612.10 | 609.48 | 608.81 | 629.78 | 635.36 | 636.49 | 642.28 |
| 19  | 626.51 | 623.28 | 621.99 | 618.33 | 613.51 | 611.95 | 609.65 | 609.16 | 629.97 | 635.36 | 636.38 | 642.03 |
| 20  | 626.48 | 623.12 | 621.84 | 618.29 | 613.29 | 611.78 | 609.74 | 612.97 | 630.00 | 635.34 | 636.27 | 641.38 |
| 21  | 626.43 | 622.95 | 621.69 | 618.15 | 613.05 | 611.66 | 609.73 | 614.81 | 629.99 | 635.27 | 636.40 | 641.26 |
| 22  | 626.36 | 622.78 | 621.78 | 617.99 | 612.81 | 611.53 | 609.63 | 616.76 | 629.94 | 635.19 | 636.38 | 647.94 |
| 23  | 626.27 | 622.61 | 621.71 | 617.85 | 612.58 | 611.39 | 609.48 | 619.88 | 629.87 | 635.19 | 636.29 | 648.27 |
| 24  | 626.16 | 622.44 | 621.59 | 617.70 | 612.36 | 611.27 | 609.60 | 620.97 | 629.78 | 635.23 | 636.34 | 647.97 |
| 25  | 626.06 | 622.39 | 621.44 | 617.58 | 612.16 | 611.13 | 609.75 | 621.25 | 629.72 | 635.16 | 636.84 | 647.53 |
| 26  | 625.94 | 623.44 | 621.28 | 617.40 | 611.92 | 610.99 | 609.66 | 621.65 | 629.65 | 635.06 | 636.95 | 647.04 |
| 27  | 625.81 | 624.01 | 621.12 | 617.25 | 611.69 | 610.87 | 609.53 | 621.77 | 629.71 | 635.03 | 636.99 | 646.51 |
| 28  | 625.69 | 624.35 | 620.97 | 617.20 | 611.51 | 610.75 | 609.40 | 621.76 | 629.69 | 634.93 | 639.35 | 645.99 |
| 29  | 625.56 | 624.47 | 620.78 | 617.05 | ---    | 611.79 | 609.24 | 621.71 | 629.56 | 634.86 | 640.27 | 645.63 |
| 30  | 625.42 | 624.62 | 620.72 | 616.89 | ---    | 611.96 | 609.08 | 621.64 | 629.45 | 634.76 | 640.72 | 645.86 |
| 31  | 625.29 | ---    | 620.57 | 616.74 | ---    | 611.95 | ---    | 621.58 | ---    | 634.72 | 641.63 | ---    |
| MAX | 626.52 | 625.22 | 624.56 | 620.40 | 616.57 | 613.21 | ---    | 621.77 | 630.00 | 635.36 | 641.63 | 648.27 |
| MIN | 614.32 | 622.39 | 620.57 | 616.74 | 611.51 | 610.75 | ---    | 608.14 | 621.72 | 628.74 | 634.22 | 641.26 |

A No gage-height record

## RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'02", Long 66°55'27", off Highway 476 at Lago Guajataca outlet, 3.0 mi (4.8 km) southwest of Segunda Unidad Baldorioty de Castro, and 5.3 mi (8.5 km) south of Quebradillas Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1958-64, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 23... | 0715 | E65                                             | 324                                     | 8.1                                      | 25.5                               | 1.2                       | 1.2                               | 15                                                | <10                                                  | 200                                                 | 66                                              |
| MAR 13... | 1400 | 40                                              | 313                                     | 8.0                                      | 26.0                               | .65                       | 9.1                               | 115                                               | <10                                                  | <10                                                 | <10                                             |
| JUN 02... | 1615 | 65                                              | 317                                     | 6.8                                      | 26.5                               | .83                       | 2.8                               | 36                                                | <10                                                  | K120                                                | K110                                            |
| AUG 31... | 1530 | 65                                              | 327                                     | 7.4                                      | 25.5                               | 1.1                       | 1.7                               | 21                                                | <10                                                  | 240                                                 | 260                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 23... | 150                                     | 54                                      | 3.6                                         | 5.1                                     | .2                                | 2.0                                        | 140                                                 | <.5                               | 9.0                                      | 7.8                                        |
| MAR 13... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 140                                                 | --                                | --                                       | --                                         |
| JUN 02... | 140                                     | 49                                      | 3.8                                         | 6.0                                     | .2                                | 2.4                                        | 140                                                 | --                                | 11                                       | 8.9                                        |
| AUG 31... | 150                                     | 53                                      | 3.5                                         | 5.6                                     | .2                                | 2.1                                        | 160                                                 | <1.0                              | 8.1                                      | 6.9                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 23... | <.10                                      | 6.1                                       | 171                                                     | E30.0                                     | <1                                                     | .156                                         | .054                                         | .210                                         | .660                                         | .25                                          |
| MAR 13... | --                                        | --                                        | --                                                      | --                                        | 3                                                      | --                                           | <.010                                        | .040                                         | .040                                         | .52                                          |
| JUN 02... | .11                                       | 6.3                                       | 171                                                     | 30.1                                      | 1                                                      | .116                                         | .014                                         | .130                                         | .740                                         | .36                                          |
| AUG 31... | <.10                                      | 6.4                                       | 181                                                     | 31.9                                      | 3                                                      | --                                           | <.010                                        | <.020                                        | .240                                         | .38                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 23... | .91                                                     | 1.1                                  | 5.0                                    | <.020                                 | 20                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| MAR 13... | .56                                                     | .60                                  | 2.7                                    | .040                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 02... | 1.1                                                     | 1.2                                  | 5.4                                    | <.020                                 | 2                                  | <100                                            | 30                                            | <1                                               | <1                                                 | <10                                             |
| AUG 31... | .62                                                     | --                                   | --                                     | .070                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'31", Long 66°57'46", Hydrologic Unit 21010002, on left bank at ford 1.7 mi (2.7 km) upstream from bridge on highway 2, 1.6 mi (2.6 km) west of Quebradillas plaza, 2.1 mi (3.4 km) upstream from Atlantic Ocean, and 6.6 mi (10.6 km) downstream from Lago Guajataca.

DRAINAGE AREA.--Indeterminate

PERIOD OF RECORD.--Water years 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (MG/L) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|----------------------------------------------------------|------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| OCT 22... | 1200 | 20                                              | 466                                     | 7.8                                            | 25.5                               | .97                       | 7.0                               | 85                                                       | <10                                                  | 210                                            | 1000                                             |
| MAR 13... | 1215 | 8.7                                             | 611                                     | 7.8                                            | 24.5                               | .85                       | 4.8                               | 57                                                       | <10                                                  | K60                                            | K45                                              |
| JUN 04... | 1215 | 29                                              | 409                                     | 8.1                                            | 25.5                               | 8.6                       | 7.4                               | 90                                                       | <10                                                  | 600                                            | 200                                              |
| SEP 11... | 1400 | 100                                             | 378                                     | 7.6                                            | 26.0                               | 4.9                       | 7.3                               | 112                                                      | <10                                                  | 3900                                           | 320                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 22... | 200                                     | 71                                      | 6.3                                         | 14                                      | .4                                | 1.4                                        | 190                                                 | <.5                               | 8.5                                      | 25                                         |
| MAR 13... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 230                                                 | --                                | --                                       | --                                         |
| JUN 04... | 180                                     | 65                                      | 4.9                                         | 10                                      | .3                                | 1.7                                        | 180                                                 | --                                | 8.3                                      | 16                                         |
| SEP 11... | 180                                     | 64                                      | 3.8                                         | 6.3                                     | .2                                | 1.6                                        | 180                                                 | <1.0                              | 7.4                                      | 9.2                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 22... | <.10                                      | 6.7                                       | 246                                                     | 13.3                                      | <1                                                     | --                                           | <.010                                        | 1.50                                         | .010                                         | --                                           |
| MAR 13... | --                                        | --                                        | --                                                      | --                                        | 2                                                      | 2.59                                         | .010                                         | 2.60                                         | .040                                         | .22                                          |
| JUN 04... | <.10                                      | 6.3                                       | 220                                                     | 17.1                                      | 7                                                      | --                                           | <.010                                        | 1.10                                         | .010                                         | .21                                          |
| SEP 11... | <.10                                      | 6.6                                       | 207                                                     | 56.2                                      | 3                                                      | .575                                         | .015                                         | .590                                         | .030                                         | --                                           |

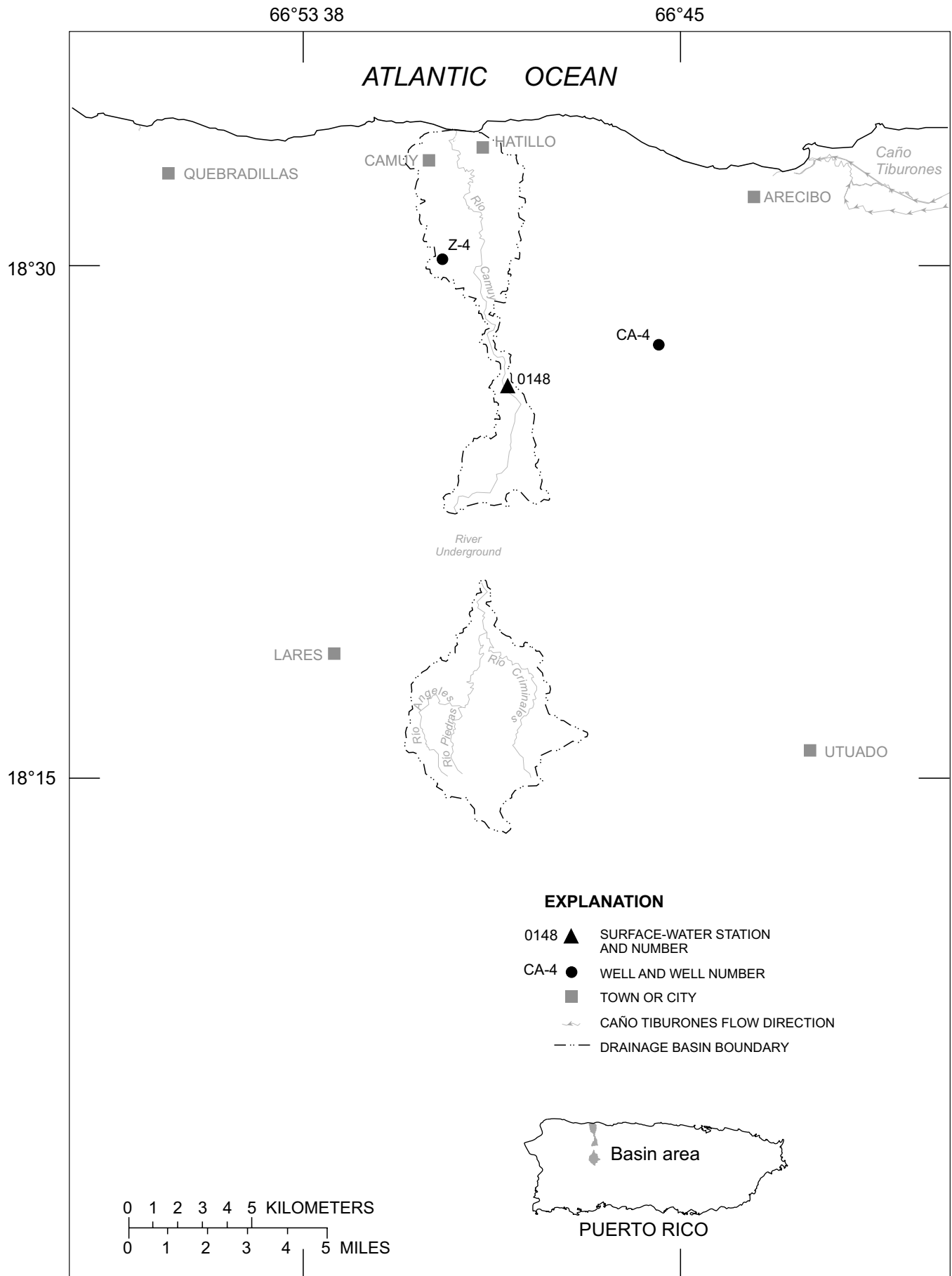
| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 22... | <.20                                                    | --                                   | --                                     | <.020                                 | <1                                 | <100                                            | 30                                            | <1                                               | 1                                                  | <10                                             |
| MAR 13... | .26                                                     | 2.9                                  | 13                                     | .030                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 04... | .22                                                     | 1.3                                  | 5.8                                    | <.020                                 | <1                                 | <100                                            | 30                                            | <1                                               | 1                                                  | <10                                             |
| SEP 11... | <.20                                                    | --                                   | --                                     | <.020                                 | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]



**Figure 12.** Río Camuy basin.

## RIO CAMUY BASIN

50014800 RIO CAMUY NEAR BAYANEY, PR

LOCATION.--Lat 18°23'48", long 66°49'04", Hydrologic Unit 21010002, on left bank at Highway 488, 1.4 mi (2.2 km) southeast of school at Santiago, 0.9 mi (1.4 km) northwest from Escuela Manuel A. Rivera at Bayaney and 9.1 mi (14.6 km) upstream from mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--May 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 341 ft (104 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 1     | 82   | 58   | 54   | e29  | 27   | 25   | 37   | 26   | e60  | 57   | 112  | 259   |
| 2     | 182  | 59   | 49   | e29  | 26   | 25   | 29   | 25   | e52  | 55   | 62   | 426   |
| 3     | 183  | 56   | 43   | e29  | 26   | 24   | e27  | 25   | e89  | 53   | 56   | 347   |
| 4     | 75   | 55   | 41   | e27  | 28   | 23   | e26  | 28   | 82   | 55   | 56   | 203   |
| 5     | 97   | 53   | 41   | e28  | 63   | 50   | 25   | 27   | 238  | 52   | 64   | 142   |
| 6     | 97   | 53   | 41   | e29  | 44   | 65   | 25   | 101  | 198  | 51   | 53   | 247   |
| 7     | 186  | 52   | 39   | e47  | 30   | 43   | 25   | 137  | 106  | 106  | 74   | 304   |
| 8     | 217  | 52   | 39   | e35  | 29   | 38   | 26   | 54   | 74   | 59   | 82   | 196   |
| 9     | 95   | 50   | 38   | e27  | 41   | 29   | 24   | 64   | 60   | 85   | 205  | 138   |
| 10    | 71   | 49   | 39   | e27  | 31   | 27   | 23   | 44   | 59   | 55   | 177  | 116   |
| 11    | 65   | 49   | 37   | e26  | 29   | 26   | 23   | 33   | 117  | 63   | 482  | 102   |
| 12    | 309  | 58   | 36   | e27  | 29   | 25   | 23   | 30   | 242  | 55   | 615  | 239   |
| 13    | 313  | 60   | 36   | e49  | 28   | 26   | 23   | 29   | 414  | 56   | 296  | 272   |
| 14    | 385  | 52   | 35   | e35  | 27   | 26   | 23   | 39   | 227  | 84   | 136  | 160   |
| 15    | 329  | 51   | 35   | e27  | 27   | 42   | 22   | 31   | 123  | 101  | 103  | 109   |
| 16    | 378  | 55   | 35   | e26  | 27   | 35   | 59   | 31   | 261  | 460  | 118  | 130   |
| 17    | 229  | 50   | 34   | 33   | 27   | 27   | 42   | 28   | 275  | 324  | 125  | 181   |
| 18    | 177  | 47   | 33   | 76   | 26   | 27   | 28   | 72   | 194  | 149  | 100  | 298   |
| 19    | 134  | 45   | 32   | 52   | 25   | 25   | 146  | 152  | 155  | 94   | 84   | 257   |
| 20    | 116  | 43   | 32   | 50   | 25   | 24   | 153  | 603  | 94   | 81   | 77   | 141   |
| 21    | 103  | 43   | 32   | 36   | 25   | 24   | 77   | 571  | 79   | 73   | 138  | 255   |
| 22    | 92   | 42   | 32   | 33   | 25   | 24   | 54   | 257  | 75   | 66   | 120  | 9010  |
| 23    | 85   | 41   | 34   | 31   | 25   | 23   | 39   | e130 | 65   | 63   | 84   | 3140  |
| 24    | 79   | 41   | 41   | 30   | 24   | 23   | 44   | e94  | 59   | 87   | 82   | 1140  |
| 25    | 75   | 40   | 33   | 30   | 24   | 22   | 61   | e79  | 67   | 65   | 276  | 835   |
| 26    | 72   | 44   | 32   | 31   | 27   | 23   | 38   | e73  | 70   | 58   | 131  | 580   |
| 27    | 68   | 67   | e32  | 29   | 26   | 23   | 33   | e65  | 184  | 89   | 114  | e540  |
| 28    | 66   | 70   | e32  | 28   | 25   | 23   | 31   | e62  | 122  | 65   | 687  | e520  |
| 29    | 64   | 66   | e32  | 27   | ---  | 40   | 28   | e61  | 72   | 58   | 463  | e900  |
| 30    | 61   | 102  | e30  | 27   | ---  | 88   | 27   | 87   | 62   | 55   | 197  | e600  |
| 31    | 59   | ---  | e31  | 27   | ---  | 66   | ---  | 78   | ---  | 127  | 436  | ---   |
| TOTAL | 4544 | 1603 | 1130 | 1037 | 816  | 1011 | 1241 | 3136 | 3975 | 2901 | 5805 | 21787 |
| MEAN  | 147  | 53.4 | 36.5 | 33.5 | 29.1 | 32.6 | 41.4 | 101  | 133  | 93.6 | 187  | 726   |
| MAX   | 385  | 102  | 54   | 76   | 63   | 88   | 153  | 603  | 414  | 460  | 687  | 9010  |
| MIN   | 59   | 40   | 30   | 26   | 24   | 22   | 22   | 25   | 52   | 51   | 53   | 102   |

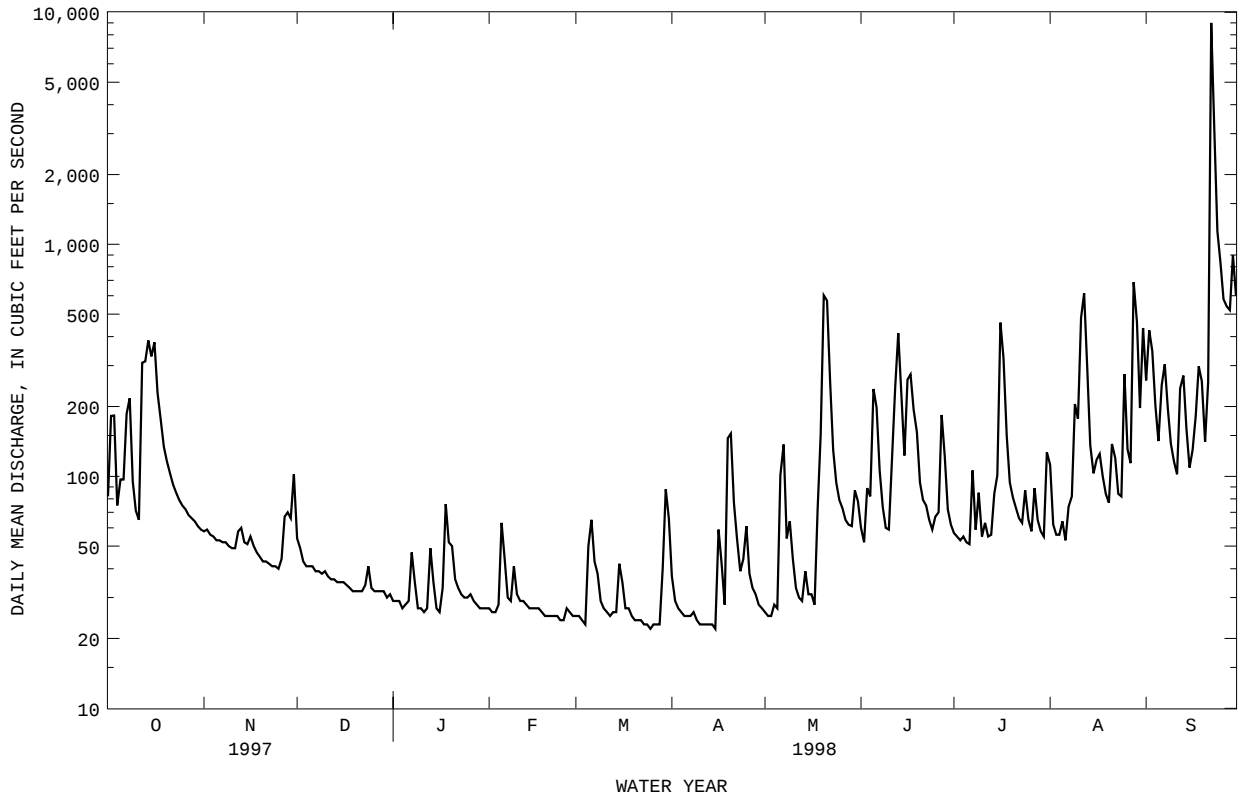
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 197  | 113  | 66.5 | 57.2 | 50.0 | 46.8 | 86.6 | 167  | 110  | 75.2 | 97.9 | 201  |
| MAX  | 427  | 244  | 97.4 | 163  | 96.4 | 66.0 | 202  | 624  | 235  | 109  | 187  | 726  |
| (WY) | 1986 | 1986 | 1988 | 1997 | 1996 | 1992 | 1986 | 1986 | 1995 | 1989 | 1998 | 1998 |
| MIN  | 81.6 | 53.4 | 36.5 | 33.1 | 29.1 | 23.7 | 28.0 | 43.2 | 42.7 | 38.8 | 47.9 | 61.8 |
| (WY) | 1988 | 1998 | 1998 | 1991 | 1998 | 1994 | 1994 | 1989 | 1997 | 1994 | 1993 | 1997 |

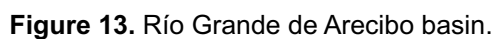
| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1984 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 26693                  | 48986               |                         |
| ANNUAL MEAN              | 73.1                   | 134                 | 106                     |
| HIGHEST ANNUAL MEAN      |                        |                     | 179                     |
| LOWEST ANNUAL MEAN       |                        |                     | 61.5                    |
| HIGHEST DAILY MEAN       | 600                    | Jan 22              | 9010                    |
| LOWEST DAILY MEAN        | 29                     | Jun 10              | 22                      |
| ANNUAL SEVEN-DAY MINIMUM | 32                     | Dec 25              | 23                      |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 11600                   |
| INSTANTANEOUS PEAK STAGE |                        |                     | 21.69                   |
| INSTANTANEOUS LOW FLOW   |                        |                     | 22                      |
| 10 PERCENT EXCEEDS       | 124                    |                     | 256                     |
| 50 PERCENT EXCEEDS       | 52                     |                     | 55                      |
| 90 PERCENT EXCEEDS       | 34                     |                     | 26                      |

e Estimated

RIO CAMUY BASIN  
50014800 RIO CAMUY NEAR BAYANEY, PR--Continued



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## RIO GRANDE DE ARECIBO BASIN

50020100 LAGO GARZAS NEAR ADJUNTAS, PR

LOCATION.--Lat 18°08'20", long 66°44'29", Hydrologic Unit 21010002, in power gate tower of Garzas Dam on Río Vacas, 1.7 mi (2.7 km) upstream from Río Garzas, and 2.2 mi (3.5 km) southwest of Adjuntas.

DRAINAGE AREA.--6.02 mi<sup>2</sup> (15.6 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to May 1989, March 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,400.00 ft (731.520 m) above mean sea level. Prior to May 25, 1988 at datum 2,376.80 ft (724.449 m), May 25 to July 13, 1988 at datum 2,338.08 ft (712.647 m), July 14, 1988 to May 25, 1989 at datum 2,337.82 ft (712.560 m), above mean sea level.

REMARKS.--Lake is formed by earthfill dam completed in 1943. Outflow from lake controlled by vertical-lift sluice gate and fixed-crest concrete spillway. Spillway elevation, 2,415.00 ft (736.09 m). Lake is used for irrigation and power production. Operated by P.R. Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,418.28 ft (737.092 m), Sept. 22, 1998; minimum elevation, 2,364.79 ft (720.788 m), Aug. 23, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,418.28 ft (737.092 m), Sept. 22; minimum elevation, 2,403.38 ft (732.550 m), Feb. 10.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,364              | 660                    | 2,415              | 4,082                  |
| 2,382              | 1,500                  | 2,418              | 4,411                  |
| 2,394              | 2,250                  |                    |                        |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     | JUN     | JUL     | AUG     | SEP     |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1   | A       | 2407.94 | 2407.87 | 2409.77 | 2406.42 | 2407.73 | 2408.09 | 2410.19 | 2414.73 | 2414.71 | 2414.84 | 2414.86 |
| 2   | A       | 2407.67 | 2408.07 | 2409.89 | 2406.50 | 2407.66 | 2408.51 | 2410.15 | 2414.74 | 2414.83 | 2414.85 | 2414.90 |
| 3   | A       | 2407.39 | 2408.31 | 2410.03 | 2406.56 | 2407.61 | 2408.59 | 2410.11 | 2414.75 | 2414.80 | 2414.73 | 2414.97 |
| 4   | A       | 2407.16 | 2408.25 | 2410.14 | 2405.30 | 2407.53 | 2408.60 | 2410.20 | 2414.78 | 2414.77 | 2414.68 | 2414.91 |
| 5   | A       | 2407.05 | 2408.33 | 2410.25 | 2403.69 | 2407.47 | 2408.59 | 2410.31 | 2414.78 | A       | 2414.62 | 2414.92 |
| 6   | A       | 2407.06 | 2408.39 | 2410.26 | 2403.60 | 2407.43 | 2408.57 | 2410.54 | 2414.76 | 2414.70 | A       | 2414.96 |
| 7   | A       | 2407.12 | 2408.46 | 2410.36 | 2403.62 | 2407.37 | 2409.56 | 2410.67 | 2414.74 | 2414.73 | 2414.80 | 2414.92 |
| 8   | A       | 2407.17 | 2408.53 | 2410.48 | 2403.42 | 2407.29 | 2409.74 | 2411.70 | 2414.78 | 2414.72 | 2414.83 | 2414.90 |
| 9   | A       | 2406.47 | 2408.59 | 2410.58 | 2403.40 | 2407.21 | 2409.80 | 2411.93 | 2414.79 | 2414.72 | 2414.87 | 2414.89 |
| 10  | A       | 2405.95 | 2408.67 | 2410.68 | 2403.43 | 2407.13 | 2409.82 | A       | 2414.79 | 2414.86 | 2414.73 | 2414.88 |
| 11  | A       | 2405.69 | 2408.77 | 2410.83 | 2403.46 | 2407.05 | 2409.89 | 2412.10 | 2414.67 | 2414.75 | 2414.68 | 2414.93 |
| 12  | A       | 2405.73 | 2408.87 | 2410.91 | 2403.51 | 2407.00 | 2410.13 | 2412.20 | 2414.66 | 2414.72 | 2414.54 | 2414.88 |
| 13  | A       | 2405.85 | 2408.95 | 2410.99 | 2408.48 | 2406.92 | 2410.23 | A       | 2414.66 | 2414.71 | 2414.40 | 2414.89 |
| 14  | A       | 2406.01 | 2409.01 | 2411.11 | 2408.48 | 2406.87 | 2410.27 | 2413.60 | 2414.66 | 2414.70 | 2414.50 | 2414.87 |
| 15  | A       | 2405.57 | 2409.11 | 2410.94 | 2408.46 | 2406.89 | 2410.29 | 2414.20 | 2414.69 | 2414.70 | 2414.73 | 2414.87 |
| 16  | A       | 2405.61 | 2409.19 | 2410.99 | 2408.40 | 2406.88 | 2410.30 | 2414.40 | 2414.72 | 2414.72 | 2414.77 | A       |
| 17  | A       | 2405.71 | 2409.27 | 2411.09 | 2408.35 | 2406.84 | 2410.29 | 2414.49 | 2414.89 | 2414.83 | 2414.49 | A       |
| 18  | A       | 2405.83 | 2409.28 | 2411.16 | 2408.30 | 2406.77 | 2410.36 | 2414.56 | 2414.79 | 2414.78 | 2414.49 | A       |
| 19  | A       | 2405.97 | 2408.59 | 2411.26 | 2408.24 | 2406.70 | 2410.44 | 2414.61 | 2414.74 | 2414.76 | 2414.52 | 2414.20 |
| 20  | A       | 2406.10 | 2408.66 | 2411.36 | 2408.20 | 2406.66 | 2410.46 | 2414.70 | 2414.73 | 2414.80 | 2414.77 | 2411.60 |
| 21  | A       | 2406.24 | 2408.69 | 2411.38 | 2408.14 | 2406.59 | 2410.46 | 2414.94 | 2414.74 | 2414.73 | 2414.83 | 2416.72 |
| 22  | A       | 2406.39 | 2408.76 | 2406.02 | 2408.08 | 2406.52 | 2410.45 | 2414.77 | 2414.74 | 2414.71 | 2414.86 | 2415.45 |
| 23  | A       | 2406.57 | 2408.87 | 2406.07 | 2408.00 | 2406.43 | 2410.43 | 2414.81 | 2414.81 | 2414.90 | 2414.81 | 2415.10 |
| 24  | A       | 2406.71 | 2408.95 | 2406.10 | 2407.96 | 2406.35 | 2410.39 | 2414.81 | 2414.82 | 2414.79 | 2416.11 | 2415.06 |
| 25  | A       | 2406.87 | 2409.05 | 2406.14 | 2407.92 | 2406.34 | 2410.37 | 2414.75 | 2414.76 | 2414.77 | 2414.92 | 2415.04 |
| 26  | A       | 2406.97 | 2409.15 | 2406.18 | 2407.91 | 2406.26 | 2410.34 | 2414.75 | 2414.70 | 2414.77 | 2414.88 | 2415.04 |
| 27  | A       | 2407.13 | 2409.25 | 2406.24 | 2407.85 | 2406.20 | 2410.32 | 2414.73 | 2414.68 | 2414.81 | 2414.86 | 2414.98 |
| 28  | A       | 2407.31 | 2409.35 | 2406.26 | 2407.79 | 2406.12 | 2410.29 | 2414.77 | 2414.67 | 2414.77 | 2414.69 | 2414.98 |
| 29  | 2408.79 | 2407.47 | 2409.45 | 2406.28 | ---     | 2406.10 | 2410.25 | 2414.73 | 2414.70 | 2414.76 | 2414.84 | 2414.97 |
| 30  | 2408.47 | 2407.65 | 2409.55 | 2406.32 | ---     | 2406.41 | 2410.21 | 2414.73 | 2414.71 | 2414.75 | 2414.86 | 2414.97 |
| 31  | 2408.20 | ---     | 2409.65 | 2406.36 | ---     | 2406.43 | ---     | 2414.72 | ---     | 2414.74 | 2414.86 | ---     |
| MAX | ---     | 2407.94 | 2409.65 | 2411.38 | 2408.48 | 2407.73 | 2410.46 | ---     | 2414.89 | ---     | ---     | ---     |
| MIN | ---     | 2405.57 | 2407.87 | 2406.02 | 2403.40 | 2406.10 | 2408.09 | ---     | 2414.66 | ---     | ---     | ---     |

A No gage-height record

## RIO GRANDE DE ARECIBO BASIN

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°10'54", Long 66°44'12", at Highway 135 bridge, 1.0 mi (1.6 km) upstream from Lago Adjuntas, and 1.5 mi (2.4 km) northwest of Adjuntas plaza.

DRAINAGE AREA.--12.7 mi<sup>2</sup> (32.9 km<sup>2</sup>) this does not include 6.0 mi<sup>2</sup> (15.6 km<sup>2</sup>) above Lago Garzas.

PERIOD OF RECORD.--Water years 1969-74, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (000061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (000095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|--------------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 29... | 0900 | 18                                               | 328                                      | 8.4                                      | 21.5                               | 1.0                       | 8.4                               | 100                                               | <10                                                  | K890                                                | 450                                              |
| MAR 11... | 0800 | 8.5                                              | 381                                      | 7.6                                      | 19.0                               | .30                       | 7.9                               | 89                                                | <10                                                  | K1200                                               | 470                                              |
| JUN 17... | 1100 | 23                                               | 328                                      | 7.9                                      | 24.0                               | .35                       | 8.4                               | 105                                               | <10                                                  | K750                                                | 480                                              |
| SEP 08... | 1455 | 136                                              | 240                                      | 7.4                                      | 25.5                               | 2.2                       | 7.3                               | 94                                                | <10                                                  | K680                                                | 520                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 29... | 150                                     | 34                                      | 15                                          | 17                                      | .6                                | 2.7                                        | 120                                                 | <.5                               | 17                                       | 24                                         |
| MAR 11... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 120                                                 | --                                | --                                       | --                                         |
| JUN 17... | 110                                     | 28                                      | 9.1                                         | 21                                      | .9                                | 1.8                                        | 110                                                 | --                                | 8.5                                      | 30                                         |
| SEP 08... | 82                                      | 22                                      | 6.7                                         | 10                                      | .5                                | 1.8                                        | 89                                                  | <1.0                              | 8.4                                      | 12                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 29... | .20                                       | 24                                        | 206                                                     | 10.0                                      | 3                                                      | --                                           | <.010                                        | 1.30                                         | .020                                         | --                                           |
| MAR 11... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | 1.26                                         | .040                                         | 1.30                                         | .050                                         | .29                                          |
| JUN 17... | <.10                                      | 28                                        | 192                                                     | 12.0                                      | <1                                                     | .982                                         | .018                                         | 1.00                                         | .020                                         | --                                           |
| SEP 08... | <.10                                      | 27                                        | 142                                                     | 52.2                                      | 5                                                      | .985                                         | .015                                         | 1.00                                         | .040                                         | --                                           |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM, TOTAL UNFLTRD (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 29... | <.20                                                    | --                                   | --                                     | .080                                  | <1                                 | <100                                            | 20                                            | <1                                          | <1                                                 | <10                                             |
| MAR 11... | .34                                                     | 1.6                                  | 7.3                                    | .120                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |
| JUN 17... | <.20                                                    | --                                   | --                                     | .080                                  | <1                                 | <100                                            | 30                                            | <1                                          | <1                                                 | <10                                             |
| SEP 08... | <.20                                                    | --                                   | --                                     | .050                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |

## RIO GRANDE DE ARECIBO BASIN

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO GRANDE DE ARECIBO BASIN

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR

LOCATION.--Lat 18°18'07", long 66°42'15", Hydrologic Unit 21010001, 2.4 mi (3.9 km) north of Utuado Plaza, 3.4 mi (5.5 km) southwest from Dos Bocas Dam, 3.5 mi (5.6 km) northwest from Caonillas Dam.

DRAINAGE AREA.--65.62 mi<sup>2</sup> (170 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 295.28 ft (90 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL   | AUG   | SEP   |
|-------|-------|------|------|------|------|------|------|------|------|-------|-------|-------|
| 1     | 123   | 65   | 71   | 39   | e32  | 27   | 59   | 46   | 66   | 61    | 189   | 252   |
| 2     | 69    | 63   | 63   | 39   | e32  | 27   | 156  | 39   | 67   | 65    | 302   | 400   |
| 3     | 56    | 63   | 67   | 39   | 30   | 27   | e126 | 39   | 64   | 85    | 292   | 355   |
| 4     | 53    | 63   | 64   | 38   | 55   | 28   | e51  | 37   | 72   | 72    | 283   | 573   |
| 5     | 51    | 63   | 65   | 38   | 217  | 28   | 47   | 38   | 250  | 67    | 229   | 405   |
| 6     | 50    | 62   | 64   | e44  | 58   | 31   | 45   | 99   | 126  | 105   | 310   | 601   |
| 7     | 345   | 61   | 63   | e60  | 34   | 68   | 117  | 60   | 79   | 88    | e534  | 495   |
| 8     | 224   | 59   | 60   | 47   | 55   | 36   | 159  | 190  | 69   | 70    | 561   | 366   |
| 9     | 153   | 74   | 59   | 38   | 74   | 29   | 56   | 173  | 71   | 67    | 567   | 379   |
| 10    | 81    | 193  | 57   | 39   | 46   | 31   | 44   | 76   | 70   | 82    | 513   | 285   |
| 11    | 110   | 149  | 55   | 39   | 47   | 28   | 44   | 63   | 94   | 89    | 827   | 325   |
| 12    | 572   | 118  | 54   | 44   | 52   | 29   | 51   | 66   | 66   | 71    | 670   | 353   |
| 13    | 386   | 108  | 53   | 65   | 49   | 29   | 63   | 72   | 60   | 68    | 611   | 262   |
| 14    | 450   | 91   | 52   | 45   | 50   | 31   | 50   | 79   | 58   | 96    | 434   | 227   |
| 15    | 323   | 96   | 51   | 38   | 54   | 53   | 43   | 262  | 55   | 131   | 310   | 215   |
| 16    | 210   | 119  | 50   | 37   | 45   | 30   | 49   | 117  | 90   | 444   | 345   | 255   |
| 17    | 316   | 96   | 49   | 41   | 40   | 43   | 67   | 67   | 176  | 433   | 280   | 333   |
| 18    | 323   | 90   | 48   | 41   | 38   | 33   | 65   | 152  | 217  | 499   | 216   | 541   |
| 19    | 220   | 85   | 48   | 44   | 35   | 24   | e148 | 211  | 105  | 434   | 207   | e401  |
| 20    | 174   | 81   | 55   | 39   | 32   | 22   | 62   | 216  | 76   | 310   | 207   | e305  |
| 21    | 148   | 77   | 48   | 41   | 29   | 24   | 41   | 915  | 73   | 289   | 246   | 589   |
| 22    | 130   | 75   | 46   | 34   | 28   | 22   | 54   | 454  | 73   | 215   | 244   | e7600 |
| 23    | 116   | 70   | 61   | 33   | 27   | 22   | 68   | 333  | 67   | 207   | 247   | e1500 |
| 24    | 105   | 69   | 48   | 34   | 27   | 22   | 54   | 222  | 70   | 345   | 281   | e980  |
| 25    | 95    | 67   | 44   | e36  | 27   | 22   | 51   | 167  | 104  | 213   | 956   | e700  |
| 26    | 89    | e63  | 44   | e36  | 35   | 24   | 51   | 125  | 76   | 168   | 599   | e580  |
| 27    | 80    | 71   | 43   | 32   | 28   | 23   | 50   | 101  | 72   | 175   | 551   | e520  |
| 28    | 76    | 65   | 42   | 31   | 28   | 24   | 58   | 86   | 65   | 166   | 356   | e500  |
| 29    | 71    | 102  | 40   | 31   | ---  | 73   | 52   | 83   | 61   | 158   | 295   | e860  |
| 30    | 69    | 85   | 39   | 31   | ---  | 77   | 49   | 89   | 60   | 155   | 253   | e560  |
| 31    | 66    | ---  | 39   | 30   | ---  | 61   | ---  | 74   | ---  | 263   | 282   | ---   |
| TOTAL | 5334  | 2543 | 1642 | 1223 | 1304 | 1048 | 2030 | 4751 | 2652 | 5691  | 12197 | 21717 |
| MEAN  | 172   | 84.8 | 53.0 | 39.5 | 46.6 | 33.8 | 67.7 | 153  | 88.4 | 184   | 393   | 724   |
| MAX   | 572   | 193  | 71   | 65   | 217  | 77   | 159  | 915  | 250  | 499   | 956   | 7600  |
| MIN   | 50    | 59   | 39   | 30   | 27   | 22   | 41   | 37   | 55   | 61    | 189   | 215   |
| AC-FT | 10580 | 5040 | 3260 | 2430 | 2590 | 2080 | 4030 | 9420 | 5260 | 11290 | 24190 | 43080 |
| CFSM  | 2.62  | 1.29 | .81  | .60  | .71  | .52  | 1.03 | 2.34 | 1.35 | 2.80  | 6.00  | 11.0  |
| IN.   | 3.02  | 1.44 | .93  | .69  | .74  | .59  | 1.15 | 2.69 | 1.50 | 3.23  | 6.91  | 12.31 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

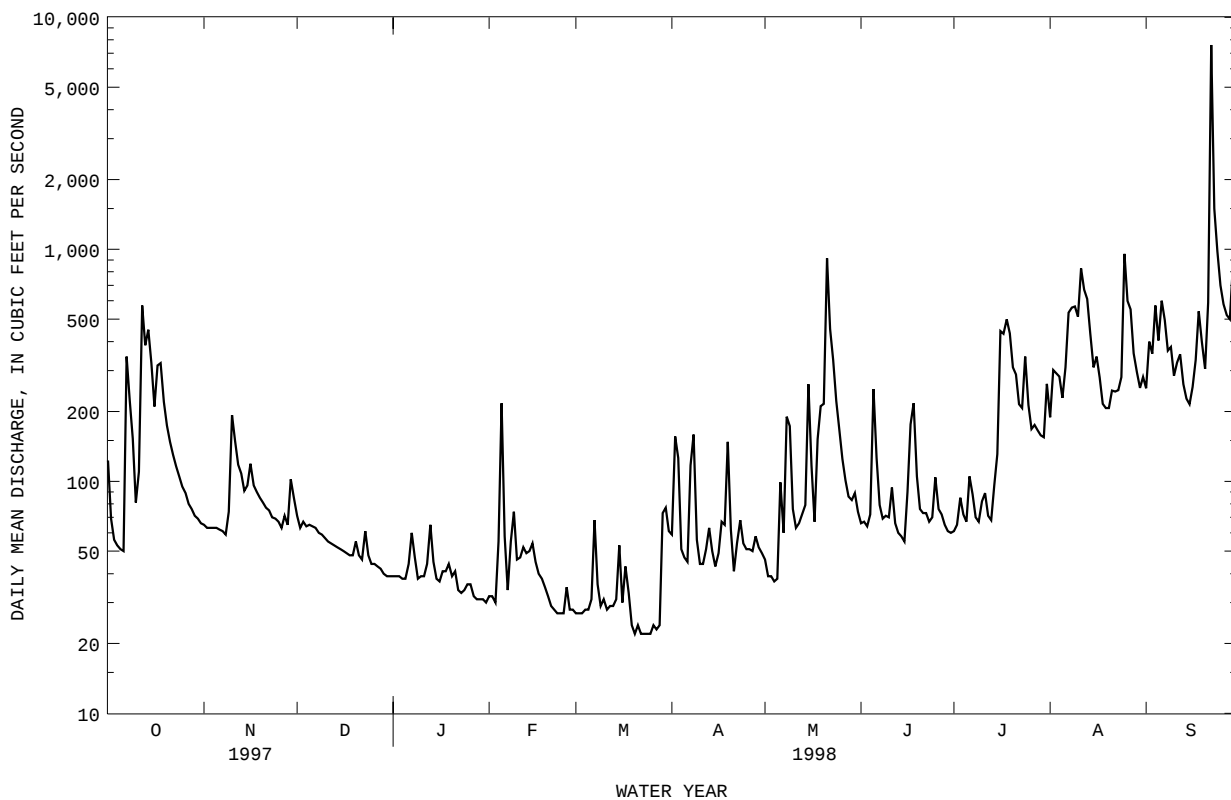
|      | 1996 | 1997 | 1998 | 1996 | 1997 | 1998 | 1996 | 1997 | 1998 | 1996 | 1997 | 1998 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 198  | 163  | 85.6 | 79.6 | 65.0 | 50.9 | 56.9 | 105  | 83.1 | 102  | 188  | 445  |
| MAX  | 224  | 242  | 118  | 120  | 83.5 | 68.0 | 67.7 | 153  | 120  | 184  | 393  | 724  |
| (WY) | 1997 | 1997 | 1997 | 1997 | 1997 | 1997 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 |
| MIN  | 172  | 84.8 | 53.0 | 39.5 | 46.6 | 33.8 | 46.2 | 50.8 | 40.8 | 36.6 | 77.0 | 87.3 |
| (WY) | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1997 | 1997 | 1997 | 1997 | 1997 | 1997 |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1996 - 1998

|                          | 28001 | 62132  | 135   |
|--------------------------|-------|--------|-------|
| ANNUAL TOTAL             | 76.7  | 170    | 170   |
| ANNUAL MEAN              |       |        | 99.6  |
| HIGHEST ANNUAL MEAN      |       |        | 170   |
| LOWEST ANNUAL MEAN       |       |        | 99.6  |
| HIGHEST DAILY MEAN       | 572   | 7600   | 7600  |
| LOWEST DAILY MEAN        | 23    | 22     | 22    |
| ANNUAL SEVEN-DAY MINIMUM | 28    | 23     | 23    |
| INSTANTANEOUS PEAK FLOW  |       | 33000  | 33000 |
| INSTANTANEOUS PEAK STAGE |       | 21.28  | 21.28 |
| INSTANTANEOUS LOW FLOW   |       | 20     | 20    |
| ANNUAL RUNOFF (AC-FT)    | 55540 | 123200 | 97740 |
| ANNUAL RUNOFF (CFSM)     | 1.17  | 2.59   | 2.06  |
| ANNUAL RUNOFF (INCHES)   | 15.87 | 35.22  | 27.94 |
| 10 PERCENT EXCEEDS       | 117   | 392    | 295   |
| 50 PERCENT EXCEEDS       | 61    | 69     | 71    |
| 90 PERCENT EXCEEDS       | 34    | 32     | 36    |

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR--Continued



## RIO GRANDE DE ARECIBO BASIN

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- April, 1996 to current water year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April, 1996 to current water year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1996.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 10,600 mg/L September 10, 1996; Minimum daily mean, 3 mg/L August 6, 1996.

SEDIMENT LOADS: Maximum daily mean, 768,000 tons (e698,000 tonnes) September 22, 1998; Minimum daily mean, 0.50 ton (0.45 tonne) August 6, 1996.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,830 mg/L October 12, 1997; Minimum daily mean, 6 mg/L May 2, 1998.

SEDIMENT LOADS: Maximum daily mean, e768,000 tons (e698,000 tonne) September 22, 1998; Minimum daily mean, 0.68 tons (0.61 tonne).

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 123                        | 1370                            | 1160                                | 65                         | 33                              | 5.8                                 | 71                         | 79                              | 15                                  |
| 2       | 69                         | 318                             | 61                                  | 63                         | 33                              | 5.6                                 | 63                         | 44                              | 7.5                                 |
| 3       | 56                         | 156                             | 24                                  | 63                         | 33                              | 5.7                                 | 67                         | 48                              | 8.7                                 |
| 4       | 53                         | 144                             | 20                                  | 63                         | 35                              | 5.9                                 | 64                         | 56                              | 9.8                                 |
| 5       | 51                         | 147                             | 20                                  | 63                         | 42                              | 7.2                                 | 65                         | 59                              | 10                                  |
| 6       | 50                         | 151                             | 20                                  | 62                         | 51                              | 8.6                                 | 64                         | 58                              | 10                                  |
| 7       | 345                        | 2880                            | 10100                               | 61                         | 49                              | 8.1                                 | 63                         | 58                              | 9.7                                 |
| 8       | 224                        | 1450                            | 898                                 | 59                         | 44                              | 7.0                                 | 60                         | 56                              | 9.2                                 |
| 9       | 153                        | 590                             | 279                                 | 74                         | 84                              | 30                                  | 59                         | 43                              | 6.8                                 |
| 10      | 81                         | 242                             | 53                                  | 193                        | 1240                            | 713                                 | 57                         | 30                              | 4.7                                 |
| 11      | 110                        | 493                             | 174                                 | 149                        | 1280                            | 745                                 | 55                         | 40                              | 6.0                                 |
| 12      | 572                        | 3810                            | 15900                               | 118                        | 877                             | 398                                 | 54                         | 57                              | 8.3                                 |
| 13      | 386                        | 1600                            | 1810                                | 108                        | 303                             | 92                                  | 53                         | 36                              | 5.2                                 |
| 14      | 450                        | 313                             | 395                                 | 91                         | 195                             | 48                                  | 52                         | 20                              | 2.9                                 |
| 15      | 323                        | 275                             | 252                                 | 96                         | 151                             | 39                                  | 51                         | 20                              | 2.7                                 |
| 16      | 210                        | 618                             | 1020                                | 119                        | 122                             | 39                                  | 50                         | 24                              | 3.2                                 |
| 17      | 316                        | 3020                            | 4570                                | 96                         | 125                             | 32                                  | 49                         | 29                              | 3.9                                 |
| 18      | 323                        | 2830                            | 2600                                | 90                         | 136                             | 33                                  | 48                         | 35                              | 4.6                                 |
| 19      | 220                        | 518                             | 323                                 | 85                         | 147                             | 34                                  | 48                         | 42                              | 5.3                                 |
| 20      | 174                        | 177                             | 84                                  | 81                         | 151                             | 33                                  | 55                         | 40                              | 5.9                                 |
| 21      | 148                        | 139                             | 56                                  | 77                         | 75                              | 16                                  | 48                         | 37                              | 4.8                                 |
| 22      | 130                        | 109                             | 38                                  | 75                         | 33                              | 6.7                                 | 46                         | 33                              | 4.1                                 |
| 23      | 116                        | 96                              | 30                                  | 70                         | 36                              | 6.7                                 | 61                         | 316                             | 91                                  |
| 24      | 105                        | 130                             | 37                                  | 69                         | 45                              | 8.4                                 | 48                         | 316                             | 41                                  |
| 25      | 95                         | 173                             | 44                                  | 67                         | 56                              | 10                                  | 44                         | 250                             | 29                                  |
| 26      | 89                         | 168                             | 40                                  | e63                        | 48                              | e11                                 | 44                         | 215                             | 25                                  |
| 27      | 80                         | 150                             | 33                                  | 71                         | 37                              | 7.0                                 | 43                         | 187                             | 22                                  |
| 28      | 76                         | 109                             | 22                                  | 65                         | 33                              | 5.8                                 | 42                         | 139                             | 16                                  |
| 29      | 71                         | 74                              | 14                                  | 102                        | 608                             | 410                                 | 40                         | 99                              | 11                                  |
| 30      | 69                         | 50                              | 9.3                                 | 85                         | 191                             | 44                                  | 39                         | 80                              | 8.5                                 |
| 31      | 66                         | 35                              | 6.2                                 | ---                        | ---                             | ---                                 | 39                         | 68                              | 7.1                                 |
| TOTAL   | 5334                       | ---                             | 40092.5                             | 2543                       | ---                             | 2815.5                              | 1642                       | ---                             | 398.9                               |

## RIO GRANDE DE ARECIBO BASIN

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 39                         | 58                              | 6.1                                 | e32                        | 183                             | e15                                 | 27                         | 94                              | 6.9                                 |
| 2       | 39                         | 52                              | 5.4                                 | e32                        | 174                             | e14                                 | 27                         | 114                             | 8.2                                 |
| 3       | 39                         | 87                              | 9.0                                 | 30                         | 165                             | 13                                  | 27                         | 115                             | 8.4                                 |
| 4       | 38                         | 148                             | 15                                  | 55                         | 1600                            | 969                                 | 28                         | 110                             | 8.2                                 |
| 5       | 38                         | 95                              | 9.8                                 | 217                        | 2630                            | 2410                                | 28                         | 106                             | 8.0                                 |
| 6       | e44                        | 56                              | e6.5                                | 58                         | 303                             | 58                                  | 31                         | 107                             | 10                                  |
| 7       | e60                        | 166                             | e26                                 | 34                         | 134                             | 12                                  | 68                         | 249                             | 56                                  |
| 8       | 47                         | 185                             | 23                                  | 55                         | 190                             | 40                                  | 36                         | 93                              | 9.4                                 |
| 9       | 38                         | 189                             | 20                                  | 74                         | 282                             | 67                                  | 29                         | 64                              | 5.0                                 |
| 10      | 39                         | 207                             | 22                                  | 46                         | 75                              | 9.4                                 | 31                         | 52                              | 4.4                                 |
| 11      | 39                         | 227                             | 24                                  | 47                         | 58                              | 7.4                                 | 28                         | 32                              | 2.4                                 |
| 12      | 44                         | 261                             | 32                                  | 52                         | 57                              | 7.9                                 | 29                         | 20                              | 1.6                                 |
| 13      | 65                         | 421                             | 75                                  | 49                         | 40                              | 5.3                                 | 29                         | 19                              | 1.5                                 |
| 14      | 45                         | 361                             | 44                                  | 50                         | 39                              | 5.3                                 | 31                         | 29                              | 2.7                                 |
| 15      | 38                         | 323                             | 33                                  | 54                         | 35                              | 5.2                                 | 53                         | 215                             | 57                                  |
| 16      | 37                         | 293                             | 29                                  | 45                         | 31                              | 3.7                                 | 30                         | 60                              | 4.9                                 |
| 17      | 41                         | 275                             | 31                                  | 40                         | 23                              | 2.5                                 | 43                         | 111                             | 17                                  |
| 18      | 41                         | 194                             | 21                                  | 38                         | 18                              | 1.8                                 | 33                         | 165                             | 15                                  |
| 19      | 44                         | 151                             | 18                                  | 35                         | 22                              | 2.0                                 | 24                         | 115                             | 7.4                                 |
| 20      | 39                         | 149                             | 16                                  | 32                         | 32                              | 2.8                                 | 22                         | 111                             | 6.7                                 |
| 21      | 41                         | 143                             | 16                                  | 29                         | 47                              | 3.7                                 | 24                         | 120                             | 7.9                                 |
| 22      | 34                         | 120                             | 11                                  | 28                         | 68                              | 5.1                                 | 22                         | 131                             | 7.8                                 |
| 23      | 33                         | 122                             | 11                                  | 27                         | 84                              | 6.1                                 | 22                         | 141                             | 8.5                                 |
| 24      | 34                         | 132                             | 12                                  | 27                         | 95                              | 6.8                                 | 22                         | 149                             | 8.7                                 |
| 25      | e36                        | 142                             | e13                                 | 27                         | 78                              | 5.7                                 | 22                         | 156                             | 9.2                                 |
| 26      | e36                        | 153                             | e14                                 | 35                         | 66                              | 6.5                                 | 24                         | 163                             | 11                                  |
| 27      | 32                         | 159                             | 14                                  | 28                         | 61                              | 4.7                                 | 23                         | 170                             | 11                                  |
| 28      | 31                         | 165                             | 14                                  | 28                         | 76                              | 5.7                                 | 24                         | 163                             | 10                                  |
| 29      | 31                         | 180                             | 15                                  | ---                        | ---                             | ---                                 | 73                         | 1690                            | 712                                 |
| 30      | 31                         | 196                             | 16                                  | ---                        | ---                             | ---                                 | 77                         | 1110                            | 261                                 |
| 31      | 30                         | 193                             | 16                                  | ---                        | ---                             | ---                                 | 61                         | 387                             | 66                                  |
| TOTAL   | 1223                       | ---                             | 617.8                               | 1304                       | ---                             | 3695.6                              | 1048                       | ---                             | 1353.8                              |

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1     | 59                         | 488                             | 169                                 | 46                         | 7                               | .87                                 | 66                         | 24                              | 4.3                                 |
| 2     | 156                        | 1020                            | 469                                 | 39                         | 6                               | .68                                 | 67                         | 21                              | 3.9                                 |
| 3     | e126                       | 614                             | e231                                | 39                         | 7                               | .75                                 | 64                         | 21                              | 3.6                                 |
| 4     | e51                        | 153                             | e22                                 | 37                         | 11                              | 1.1                                 | 72                         | 120                             | 34                                  |
| 5     | 47                         | 84                              | 11                                  | 38                         | 15                              | 1.5                                 | 250                        | 2180                            | 2930                                |
| 6     | 45                         | 64                              | 7.9                                 | 99                         | 826                             | 580                                 | 126                        | 428                             | 186                                 |
| 7     | 117                        | 654                             | 588                                 | 60                         | 168                             | 32                                  | 79                         | 102                             | 22                                  |
| 8     | 159                        | 1020                            | 479                                 | 190                        | 1120                            | 1700                                | 69                         | 92                              | 17                                  |
| 9     | 56                         | 156                             | 25                                  | 173                        | 583                             | 321                                 | 71                         | 199                             | 42                                  |
| 10    | 44                         | 61                              | 7.2                                 | 76                         | 99                              | 21                                  | 70                         | 119                             | 23                                  |
| 11    | 44                         | 33                              | 3.9                                 | 63                         | 28                              | 4.8                                 | 94                         | 472                             | 291                                 |
| 12    | 51                         | 29                              | 4.0                                 | 66                         | 19                              | 3.4                                 | 66                         | 163                             | 30                                  |
| 13    | 63                         | 144                             | 26                                  | 72                         | 15                              | 2.9                                 | 60                         | 47                              | 7.7                                 |
| 14    | 50                         | 73                              | 9.9                                 | 79                         | 18                              | 4.5                                 | 58                         | 38                              | 5.9                                 |
| 15    | 43                         | 47                              | 5.5                                 | 262                        | 1270                            | 1310                                | 55                         | 35                              | 5.2                                 |
| 16    | 49                         | 36                              | 4.7                                 | 117                        | 175                             | 61                                  | 90                         | 957                             | 560                                 |
| 17    | 67                         | 506                             | 162                                 | 67                         | 75                              | 14                                  | 176                        | 1120                            | 1210                                |
| 18    | 65                         | 298                             | 114                                 | 152                        | 819                             | 984                                 | 217                        | 1810                            | 1640                                |
| 19    | e148                       | 596                             | e197                                | 211                        | 1260                            | 997                                 | 105                        | 333                             | 109                                 |
| 20    | 62                         | 235                             | 43                                  | 216                        | 1420                            | 1110                                | 76                         | 54                              | 11                                  |
| 21    | 41                         | 64                              | 7.4                                 | 915                        | 3490                            | 23900                               | 73                         | 45                              | 8.8                                 |
| 22    | 54                         | 281                             | 78                                  | 454                        | 786                             | 1110                                | 73                         | 37                              | 7.3                                 |
| 23    | 68                         | 156                             | 31                                  | 333                        | 221                             | 199                                 | 67                         | 32                              | 5.7                                 |
| 24    | 54                         | 67                              | 9.8                                 | 222                        | 183                             | 111                                 | 70                         | 28                              | 5.4                                 |
| 25    | 51                         | 52                              | 7.0                                 | 167                        | 109                             | 50                                  | 104                        | 622                             | 337                                 |
| 26    | 51                         | 40                              | 5.5                                 | 125                        | 62                              | 21                                  | 76                         | 214                             | 46                                  |
| 27    | 50                         | 31                              | 4.2                                 | 101                        | 35                              | 9.8                                 | 72                         | 94                              | 18                                  |
| 28    | 58                         | 29                              | 4.5                                 | 86                         | 21                              | 4.9                                 | 65                         | 80                              | 14                                  |
| 29    | 52                         | 27                              | 3.7                                 | 83                         | 14                              | 3.2                                 | 61                         | 90                              | 15                                  |
| 30    | 49                         | 14                              | 1.9                                 | 89                         | 424                             | 139                                 | 60                         | 98                              | 16                                  |
| 31    | ---                        | ---                             | ---                                 | 74                         | 104                             | 21                                  | ---                        | ---                             | ---                                 |
| TOTAL | 2030                       | ---                             | 2732.1                              | 4751                       | ---                             | 32719.40                            | 2652                       | ---                             | 7608.8                              |

## RIO GRANDE DE ARECIBO BASIN

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 61                         | 54                                   | 8.8                                 | 189                        | 127                                  | 65                                  | 252                        | 198                                  | 137                                 |
| 2     | 65                         | 28                                   | 4.9                                 | 302                        | 993                                  | 1300                                | 400                        | 1440                                 | 2620                                |
| 3     | 85                         | 43                                   | 9.7                                 | 292                        | 679                                  | 531                                 | 355                        | 2600                                 | 2810                                |
| 4     | 72                         | 73                                   | 14                                  | 283                        | 498                                  | 574                                 | 573                        | 2360                                 | 4540                                |
| 5     | 67                         | 82                                   | 15                                  | 229                        | 78                                   | 49                                  | 405                        | 460                                  | 534                                 |
| 6     | 105                        | 826                                  | 441                                 | 310                        | 2120                                 | 4060                                | 601                        | 2670                                 | 6760                                |
| 7     | 88                         | 196                                  | 53                                  | e534                       | 2440                                 | e4710                               | 495                        | 239                                  | 321                                 |
| 8     | 70                         | 47                                   | 8.9                                 | 561                        | 2340                                 | 4400                                | 366                        | 225                                  | 222                                 |
| 9     | 67                         | 44                                   | 7.9                                 | 567                        | 1130                                 | 1860                                | 379                        | 1240                                 | 1700                                |
| 10    | 82                         | 44                                   | 9.7                                 | 513                        | 1830                                 | 3760                                | 285                        | 148                                  | 115                                 |
| 11    | 89                         | 39                                   | 9.4                                 | 827                        | 3230                                 | 12300                               | 325                        | 606                                  | 1020                                |
| 12    | 71                         | 35                                   | 6.7                                 | 670                        | 695                                  | 1310                                | 353                        | 812                                  | 1140                                |
| 13    | 68                         | 38                                   | 6.9                                 | 611                        | 144                                  | 242                                 | 262                        | 179                                  | 127                                 |
| 14    | 96                         | 413                                  | 187                                 | 434                        | 81                                   | 96                                  | 227                        | 148                                  | 91                                  |
| 15    | 131                        | 1230                                 | 556                                 | 310                        | 57                                   | 48                                  | 215                        | 124                                  | 72                                  |
| 16    | 444                        | 2050                                 | 4150                                | 345                        | 1580                                 | 2280                                | 255                        | 601                                  | 682                                 |
| 17    | 433                        | 443                                  | 522                                 | 280                        | 749                                  | 765                                 | 333                        | 1540                                 | 2360                                |
| 18    | 499                        | 347                                  | 543                                 | 216                        | 78                                   | 45                                  | 541                        | 2650                                 | 4980                                |
| 19    | 434                        | 272                                  | 319                                 | 207                        | 73                                   | 41                                  | e401                       | 90                                   | e102                                |
| 20    | 310                        | 215                                  | 181                                 | 207                        | 71                                   | 40                                  | e305                       | 73                                   | e60                                 |
| 21    | 289                        | 142                                  | 112                                 | 246                        | 771                                  | 585                                 | 589                        | 1370                                 | 11200                               |
| 22    | 215                        | 96                                   | 56                                  | 244                        | 215                                  | 140                                 | e7600                      | 1470                                 | e768000                             |
| 23    | 207                        | 115                                  | 70                                  | 247                        | 139                                  | 93                                  | e1500                      | 986                                  | e82500                              |
| 24    | 345                        | 632                                  | 619                                 | 281                        | 301                                  | 495                                 | e980                       | 663                                  | e27200                              |
| 25    | 213                        | 201                                  | 121                                 | 956                        | 1260                                 | 5330                                | e700                       | 2670                                 | e7000                               |
| 26    | 168                        | 72                                   | 33                                  | 599                        | 155                                  | 253                                 | e580                       | 2360                                 | e4540                               |
| 27    | 175                        | 51                                   | 24                                  | 551                        | 328                                  | 624                                 | e520                       | 1830                                 | e3760                               |
| 28    | 166                        | 47                                   | 21                                  | 356                        | 1590                                 | 1720                                | e500                       | 1820                                 | e3500                               |
| 29    | 158                        | 56                                   | 24                                  | 295                        | 210                                  | 168                                 | e860                       | 3230                                 | e12300                              |
| 30    | 155                        | 63                                   | 26                                  | 253                        | 120                                  | 82                                  | e560                       | 2340                                 | e4400                               |
| 31    | 263                        | 1050                                 | 1610                                | 282                        | 370                                  | 363                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 5691                       | ---                                  | 9769.9                              | 12197                      | ---                                  | 48329                               | 21717                      | ---                                  | 954793                              |
| YEAR  | 62132                      |                                      | 1104926.30                          |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>D (MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>D (T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 01... | 1945 | 247                                                                   | 6190                                                   | 4130                                                                       | 95                                                                       |
| NOV   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 29... | 1700 | 346                                                                   | 13000                                                  | 12100                                                                      | 98                                                                       |
| DEC   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 23... | 1850 | 113                                                                   | 1780                                                   | 543                                                                        | 89                                                                       |
| MAR   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 29... | 1635 | 165                                                                   | 5500                                                   | 2450                                                                       | 94                                                                       |
| APR   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 17... | 1555 | 170                                                                   | 1970                                                   | 904                                                                        | 96                                                                       |
| MAY   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 20... | 1715 | 350                                                                   | 5690                                                   | 5380                                                                       | 75                                                                       |
| SEP   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 02... | 1645 | 786                                                                   | 3660                                                   | 7770                                                                       | 79                                                                       |

## RIO GRANDE DE ARECIBO BASIN

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR--Continued

## WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154)                   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|-------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|       |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 01... | 1715 | 499                                                                     | 9460                                                                    | 12700                                                                     | 27                                                                       | 37                                                                       | 50                                                                       |                                                                          |
| 07... | 1845 | 766                                                                     | 13400                                                                   | 27700                                                                     | 30                                                                       | 42                                                                       | 58                                                                       |                                                                          |
| NOV   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 11... | 1745 | 361                                                                     | 8370                                                                    | 8160                                                                      | 34                                                                       | 45                                                                       | 62                                                                       |                                                                          |
| FEB   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 04... | 2215 | 215                                                                     | 12500                                                                   | 7260                                                                      | 20                                                                       | 27                                                                       | 38                                                                       |                                                                          |
| MAY   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 06... | 1745 | 322                                                                     | 5160                                                                    | 4490                                                                      | 36                                                                       | 48                                                                       | 61                                                                       |                                                                          |
| SEP   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 02... | 1500 | 934                                                                     | 6880                                                                    | 17400                                                                     | 30                                                                       | 40                                                                       | 54                                                                       |                                                                          |
| DATE  |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331)  | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|       |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 01... | 63   | 74                                                                      | 79                                                                      | 90                                                                        | 96                                                                       | 98                                                                       | 99                                                                       |                                                                          |
| 07... | 72   | 86                                                                      | 90                                                                      | 97                                                                        | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| NOV   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 11... | 78   | 90                                                                      | 94                                                                      | 99                                                                        | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| FEB   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 04... | 55   | 75                                                                      | 82                                                                      | 92                                                                        | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| MAY   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 06... | 73   | 83                                                                      | 87                                                                      | 97                                                                        | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| SEP   |      |                                                                         |                                                                         |                                                                           |                                                                          |                                                                          |                                                                          |                                                                          |
| 02... | 69   | 81                                                                      | 86                                                                      | 96                                                                        | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |

## RIO GRANDE DE ARECIBO BASIN

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'11", Long 66°41'59", at bridge near Highway 10 at km 56.4, 0.5 mi (0.8 km) downstream from Río de Caguana, and 2.5 mi (4.0 km) north of Utuado plaza.

DRAINAGE AREA.--66.0 mi<sup>2</sup> (170.9 km<sup>2</sup>) this excludes 6.0 mi<sup>2</sup> (15.5 km<sup>2</sup>) upstream from Lago Garzas to Río Guayanes in the Río Tallaboa basin.

PERIOD OF RECORD.--Water years 1959-74, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| OCT 29... | 1130 | 80                                              | 292                                     | 8.0                                            | 27.5                               | 6.3                       | 7.9                               | 99                                                | <10                                                  | K1600                                          | 810                                              |
| MAR 11... | 0945 | 34                                              | 316                                     | 7.9                                            | 21.5                               | 2.9                       | 8.6                               | 104                                               | <10                                                  | 20000                                          | K1100                                            |
| JUN 18... | 1245 | 240                                             | 173                                     | 7.8                                            | 26.5                               | 130                       | 7.2                               | 90                                                | <10                                                  | 30000                                          | 28000                                            |
| SEP 02... | 1040 | 215                                             | 257                                     | 7.5                                            | 26.5                               | 7.1                       | 7.7                               | 97                                                | <10                                                  | 3000                                           | 950                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 29... | 81                                      | 19                                      | 7.9                                         | 34                                      | 2                                 | 3.7                                        | 93                                                  | <.5                               | 15                                       | 33                                         |
| MAR 11... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 97                                                  | --                                | --                                       | --                                         |
| JUN 18... | 64                                      | 17                                      | 5.1                                         | 8.2                                     | .4                                | 2.6                                        | 54                                                  | --                                | 14                                       | 8.2                                        |
| SEP 02... | 84                                      | 21                                      | 7.6                                         | 10                                      | .5                                | 2.1                                        | 82                                                  | <1.0                              | 8.7                                      | 12                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 29... | <.10                                      | 25                                        | 192                                                     | 41.5                                      | 9                                                      | 1.23                                         | .075                                         | 1.30                                         | .020                                         | .23                                          |
| MAR 11... | --                                        | --                                        | --                                                      | --                                        | 6                                                      | 1.28                                         | .015                                         | 1.30                                         | .030                                         | .20                                          |
| JUN 18... | <.10                                      | 18                                        | 106                                                     | 68.5                                      | 176                                                    | 1.17                                         | .033                                         | 1.20                                         | .100                                         | .54                                          |
| SEP 02... | <.10                                      | 24                                        | 139                                                     | 80.7                                      | 74                                                     | 1.27                                         | .028                                         | 1.30                                         | .060                                         | .22                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N03) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 29... | .25                                                     | 1.5                                    | 6.9                                    | .220                                  | <1                                 | <100                                            | 20                                            | <1                                               | 1                                                  | 15                                              |
| MAR 11... | .23                                                     | 1.5                                    | 6.8                                    | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 18... | .64                                                     | 1.8                                    | 8.1                                    | .250                                  | <1                                 | <100                                            | 20                                            | <1                                               | 3                                                  | 29                                              |
| SEP 02... | .28                                                     | 1.6                                    | 7.0                                    | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE ARECIBO BASIN

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GRANDE DE ARECIBO BASIN

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR

LOCATION.--Lat 18°12'48", long 66°33'49", Hydrologic Unit 21010002, 2.0 mi (3.2 km) southeast of Jayuya, 1.4 mi (2.2 km) northeast of Hacienda Gripiñas.

DRAINAGE AREA.--9.25 mi<sup>2</sup> (23.96 km<sup>2</sup>).

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,706 ft (520 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR  | MAY  | JUN  | JUL  | AUG    | SEP   |
|-------|--------|-------|-------|-------|-------|-------|------|------|------|------|--------|-------|
| 1     | 14     | 9.9   | 9.2   | 4.0   | 4.9   | 6.5   | 24   | 14   | 25   | 12   | 11     | 27    |
| 2     | 16     | 9.6   | 9.5   | 4.1   | 4.9   | 6.3   | 22   | 14   | 36   | 12   | 13     | 267   |
| 3     | 16     | 9.1   | 8.6   | 3.9   | 4.9   | 7.3   | 22   | 13   | 30   | 13   | 13     | 354   |
| 4     | 11     | 9.1   | 7.4   | 3.6   | 126   | 8.2   | 20   | 13   | 41   | 14   | 10     | 356   |
| 5     | 9.4    | 8.7   | 7.0   | 3.6   | 259   | 6.6   | 15   | 12   | 222  | 12   | 9.5    | 138   |
| 6     | 8.7    | 8.0   | 6.6   | 3.7   | 28    | 13    | 13   | 15   | 82   | 29   | 21     | 161   |
| 7     | 38     | 7.5   | 6.0   | 4.5   | 16    | 55    | 340  | 17   | 45   | 24   | 51     | 103   |
| 8     | 45     | 7.1   | 5.8   | 4.1   | 57    | 27    | 105  | 139  | 35   | 16   | 110    | 71    |
| 9     | 32     | 29    | 5.7   | 3.7   | 48    | 12    | 43   | 55   | 32   | 14   | 60     | 92    |
| 10    | 25     | 54    | 5.6   | 3.9   | 22    | 9.5   | 28   | 27   | 28   | 16   | 39     | 58    |
| 11    | 18     | 17    | 5.4   | 5.8   | 16    | 8.3   | 27   | 21   | 25   | 15   | 62     | 230   |
| 12    | 30     | 17    | 5.1   | 4.8   | 14    | 7.7   | 72   | 17   | 23   | 13   | 62     | 116   |
| 13    | 101    | 14    | 5.1   | 7.8   | 12    | 7.2   | 60   | 17   | 22   | 13   | 40     | 148   |
| 14    | 306    | 12    | 4.9   | 7.3   | 12    | 17    | 37   | 244  | 20   | 81   | 28     | 89    |
| 15    | 285    | 33    | 4.9   | 4.5   | 15    | 68    | 28   | 158  | 19   | 49   | 22     | 60    |
| 16    | 150    | 22    | 4.6   | 4.0   | 11    | 30    | 28   | 59   | 44   | 32   | 30     | 56    |
| 17    | 199    | 14    | 4.7   | 3.7   | 10    | 16    | 36   | 39   | 69   | 26   | 29     | 52    |
| 18    | 173    | 12    | 5.1   | 9.6   | 9.4   | 12    | 56   | 32   | 39   | 22   | 25     | 108   |
| 19    | 73     | 11    | 5.6   | 18    | 8.7   | 10    | 53   | 31   | 25   | 19   | 23     | 76    |
| 20    | 46     | 11    | 4.6   | 11    | 8.3   | 16    | 88   | 226  | 21   | 17   | 19     | 55    |
| 21    | 34     | 10    | 5.1   | 7.2   | 8.1   | 18    | 63   | 269  | 20   | 16   | 43     | e2420 |
| 22    | 27     | 9.8   | 4.7   | 6.5   | 7.8   | 15    | 39   | 124  | 26   | 13   | 87     | e1050 |
| 23    | 23     | 9.0   | 4.4   | 5.9   | 7.3   | 16    | 32   | 68   | 19   | 14   | 55     | e270  |
| 24    | 19     | 9.0   | 4.2   | 5.6   | 7.6   | 12    | 30   | 50   | 17   | 16   | 462    | e150  |
| 25    | 17     | 8.8   | 4.1   | 5.8   | 7.7   | 12    | 27   | 40   | 17   | 14   | 629    | e110  |
| 26    | 15     | 9.8   | 4.1   | 5.8   | 9.3   | 12    | 23   | 35   | 16   | 12   | 93     | e98   |
| 27    | 14     | 9.6   | 3.9   | 5.4   | 7.5   | 11    | 21   | 31   | 15   | 16   | 95     | e90   |
| 28    | 13     | 8.2   | 3.8   | 5.1   | 6.8   | 12    | 19   | 28   | 14   | 13   | 58     | e86   |
| 29    | 12     | 29    | 3.9   | 5.1   | ---   | 13    | 17   | 25   | 13   | 12   | 43     | e145  |
| 30    | 11     | 17    | 4.0   | 5.1   | ---   | 48    | 15   | 45   | 13   | 11   | 33     | e98   |
| 31    | 10     | ---   | 4.0   | 5.1   | ---   | 39    | ---  | 31   | ---  | 11   | 34     | ---   |
| TOTAL | 1791.1 | 435.2 | 167.6 | 178.2 | 749.2 | 551.6 | 1403 | 1909 | 1053 | 597  | 2309.5 | 7134  |
| MEAN  | 57.8   | 14.5  | 5.41  | 5.75  | 26.8  | 17.8  | 46.8 | 61.6 | 35.1 | 19.3 | 74.5   | 238   |
| MAX   | 306    | 54    | 9.5   | 18    | 259   | 68    | 340  | 269  | 222  | 81   | 629    | 2420  |
| MIN   | 8.7    | 7.1   | 3.8   | 3.6   | 4.9   | 6.3   | 13   | 12   | 13   | 11   | 9.5    | 27    |
| AC-FT | 3550   | 863   | 332   | 353   | 1490  | 1090  | 2780 | 3790 | 2090 | 1180 | 4580   | 14150 |
| CFSM  | 6.25   | 1.57  | .58   | .62   | 2.89  | 1.92  | 5.06 | 6.66 | 3.79 | 2.08 | 8.05   | 25.7  |
| IN.   | 7.20   | 1.75  | .67   | .72   | 3.01  | 2.22  | 5.64 | 7.68 | 4.23 | 2.40 | 9.29   | 28.69 |

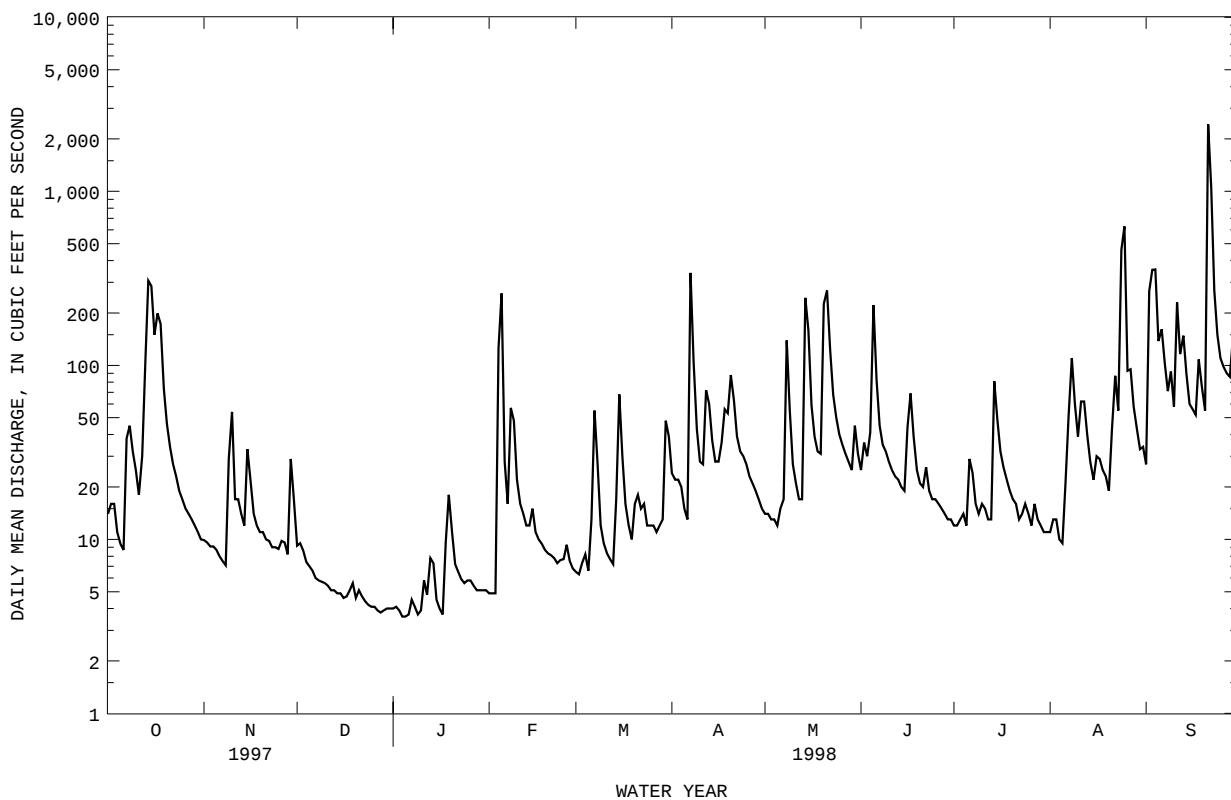
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 40.7 | 23.3 | 12.3 | 18.2 | 17.1 | 11.5 | 23.3 | 40.6 | 23.3 | 17.0 | 28.7 | 105  |
| MAX  | 72.0 | 40.0 | 22.7 | 48.1 | 44.4 | 17.8 | 46.8 | 98.6 | 35.4 | 50.9 | 74.5 | 365  |
| (WY) | 1996 | 1991 | 1993 | 1992 | 1996 | 1998 | 1998 | 1995 | 1994 | 1996 | 1998 | 1996 |
| MIN  | 11.6 | 10.0 | 5.41 | 4.13 | 4.67 | 4.79 | 5.95 | 5.35 | 5.30 | 2.83 | 9.82 | 10.8 |
| (WY) | 1992 | 1994 | 1998 | 1995 | 1994 | 1994 | 1994 | 1990 | 1997 | 1994 | 1994 | 1994 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1989 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 6112.2                 | 18278.4             |                         |
| ANNUAL MEAN              | 16.7                   | 50.1                | 30.0                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 64.0                    |
| LOWEST ANNUAL MEAN       |                        |                     | 10.9                    |
| HIGHEST DAILY MEAN       | 306                    | Oct 14              | 4700                    |
| LOWEST DAILY MEAN        | 3.1                    | Aug 7               | 2.3                     |
| ANNUAL SEVEN-DAY MINIMUM | 3.5                    | Jul 5               | 2.5                     |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 14500                   |
| INSTANTANEOUS PEAK STAGE |                        |                     | 19.29                   |
| INSTANTANEOUS LOW FLOW   |                        |                     | 2.1                     |
| ANNUAL RUNOFF (AC-FT)    | 12120                  | 36260               | 21760                   |
| ANNUAL RUNOFF (CFSM)     | 1.81                   | 5.41                | 3.25                    |
| ANNUAL RUNOFF (INCHES)   | 24.58                  | 73.51               | 44.11                   |
| 10 PERCENT EXCEEDS       | 30                     | 99                  | 54                      |
| 50 PERCENT EXCEEDS       | 8.8                    | 17                  | 13                      |
| 90 PERCENT EXCEEDS       | 4.0                    | 5.1                 | 4.5                     |

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR--Continued



## RIO GRANDE DE ARECIBO BASIN

50026025 RIO CAONILLAS AT PASO PALMA, PR

LOCATION.--Lat 18°13'53", long 66°38'14", Hydrologic Unit 21010001, 3.5 mi (5.6 km) south of Lago Caonillas Dam, 4.8 mi (7.72 km) southeast of Utuado Plaza and 2.78 mi (4.47 km) east of Lago Vivi Dam.

DRAINAGE AREA.--37.94 mi<sup>2</sup> (98.26 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 984 ft (300 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN    | JUL    | AUG    | SEP    |
|-------|------|------|------|------|------|------|------|------|--------|--------|--------|--------|
| 1     | 40   | 39   | 40   | 15   | 14   | 18   | 117  | 48   | 67     | 40     | 63     | 119    |
| 2     | 36   | 38   | 35   | 15   | 14   | 17   | 127  | 47   | e69.0  | 40     | 67     | 490    |
| 3     | 28   | 36   | 32   | 15   | 14   | 17   | e87  | 43   | e78.0  | 46     | 59     | 527    |
| 4     | 24   | 36   | 28   | 14   | 57   | 21   | e60  | 40   | e77.0  | 43     | 43     | 544    |
| 5     | 22   | 35   | 25   | 14   | 448  | 18   | 42   | 39   | e165   | 40     | 41     | 340    |
| 6     | 21   | 33   | 24   | 15   | 79   | 37   | 36   | 53   | e150   | e56.0  | e63.0  | 366    |
| 7     | 100  | 31   | 23   | 21   | 42   | 169  | 458  | 65   | e94    | e55.0  | e194   | 282    |
| 8     | 122  | 29   | 22   | 23   | 89   | 104  | 249  | 284  | e82.0  | e45.0  | e186   | 220    |
| 9     | 93   | 58   | 21   | 16   | 126  | 44   | 127  | 183  | e77.0  | e43.0  | e168   | 212    |
| 10    | 60   | 112  | 21   | 15   | 57   | 32   | 93   | 90   | e75.0  | e47.0  | e206   | 173    |
| 11    | 48   | 52   | 20   | 22   | 45   | 27   | 80   | 68   | e70.0  | e47.0  | e211   | 300    |
| 12    | 77   | 69   | 20   | 39   | 38   | 25   | 132  | 57   | e67.0  | e45.0  | e227   | 249    |
| 13    | 146  | 56   | 19   | e33  | 28   | 23   | 135  | 52   | e68.0  | e45.0  | 158    | 280    |
| 14    | 421  | 41   | 19   | e43  | 29   | 29   | 99   | 339  | e64.0  | e62.0  | 114    | 218    |
| 15    | 332  | 45   | 19   | e25  | 36   | 71   | 80   | 371  | e63.0  | e167   | 95     | 167    |
| 16    | 250  | 68   | 17   | e19  | 26   | 74   | 80   | 154  | e71.0  | 161    | 148    | 155    |
| 17    | 583  | 43   | 18   | e17  | 24   | 44   | 104  | 112  | e183   | 99     | 131    | 227    |
| 18    | 370  | 38   | 18   | e18  | 22   | 32   | 128  | 131  | e108   | 89     | 106    | 218    |
| 19    | 189  | 35   | 21   | e32  | 22   | 26   | e141 | 107  | e75.0  | 83     | 92     | 184    |
| 20    | 131  | 33   | 20   | 24   | 21   | 26   | 140  | 305  | 60     | e70    | 78     | 142    |
| 21    | 103  | 32   | 20   | 20   | 21   | 39   | 142  | 390  | 58     | e60    | 106    | e1420  |
| 22    | 86   | 31   | 20   | 18   | 20   | 28   | 131  | e252 | 66     | 50     | 177    | e13000 |
| 23    | 74   | 29   | 19   | 16   | 19   | 30   | 107  | e146 | 52     | 47     | 149    | e1370  |
| 24    | 65   | 28   | 18   | 16   | 18   | 25   | 84   | e106 | 49     | e60    | 360    | e663   |
| 25    | 59   | 31   | 17   | 16   | 20   | 23   | 83   | e90  | 56     | e51    | e498   | e528   |
| 26    | 54   | 36   | 17   | 16   | 39   | 26   | 72   | e81  | 50     | 43     | e233   | 450    |
| 27    | 49   | 34   | 16   | 15   | 24   | 23   | 67   | e76  | 46     | 69     | e247   | 401    |
| 28    | 47   | 28   | 16   | 14   | 20   | 24   | 65   | e73  | 44     | 49     | 191    | 455    |
| 29    | 45   | 72   | 16   | 14   | ---  | 30   | 54   | 69   | 43     | 45     | 147    | 387    |
| 30    | 43   | 79   | 15   | 14   | ---  | 106  | 49   | 79   | 41     | 42     | 124    | 353    |
| 31    | 41   | ---  | 15   | 14   | ---  | 102  | ---  | 83   | ---    | 87     | 153    | ---    |
| TOTAL | 3759 | 1327 | 651  | 608  | 1412 | 1310 | 3369 | 4033 | 2268.0 | 1926.0 | 4835.0 | 24440  |
| MEAN  | 121  | 44.2 | 21.0 | 19.6 | 50.4 | 42.3 | 112  | 130  | 75.6   | 62.1   | 156    | 815    |
| MAX   | 583  | 112  | 40   | 43   | 448  | 169  | 458  | 390  | 183    | 167    | 498    | 13000  |
| MIN   | 21   | 28   | 15   | 14   | 14   | 17   | 36   | 39   | 41     | 40     | 41     | 119    |
| AC-FT | 7460 | 2630 | 1290 | 1210 | 2800 | 2600 | 6680 | 8000 | 4500   | 3820   | 9590   | 48480  |
| CFSM  | 3.20 | 1.17 | .55  | .52  | 1.33 | 1.11 | 2.96 | 3.43 | 1.99   | 1.64   | 4.11   | 21.5   |
| IN.   | 3.69 | 1.30 | .64  | .60  | 1.38 | 1.28 | 3.30 | 3.95 | 2.22   | 1.89   | 4.74   | 23.96  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 119  | 82.5 | 48.6 | 53.1 | 59.8 | 39.8 | 62.2 | 95.2 | 57.7 | 64.9 | 88.9 | 413  |
| MAX  | 162  | 114  | 78.2 | 89.8 | 86.0 | 51.3 | 112  | 130  | 81.4 | 117  | 156  | 815  |
| (WY) | 1996 | 1997 | 1997 | 1997 | 1996 | 1996 | 1998 | 1998 | 1996 | 1996 | 1998 | 1998 |
| MIN  | 72.9 | 44.2 | 21.0 | 19.6 | 41.9 | 25.7 | 17.0 | 29.1 | 16.1 | 15.5 | 47.9 | 33.2 |
| (WY) | 1997 | 1998 | 1998 | 1998 | 1997 | 1997 | 1997 | 1997 | 1997 | 1997 | 1996 | 1997 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

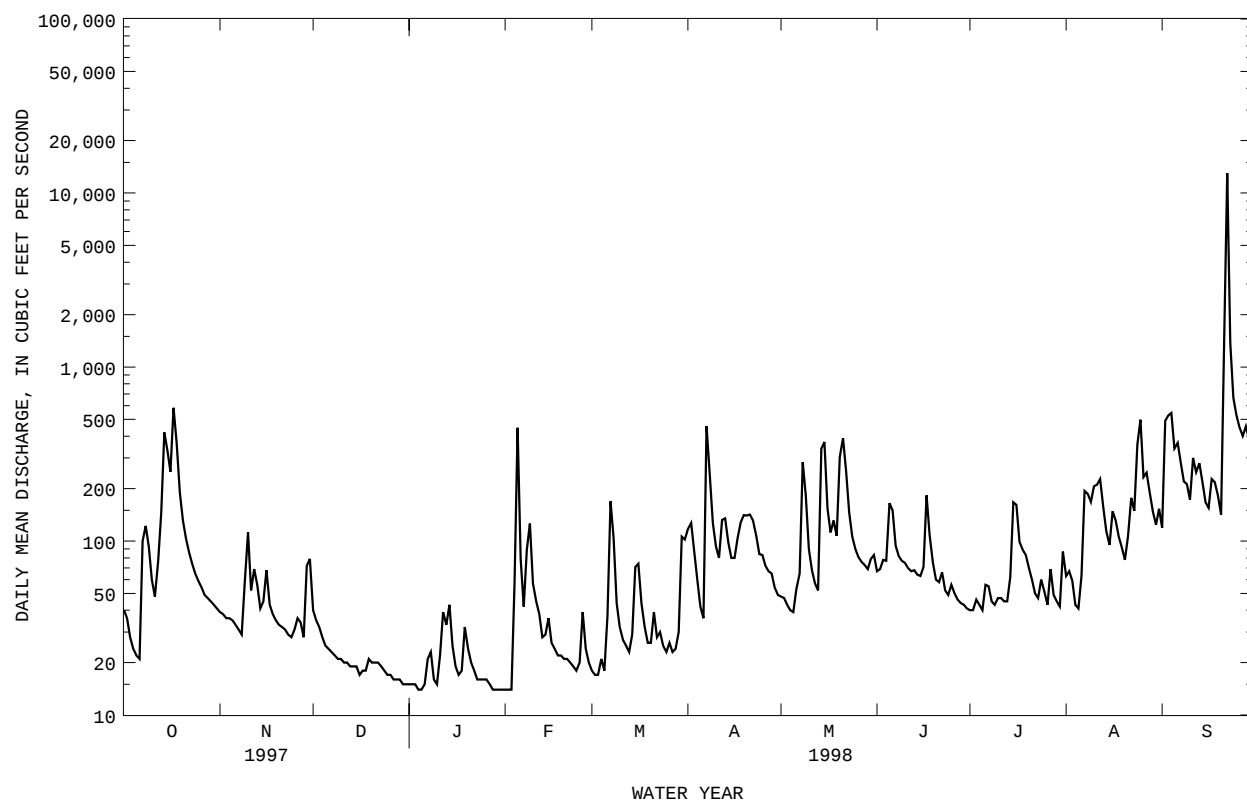
## FOR 1998 WATER YEAR

## WATER YEARS 1996 - 1998

|                          |       |         |       |
|--------------------------|-------|---------|-------|
| ANNUAL TOTAL             | 15818 | 49938.0 |       |
| ANNUAL MEAN              | 43.3  | 137     | 98.4  |
| HIGHEST ANNUAL MEAN      |       |         | 137   |
| LOWEST ANNUAL MEAN       |       |         | 49.9  |
| HIGHEST DAILY MEAN       | 583   | Oct 17  | 13000 |
| LOWEST DAILY MEAN        | 10    | Jul 4   | 10    |
| ANNUAL SEVEN-DAY MINIMUM | 11    | Jul 1   | 11    |
| INSTANTANEOUS PEAK FLOW  |       |         | 36000 |
| INSTANTANEOUS PEAK STAGE |       |         | 31.15 |
| INSTANTANEOUS LOW FLOW   |       |         | 13    |
| ANNUAL RUNOFF (AC-FT)    | 31380 | 99050   | 71260 |
| ANNUAL RUNOFF (CFSM)     | 1.14  | 3.61    | 2.59  |
| ANNUAL RUNOFF (INCHES)   | 15.51 | 48.96   | 35.22 |
| 10 PERCENT EXCEEDS       | 76    | 239     | 164   |
| 50 PERCENT EXCEEDS       | 28    | 54      | 47    |
| 90 PERCENT EXCEEDS       | 13    | 18      | 17    |

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued



RIO GRANDE DE ARECIBO BASIN  
50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued  
WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- October, 1995 to current water year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October, 1995 to current water year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1996.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 24,800 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 952,000 tons (864,000 tonnes) September 22, 1998; Minimum daily mean, 0.04 ton (0.03 tonne) December 29-30, 1998.

EXTREMES FOR CURRENT YEAR 1998.

SEDIMENT CONCENTRATION: Maximum daily mean, 24,800 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 952,000 tons (864,000 tonnes) September 22, 1998 ; Minimum daily mean, 0.04 ton (0.03 tonne) December 29-30, 1997 .

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 40                         | 73                              | 14                                  | 39                         | 1                               | .13                                 | 40                         | 96                              | 11                                  |
| 2       | 36                         | 88                              | 9.6                                 | 38                         | 1                               | .15                                 | 35                         | 41                              | 3.8                                 |
| 3       | 28                         | 26                              | 1.9                                 | 36                         | 2                               | .23                                 | 32                         | 30                              | 2.7                                 |
| 4       | 24                         | 29                              | 1.9                                 | 36                         | 4                               | .39                                 | 28                         | 23                              | 1.7                                 |
| 5       | 22                         | 36                              | 2.1                                 | 35                         | 5                               | .44                                 | 25                         | 18                              | 1.2                                 |
| 6       | 21                         | 34                              | 1.9                                 | 33                         | 4                               | .34                                 | 24                         | 14                              | .92                                 |
| 7       | 100                        | 1170                            | 774                                 | 31                         | 3                               | .26                                 | 23                         | 11                              | .67                                 |
| 8       | 122                        | 1190                            | 271                                 | 29                         | 3                               | .24                                 | 22                         | 8                               | .49                                 |
| 9       | 93                         | 250                             | 76                                  | 58                         | 5                               | .84                                 | 21                         | 5                               | .26                                 |
| 10      | 60                         | 50                              | 8.3                                 | 112                        | 13                              | 225                                 | 21                         | 2                               | .13                                 |
| 11      | 48                         | 21                              | 2.8                                 | 52                         | 49                              | 7.5                                 | 20                         | 2                               | .11                                 |
| 12      | 77                         | 199                             | 94                                  | 69                         | 241                             | 113                                 | 20                         | 2                               | .12                                 |
| 13      | 146                        | 685                             | 391                                 | 56                         | 155                             | 26                                  | 19                         | 5                               | .27                                 |
| 14      | 421                        | 677                             | 904                                 | 41                         | 22                              | 2.5                                 | 19                         | 10                              | .52                                 |
| 15      | 332                        | 434                             | 426                                 | 45                         | 69                              | 18                                  | 19                         | 10                              | .52                                 |
| 16      | 250                        | 400                             | 270                                 | 68                         | 112                             | 28                                  | 17                         | 9                               | .43                                 |
| 17      | 583                        | 3850                            | 17600                               | 43                         | 19                              | 2.2                                 | 18                         | 4                               | .17                                 |
| 18      | 370                        | 4750                            | 5540                                | 38                         | 8                               | .79                                 | 18                         | 1                               | .06                                 |
| 19      | 189                        | 366                             | 205                                 | 35                         | 6                               | .61                                 | 21                         | 1                               | .06                                 |
| 20      | 131                        | 32                              | 12                                  | 33                         | 8                               | .73                                 | 20                         | 1                               | .06                                 |
| 21      | 103                        | 22                              | 6.2                                 | 32                         | 17                              | 1.4                                 | 20                         | 1                               | .08                                 |
| 22      | 86                         | 18                              | 4.2                                 | 31                         | 26                              | 2.2                                 | 20                         | 2                               | .10                                 |
| 23      | 74                         | 15                              | 3.0                                 | 29                         | 12                              | .94                                 | 19                         | 1                               | .07                                 |
| 24      | 65                         | 12                              | 2.2                                 | 28                         | 5                               | .40                                 | 18                         | 1                               | .06                                 |
| 25      | 59                         | 9                               | 1.4                                 | 31                         | 22                              | 3.5                                 | 17                         | 3                               | .12                                 |
| 26      | 54                         | 7                               | .99                                 | 36                         | 29                              | 3.3                                 | 17                         | 5                               | .22                                 |
| 27      | 49                         | 10                              | 1.3                                 | 34                         | 12                              | 1.1                                 | 16                         | 2                               | .11                                 |
| 28      | 47                         | 16                              | 2.0                                 | 28                         | 11                              | .83                                 | 16                         | 1                               | .05                                 |
| 29      | 45                         | 13                              | 1.6                                 | 72                         | 899                             | 526                                 | 16                         | 1                               | .04                                 |
| 30      | 43                         | 8                               | .94                                 | 79                         | 410                             | 117                                 | 15                         | 1                               | .04                                 |
| 31      | 41                         | 3                               | .33                                 | ---                        | ---                             | ---                                 | 15                         | 1                               | .06                                 |
| TOTAL   | 3759                       | ---                             | 26629.66                            | 1327                       | ---                             | 1167.18                             | 651                        | ---                             | 26.14                               |

## RIO GRANDE DE ARECIBO BASIN

50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 15                         | 2                               | .08                                 | 14                         | 3                               | .09                                 | 18                         | 4                               | .22                                 |
| 2       | 15                         | 2                               | .08                                 | 14                         | 3                               | .11                                 | 17                         | 2                               | .11                                 |
| 3       | 15                         | 2                               | .08                                 | 14                         | 2                               | .09                                 | 17                         | 4                               | .17                                 |
| 4       | 14                         | 2                               | .08                                 | 57                         | 176                             | 502                                 | 21                         | 6                               | .33                                 |
| 5       | 14                         | 2                               | .08                                 | 448                        | 555                             | 1800                                | 18                         | 7                               | .35                                 |
| 6       | 15                         | 2                               | .08                                 | 79                         | 35                              | 8.3                                 | 37                         | 127                             | 38                                  |
| 7       | 21                         | 19                              | 1.7                                 | 42                         | 8                               | .92                                 | 169                        | 1840                            | 2070                                |
| 8       | 23                         | 27                              | 1.8                                 | 89                         | 703                             | 469                                 | 104                        | 1250                            | 439                                 |
| 9       | 16                         | 4                               | .19                                 | 126                        | 675                             | 303                                 | 44                         | 112                             | 14                                  |
| 10      | 15                         | 3                               | .11                                 | 57                         | 67                              | 11                                  | 32                         | 40                              | 3.5                                 |
| 11      | 22                         | 33                              | 8.3                                 | 45                         | 52                              | 6.4                                 | 27                         | 12                              | .89                                 |
| 12      | 39                         | 71                              | 10                                  | 38                         | 42                              | 4.3                                 | 25                         | 4                               | .28                                 |
| 13      | e33                        | 33                              | e3.2                                | 28                         | 18                              | 1.4                                 | 23                         | 3                               | .21                                 |
| 14      | e43                        | 101                             | e13                                 | 29                         | 8                               | .63                                 | 29                         | 36                              | 5.1                                 |
| 15      | e25                        | 26                              | e1.8                                | 36                         | 10                              | .94                                 | 71                         | 484                             | 110                                 |
| 16      | e19                        | 21                              | e1.1                                | 26                         | 11                              | .80                                 | 74                         | 126                             | 36                                  |
| 17      | e17                        | 21                              | e.98                                | 24                         | 5                               | .35                                 | 44                         | 122                             | 16                                  |
| 18      | e18                        | 20                              | e.98                                | 22                         | 2                               | .14                                 | 32                         | 31                              | 2.8                                 |
| 19      | e32                        | 66                              | e6.7                                | 22                         | 2                               | .12                                 | 26                         | 10                              | .72                                 |
| 20      | 24                         | 45                              | 3.0                                 | 21                         | 2                               | .12                                 | 26                         | 6                               | .40                                 |
| 21      | 20                         | 32                              | 1.7                                 | 21                         | 3                               | .16                                 | 39                         | 60                              | 7.2                                 |
| 22      | 18                         | 10                              | .49                                 | 20                         | 4                               | .19                                 | 28                         | 7                               | .52                                 |
| 23      | 16                         | 3                               | .15                                 | 19                         | 3                               | .14                                 | 30                         | 5                               | .43                                 |
| 24      | 16                         | 3                               | .13                                 | 18                         | 2                               | .10                                 | 25                         | 5                               | .32                                 |
| 25      | 16                         | 3                               | .13                                 | 20                         | 2                               | .11                                 | 23                         | 4                               | .28                                 |
| 26      | 16                         | 3                               | .13                                 | 39                         | 89                              | 10                                  | 26                         | 4                               | .26                                 |
| 27      | 15                         | 3                               | .12                                 | 24                         | 30                              | 2.0                                 | 23                         | 3                               | .17                                 |
| 28      | 14                         | 3                               | .11                                 | 20                         | 10                              | .52                                 | 24                         | 2                               | .14                                 |
| 29      | 14                         | 3                               | .11                                 | ---                        | ---                             | ---                                 | 30                         | 3                               | 22                                  |
| 30      | 14                         | 2                               | .09                                 | ---                        | ---                             | ---                                 | 106                        | 6                               | 205                                 |
| 31      | 14                         | 2                               | .08                                 | ---                        | ---                             | ---                                 | 102                        | 14                              | 159                                 |
| TOTAL   | 608                        | ---                             | 56.58                               | 1412                       | ---                             | 3122.93                             | 1310                       | ---                             | 3133.40                             |

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1     | 117                        | 762                             | 751                                 | 48                         | 5                               | .62                                 | 67                         | 7                               | 1.4                                 |
| 2     | 127                        | 729                             | 280                                 | 47                         | 2                               | .30                                 | e69.0                      | 7                               | e1.3                                |
| 3     | e87                        | 112                             | e30                                 | 43                         | 2                               | .23                                 | e78.0                      | 10                              | e2.1                                |
| 4     | e60                        | 50                              | e8.2                                | 40                         | 2                               | .22                                 | e77.0                      | 53                              | e16                                 |
| 5     | 42                         | 42                              | 4.8                                 | 39                         | 2                               | .26                                 | e165                       | 527                             | e925                                |
| 6     | 36                         | 38                              | 3.7                                 | 53                         | 110                             | 31                                  | e150                       | 470                             | e288                                |
| 7     | 458                        | 724                             | 5800                                | 65                         | 85                              | 19                                  | e94                        | 31                              | e7.7                                |
| 8     | 249                        | 129                             | 101                                 | 284                        | 1090                            | 2140                                | e82.0                      | 26                              | e5.7                                |
| 9     | 127                        | 20                              | 7.2                                 | 183                        | 578                             | 377                                 | e77.0                      | 22                              | e4.6                                |
| 10    | 93                         | 11                              | 2.7                                 | 90                         | 29                              | 7.3                                 | e75.0                      | 19                              | e3.8                                |
| 11    | 80                         | 7                               | 1.5                                 | 68                         | 13                              | 2.3                                 | e70.0                      | 16                              | e3.0                                |
| 12    | 132                        | 171                             | 279                                 | 57                         | 8                               | 1.3                                 | e67.0                      | 14                              | e2.5                                |
| 13    | 135                        | 249                             | 109                                 | 52                         | 17                              | 2.4                                 | e68.0                      | 12                              | e2.2                                |
| 14    | 99                         | 28                              | 7.6                                 | 339                        | 1470                            | 7100                                | e64.0                      | 11                              | e2.0                                |
| 15    | 80                         | 26                              | 5.8                                 | 371                        | 815                             | 1600                                | e63.0                      | 11                              | e1.8                                |
| 16    | 80                         | 10                              | 2.2                                 | 154                        | 60                              | 26                                  | e71.0                      | 75                              | e31                                 |
| 17    | 104                        | 253                             | 117                                 | 112                        | 17                              | 5.1                                 | e183                       | 1490                            | e1280                               |
| 18    | 128                        | 708                             | 325                                 | 131                        | 353                             | 203                                 | e108                       | 152                             | e56                                 |
| 19    | e141                       | 890                             | e401                                | 107                        | 595                             | 172                                 | e75.0                      | 32                              | e6.5                                |
| 20    | 140                        | 979                             | 412                                 | 305                        | 2020                            | 4090                                | 60                         | 16                              | 2.6                                 |
| 21    | 142                        | 167                             | 99                                  | 390                        | 3050                            | 3570                                | 58                         | 7                               | 1.1                                 |
| 22    | 131                        | 321                             | 176                                 | e252                       | 717                             | e574                                | 66                         | 5                               | .94                                 |
| 23    | 107                        | 405                             | 125                                 | e146                       | 47                              | e19                                 | 52                         | 4                               | .60                                 |
| 24    | 84                         | 73                              | 17                                  | e106                       | 26                              | e7.6                                | 49                         | 5                               | .65                                 |
| 25    | 83                         | 36                              | 8.0                                 | e90                        | 20                              | e4.9                                | 56                         | 6                               | .87                                 |
| 26    | 72                         | 21                              | 4.1                                 | e81                        | 18                              | e4.0                                | 50                         | 5                               | .71                                 |
| 27    | 67                         | 12                              | 2.2                                 | e76                        | 16                              | e3.3                                | 46                         | 5                               | .60                                 |
| 28    | 65                         | 9                               | 1.5                                 | e73                        | 12                              | e2.4                                | 44                         | 4                               | .52                                 |
| 29    | 54                         | 10                              | 1.5                                 | 69                         | 10                              | 1.9                                 | 43                         | 5                               | .57                                 |
| 30    | 49                         | 10                              | 1.3                                 | 79                         | 81                              | 27                                  | 41                         | 11                              | 1.2                                 |
| 31    | ---                        | ---                             | ---                                 | 83                         | 24                              | 6.0                                 | ---                        | ---                             | ---                                 |
| TOTAL | 3369                       | ---                             | 9084.3                              | 4033                       | ---                             | 19998.13                            | 2268.0                     | ---                             | 2650.96                             |

## RIO GRANDE DE ARECIBO BASIN

50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 40                         | 18                                   | 1.9                                 | 63                         | 203                                  | 37                                  | 119                        | 82                                   | 29                                  |
| 2     | 40                         | 8                                    | .91                                 | 67                         | 237                                  | 71                                  | 490                        | 3390                                 | 11100                               |
| 3     | 46                         | 4                                    | .53                                 | 59                         | 164                                  | 29                                  | 527                        | 5350                                 | 11400                               |
| 4     | 43                         | 5                                    | .53                                 | 43                         | 33                                   | 3.8                                 | 544                        | 4260                                 | 12300                               |
| 5     | 40                         | 5                                    | .54                                 | 41                         | 29                                   | 3.1                                 | 340                        | 3390                                 | 3410                                |
| 6     | e56.0                      | 446                                  | e112                                | e63.0                      | 37                                   | e6.3                                | 366                        | 2690                                 | 5560                                |
| 7     | e55.0                      | 66                                   | e11                                 | e194                       | 755                                  | e893                                | 282                        | 230                                  | 33                                  |
| 8     | e45.0                      | 21                                   | e2.6                                | e186                       | 505                                  | e431                                | 220                        | 229                                  | 31                                  |
| 9     | e43.0                      | 23                                   | e2.7                                | e168                       | 634                                  | e344                                | 212                        | 226                                  | 619                                 |
| 10    | e47.0                      | 26                                   | e3.3                                | e206                       | 814                                  | e1100                               | 173                        | 190                                  | 57                                  |
| 11    | e47.0                      | 26                                   | e3.3                                | e211                       | 854                                  | e857                                | 300                        | 287                                  | 2140                                |
| 12    | e45.0                      | 26                                   | e3.1                                | e227                       | 841                                  | e619                                | 249                        | 33                                   | 33                                  |
| 13    | e45.0                      | 25                                   | e3.1                                | 158                        | 287                                  | 134                                 | 280                        | 287                                  | 2100                                |
| 14    | e62.0                      | 160                                  | e99                                 | 114                        | 149                                  | 46                                  | 218                        | 27                                   | 30                                  |
| 15    | e167                       | 446                                  | e296                                | 95                         | 161                                  | 41                                  | 167                        | 26                                   | 10                                  |
| 16    | 161                        | 376                                  | 253                                 | 148                        | 1200                                 | 933                                 | 155                        | 25                                   | 10                                  |
| 17    | 99                         | 72                                   | 20                                  | 131                        | 81                                   | 33                                  | 227                        | 755                                  | e900                                |
| 18    | 89                         | 21                                   | 5.1                                 | 106                        | 32                                   | 9.1                                 | 218                        | 1200                                 | 933                                 |
| 19    | 83                         | 18                                   | 4.0                                 | 92                         | 29                                   | 7.2                                 | 184                        | 97                                   | 57                                  |
| 20    | e70                        | 16                                   | e3.1                                | 78                         | 27                                   | 5.6                                 | 142                        | 26                                   | 10                                  |
| 21    | e60                        | 13                                   | e2.2                                | 106                        | 69                                   | 164                                 | e1420                      | 4920                                 | e110000                             |
| 22    | 50                         | 13                                   | 1.7                                 | 177                        | 219                                  | 675                                 | e13000                     | 24800                                | e952000                             |
| 23    | 47                         | 22                                   | 2.8                                 | 149                        | 71                                   | 386                                 | e1370                      | 12200                                | e47200                              |
| 24    | e60                        | 30                                   | e4.8                                | 360                        | 949                                  | 6430                                | e663                       | 6000                                 | e19100                              |
| 25    | e51                        | 21                                   | e2.9                                | e498                       | 211                                  | e698                                | e528                       | 5300                                 | e10900                              |
| 26    | 43                         | 14                                   | 1.7                                 | e233                       | 53                                   | e33                                 | 450                        | 2690                                 | 7060                                |
| 27    | 69                         | 11                                   | 52                                  | e247                       | 347                                  | e352                                | 401                        | 1000                                 | 5190                                |
| 28    | 49                         | 9                                    | 1.3                                 | 191                        | 97                                   | 57                                  | 455                        | 1500                                 | 8180                                |
| 29    | 45                         | 11                                   | 1.4                                 | 147                        | 26                                   | 10                                  | 387                        | 900                                  | 4760                                |
| 30    | 42                         | 13                                   | 1.5                                 | 124                        | 33                                   | 11                                  | 353                        | 878                                  | 3710                                |
| 31    | 87                         | 430                                  | 298                                 | 153                        | 443                                  | 296                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 1926.0                     | ---                                  | 1196.01                             | 4835.0                     | ---                                  | 14715.1                             | 24440                      | ---                                  | 1218862                             |
| YEAR  | 49938.0                    |                                      | 1300642.39                          |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>D (MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>D (T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 30... | 1030 | 69                                                                    | 260                                                    | 48                                                                         | 63                                                                       |
| FEB   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 05... | 0245 | 1210                                                                  | 908                                                    | 2970                                                                       | 73                                                                       |
| 08... | 1800 | 117                                                                   | 1610                                                   | 509                                                                        | 58                                                                       |
| JUL   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 06... | 1800 | 88                                                                    | 4110                                                   | 977                                                                        | 91                                                                       |
| AUG   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 31... | 1845 | 299                                                                   | 2010                                                   | 1620                                                                       | 94                                                                       |

## RIO GRANDE DE ARECIBO BASIN

50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |
|-------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|       |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) |
| OCT   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |
| 07... | 1730 | 270                                                                     | 5110                                                                    | 3730                                                                     | 43                                                                       | 56                                                                       | 71                                                                       |
| NOV   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |
| 12... | 1630 | 41                                                                      | 2270                                                                    | 251                                                                      | 38                                                                       | 48                                                                       | 61                                                                       |
| FEB   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |
| 04... | 2400 | 1890                                                                    | 5610                                                                    | 28600                                                                    | 42                                                                       | 53                                                                       | 67                                                                       |
| MAR   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |
| 07... | 1630 | 76                                                                      | 4320                                                                    | 886                                                                      | 19                                                                       | 26                                                                       | 36                                                                       |
| 07... | 1900 | 536                                                                     | 6750                                                                    | 9770                                                                     | 37                                                                       | 48                                                                       | 61                                                                       |
| JUL   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |
| 31... | 1915 | 288                                                                     | 3260                                                                    | 2540                                                                     | 42                                                                       | 54                                                                       | 69                                                                       |
| AUG   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |
| 16... | 1830 | 340                                                                     | 5380                                                                    | 4940                                                                     | 33                                                                       | 47                                                                       | 61                                                                       |

## RIO GRANDE DE ARECIBO BASIN

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°13'26", Long 66°38'22", 300 ft (91 m) off Highway 531, 700 ft (213 m) upstream from Lago Caonillas, 3.3 mi (5.3 km) northwest of Jayuya plaza.

DRAINAGE AREA.--40.4 mi<sup>2</sup> (104.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 28... | 1340 | 51                                              | 214                                     | 8.1                                      | 28.0                               | 23                        | 7.4                               | 97                                                | <10                                                  | K130                                                | K100                                             |
| MAR 10... | 1245 | 37                                              | 236                                     | 7.9                                      | 25.0                               | 1.5                       | 8.1                               | 100                                               | <10                                                  | 4100                                                | 210                                              |
| JUN 17... | 1445 | 114                                             | 159                                     | 7.4                                      | 26.0                               | 110                       | 7.3                               | 93                                                | <10                                                  | K120000                                             | 70000                                            |
| SEP 08... | 1155 | E300                                            | 168                                     | 7.3                                      | 25.5                               | 120                       | 7.8                               | 101                                               | <10                                                  | K1500                                               | 570                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 28... | 63                                      | 16                                      | 6.3                                         | 9.9                                     | .5                                | 3.1                                        | 66                                                  | <.5                               | 10                                       | 8.2                                        |
| MAR 10... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 74                                                  | --                                | --                                       | --                                         |
| JUN 17... | 58                                      | 15                                      | 5.0                                         | 8.0                                     | .5                                | 1.7                                        | 51                                                  | --                                | 10                                       | 10                                         |
| SEP 08... | 60                                      | 16                                      | 5.0                                         | 9.0                                     | .5                                | 1.9                                        | 54                                                  | <1.0                              | 12                                       | 9.2                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 28... | <.10                                      | 22                                        | 109                                                     | 15.0                                      | 174                                                    | --                                           | <.010                                        | .680                                         | .020                                         | --                                           |
| MAR 10... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | --                                           | <.010                                        | 1.20                                         | .030                                         | --                                           |
| JUN 17... | <.10                                      | 19                                        | 100                                                     | 30.7                                      | 270                                                    | .862                                         | .018                                         | .880                                         | .040                                         | 1.2                                          |
| SEP 08... | <.10                                      | 25                                        | 111                                                     | E90.0                                     | 8                                                      | 1.09                                         | .014                                         | 1.10                                         | .050                                         | .66                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 28... | <.20                                                    | --                                   | --                                     | .060                                  | <1                                 | <100                                            | 10                                            | <1                                               | <1                                                 | <10                                             |
| MAR 10... | <.20                                                    | --                                   | --                                     | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 17... | 1.2                                                     | 2.1                                  | 9.2                                    | .400                                  | <1                                 | <100                                            | 30                                            | <1                                               | 9                                                  | 34                                              |
| SEP 08... | .71                                                     | 1.8                                  | 8.0                                    | .070                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE ARECIBO BASIN

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GRANDE DE ARECIBO BASIN

50026140 LAGO CAONILLAS AT DAMSITE NEAR UTUADO, PR

LOCATION.--Lat 18°16'43", long 66°39'24", Hydrologic Unit 21010001, at Lago Caonillas Dam on Río Caonillas, 2.9 mi (4.7 km) northeast of Plaza de Utuado, 0.3 mi (0.6 km) west from Iglesia Santa María del Monte Carmelo, and 1.8 mi (3.0 km) northwest from Hacienda Carbone11.

DRAINAGE AREA.--48.4 mi<sup>2</sup> (125.4 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--March 1991 to current year. Prior to October 1994, published as Lago Caonillas at Caonillas.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Caonillas was completed in 1948. The dam is a concrete gravity structure with a total length of 815 ft (248 m), a maximum height of 235 ft (72 m), and a maximum base width of 195 ft (59 m). Non-overflow sections on each abutment have a total length of 603 ft (184 m). The dam is the main unit of Caonillas Hydroelectric Project, and provides 49,000 acre-feet (60 hm<sup>3</sup>) of usable storage for power generation at Caonillas Power Plant No. 1 located 2.5 mi (4.0 km) downstream from the dam. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 841.29 ft (256.42 m), Sept. 22, 1998; minimum elevation, 737.92 ft (224.92 m), Aug. 8, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 841.29 ft (256.42 m), Sept. 22; minimum elevation, 766.57 ft (233.65 m), Oct. 5.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 705                | 0                      | 800                | 27,982                 |
| 750                | 8,421                  | 830                | 46,161                 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 768.16 | 784.66 | 786.24 | 785.63 | 785.57 | A      | 788.67 | 799.11 | 815.66 | A      | 821.04 | 823.54 |
| 2   | 768.22 | 784.68 | 786.32 | 785.61 | 785.54 | A      | 789.16 | 799.19 | 815.82 | A      | 820.68 | 825.57 |
| 3   | 768.20 | 784.70 | 786.39 | 785.63 | 784.56 | A      | 789.47 | 799.26 | 816.02 | A      | 820.28 | 826.38 |
| 4   | 768.29 | 784.65 | 786.44 | 785.63 | 784.85 | A      | 789.61 | 799.18 | 816.19 | A      | 820.08 | 825.11 |
| 5   | 767.90 | 784.67 | 786.43 | 785.66 | 788.02 | A      | 789.76 | 799.23 | 817.76 | A      | 819.61 | 824.38 |
| 6   | 767.83 | 784.29 | 786.45 | 785.68 | 787.12 | 788.30 | 789.76 | 799.46 | 818.37 | A      | 819.42 | 825.46 |
| 7   | 769.06 | 784.30 | 786.45 | 785.36 | 786.76 | 789.15 | 792.90 | 799.62 | 818.49 | A      | 820.19 | 825.65 |
| 8   | 769.82 | 784.01 | 786.47 | 785.37 | 787.17 | 789.49 | 793.99 | 801.34 | 818.66 | A      | 820.97 | 825.43 |
| 9   | 769.76 | 784.18 | 786.48 | 785.33 | 787.75 | 789.59 | 794.39 | 802.13 | 818.74 | A      | 821.50 | 823.32 |
| 10  | 769.81 | 784.66 | 786.35 | 785.32 | 787.93 | 789.62 | 794.65 | 802.40 | 818.78 | A      | 822.13 | 824.37 |
| 11  | 769.82 | 784.87 | 786.36 | 785.32 | 788.03 | 789.67 | 794.84 | 802.58 | 818.93 | A      | 823.29 | 824.42 |
| 12  | 770.35 | 785.28 | 786.36 | 785.44 | 788.12 | 789.09 | 795.26 | 802.71 | 818.51 | A      | 824.08 | 824.39 |
| 13  | 771.15 | 785.44 | 786.37 | 785.53 | 788.17 | 787.90 | 795.51 | 802.83 | 818.53 | 822.74 | 824.38 | 824.56 |
| 14  | 774.72 | 785.56 | 786.38 | 785.61 | 788.24 | 787.85 | 795.40 | 804.59 | 818.67 | 822.54 | 824.22 | 824.50 |
| 15  | 775.52 | 785.66 | 786.37 | 785.62 | 788.32 | 788.10 | 795.50 | 806.51 | 818.46 | 822.93 | 823.97 | 824.06 |
| 16  | 776.98 | 785.52 | 786.36 | 785.62 | 788.37 | 787.48 | 795.66 | 807.05 | 818.65 | 823.28 | 824.42 | 824.16 |
| 17  | 782.73 | 785.26 | 786.35 | 785.61 | 788.40 | 787.62 | 796.05 | 807.39 | 819.35 | 823.43 | 824.38 | 824.37 |
| 18  | 785.35 | 785.34 | 786.35 | 785.69 | 788.42 | 787.61 | 796.23 | 807.22 | 819.73 | 823.66 | 824.22 | 824.12 |
| 19  | 786.05 | 785.23 | 786.36 | 785.74 | A      | 787.66 | 796.66 | 807.71 | 819.52 | 823.68 | 823.92 | 823.77 |
| 20  | 787.56 | 785.30 | 786.15 | 785.88 | A      | 787.69 | 797.17 | 809.28 | 818.92 | 823.91 | 823.62 | 822.61 |
| 21  | 787.35 | 785.34 | 785.99 | 785.90 | A      | 787.79 | 797.70 | 811.98 | 819.48 | 823.69 | 823.56 | 830.08 |
| 22  | 787.54 | 785.38 | 786.05 | 785.89 | A      | 787.85 | 797.92 | 813.24 | 819.65 | 823.32 | 823.72 | 830.98 |
| 23  | 787.16 | 785.31 | 786.06 | 785.88 | A      | 787.90 | 798.30 | 813.82 | 819.80 | 823.41 | 824.01 | 827.71 |
| 24  | 787.32 | 785.35 | 785.85 | 785.86 | A      | 787.73 | 798.55 | 814.21 | 819.98 | 823.08 | 824.52 | 827.15 |
| 25  | 787.31 | 785.28 | 785.84 | 785.84 | A      | 787.77 | 798.80 | 814.31 | 820.22 | 823.17 | 826.79 | 826.87 |
| 26  | 787.04 | 785.37 | 785.82 | 785.82 | A      | 787.79 | 798.98 | 814.57 | 820.37 | 822.78 | 826.29 | 826.76 |
| 27  | 786.01 | 785.44 | 785.82 | 785.75 | A      | 787.82 | 799.15 | 814.78 | 820.52 | 822.78 | 826.17 | 826.67 |
| 28  | 785.03 | 785.48 | 785.78 | 785.72 | A      | 787.85 | 799.26 | 814.95 | 820.66 | 822.42 | 825.81 | 827.06 |
| 29  | 785.08 | 785.79 | 785.75 | 785.68 | ---    | 787.94 | 799.28 | 815.12 | A      | 822.10 | 825.41 | 826.83 |
| 30  | 785.12 | 786.14 | 785.62 | 785.65 | ---    | 788.37 | 799.09 | 815.31 | A      | 821.57 | 824.93 | 826.68 |
| 31  | 785.08 | ---    | 785.60 | 785.61 | ---    | 788.19 | ---    | 815.52 | ---    | 821.41 | 824.35 | ---    |
| MAX | 787.56 | 786.14 | 786.48 | 785.90 | ---    | ---    | 799.28 | 815.52 | ---    | ---    | 826.79 | 830.98 |
| MIN | 767.83 | 784.01 | 785.60 | 785.32 | ---    | ---    | 788.67 | 799.11 | ---    | ---    | 819.42 | 822.61 |

A No gage-height record

## RIO GRANDE DE ARECIBO BASIN

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'50", Long 66°40'02", at pedestrian bridge, 0.7 mi (1.1 km) downstream from Lago Dos Bocas and 6.6 mi (10.6 km) west of Florida plaza.

DRAINAGE AREA.--169 mi<sup>2</sup> (436 km<sup>2</sup>) does not include 6.0 mi<sup>2</sup> (15.6 km<sup>2</sup>) above Lago Garzas.

PERIOD OF RECORD.--Water years 1970-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (000061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (000095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (000400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (000076) | OXYGEN, DIS-SOLVED (MG/L) (000300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|--------------------------------------------------|------------------------------------------|-------------------------------------------------|------------------------------------|----------------------------|------------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 28... | 0930 | E2000                                            | 213                                      | 7.6                                             | 26.5                               | 1.8                        | 4.0                                | 49                                                | <10                                                  | K40                                                 | K50                                             |
| MAR 10... | 1015 | 30                                               | 256                                      | 7.9                                             | 25.0                               | .80                        | 5.5                                | 67                                                | <10                                                  | 4400                                                | <10                                             |
| JUN 23... | 0900 | 26                                               | 210                                      | 7.7                                             | 26.5                               | 5.7                        | 4.6                                | 57                                                | <10                                                  | 270                                                 | K140                                            |
| SEP 04... | 0905 | E1800                                            | 176                                      | 6.9                                             | 26.0                               | 68                         | 5.1                                | 62                                                | <10                                                  | 2600                                                | 5600                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 28... | 80                                      | 23                                      | 5.8                                         | 9.4                                     | .5                                | 2.1                                        | 71                                                  | <.5                               | 11                                       | 9.2                                        |
| MAR 10... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 90                                                  | --                                | --                                       | --                                         |
| JUN 23... | 80                                      | 22                                      | 5.9                                         | 9.2                                     | .4                                | 2.4                                        | 74                                                  | --                                | 13                                       | 10                                         |
| SEP 04... | 66                                      | 18                                      | 5.0                                         | 8.1                                     | .4                                | 2.6                                        | 62                                                  | <1.0                              | 11                                       | 8.9                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 28... | <.10                                      | 21                                        | 123                                                     | E664                                      | 9                                                      | --                                           | <.010                                        | .810                                         | .010                                         | .30                                          |
| MAR 10... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | .251                                         | .029                                         | .280                                         | .110                                         | .27                                          |
| JUN 23... | <.10                                      | 18                                        | 125                                                     | 8.93                                      | 6                                                      | --                                           | <.010                                        | .490                                         | .050                                         | --                                           |
| SEP 04... | <.10                                      | 20                                        | 110                                                     | E535                                      | 62                                                     | .703                                         | .017                                         | .720                                         | .080                                         | .43                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 28... | .31                                                     | 1.1                                  | 5.0                                    | .060                                  | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| MAR 10... | .38                                                     | .66                                  | 2.9                                    | .050                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 23... | <.20                                                    | --                                   | --                                     | <.020                                 | <1                                 | <100                                            | <10                                           | <1                                               | <1                                                 | <10                                             |
| SEP 04... | .51                                                     | 1.2                                  | 5.4                                    | .050                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR

LOCATION.--Lat 18°25'22", long 66°41'58", Hydrologic Unit 21010002, 0.5 mi (0.8 km) upstream from Río Tanamá, 3.6 mi (5.8 km) south of Arecibo and 4.9 mi (7.9 km) above mouth, and 10.4 mi (16.7 km) downstream from Lago Dos Bocas.

DRAINAGE AREA.--174 mi<sup>2</sup> (451 km<sup>2</sup>), approximately, of which an undetermined amount does not contribute directly to surface runoff.

PERIOD OF RECORD.--April 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 30 ft (9 m), from topographic map.

REMARKS.--Records fair. Flow regulated by Lago Dos Bocas Dam 10.4 mi (16.7 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------|-------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| 1     | 149   | 102  | 109  | 115  | 156  | 24   | 162  | 127   | 467   | e52   | 168   | 526   |
| 2     | 77    | 155  | 172  | 134  | 79   | 27   | 92   | 101   | 273   | e44   | 138   | 426   |
| 3     | 355   | 166  | 255  | 150  | 262  | 30   | 39   | 41    | 102   | 45    | 271   | 381   |
| 4     | 136   | 243  | 355  | 67   | 182  | 251  | 41   | 85    | 107   | 39    | 327   | e222  |
| 5     | 111   | 220  | 301  | 54   | 101  | 366  | 36   | 50    | 350   | 35    | 325   | 351   |
| 6     | 147   | 229  | 114  | 52   | 460  | 71   | 34   | 69    | 418   | 48    | 301   | e370  |
| 7     | 213   | 159  | 148  | 69   | 248  | 40   | 41   | 120   | 252   | 55    | 452   | e410  |
| 8     | 187   | 83   | 162  | 172  | 164  | 37   | 232  | 84    | 322   | 160   | 306   | e390  |
| 9     | 98    | 156  | 161  | 55   | 146  | 27   | 77   | 191   | 224   | 248   | 335   | 484   |
| 10    | 250   | 57   | 181  | 58   | 54   | 24   | 121  | 104   | 201   | 368   | 524   | 691   |
| 11    | 182   | 48   | 110  | 45   | 49   | 22   | 51   | 269   | 295   | 135   | 644   | 263   |
| 12    | 253   | 122  | 89   | 114  | 46   | 24   | 33   | 395   | 655   | 203   | 987   | 226   |
| 13    | 1290  | 191  | 74   | 107  | 43   | 24   | 142  | 146   | 573   | 294   | 646   | 410   |
| 14    | 659   | 120  | 124  | 48   | 43   | 23   | 240  | 45    | 236   | 220   | 557   | 483   |
| 15    | 646   | 59   | 88   | 116  | 41   | 25   | 83   | 37    | 315   | 92    | 547   | 468   |
| 16    | 475   | 128  | 167  | 198  | 78   | 25   | 156  | 30    | 294   | 297   | 391   | 663   |
| 17    | 420   | 349  | 155  | 113  | 299  | 22   | 128  | 124   | 92    | 296   | 409   | 426   |
| 18    | 694   | 221  | 142  | 48   | 108  | 27   | 158  | 315   | 89    | 146   | 454   | 420   |
| 19    | 398   | 111  | 86   | 44   | 60   | 27   | 139  | 166   | 169   | 311   | 267   | 667   |
| 20    | 351   | 274  | 73   | 38   | 248  | 28   | 224  | 693   | 117   | 270   | 266   | 748   |
| 21    | 386   | 93   | 154  | 47   | 361  | 27   | 194  | 1340  | 98    | 326   | 471   | 765   |
| 22    | 307   | 58   | 153  | 68   | 212  | 26   | 244  | 982   | 371   | 472   | 466   | e7290 |
| 23    | 343   | 58   | 127  | 99   | 104  | 26   | 240  | 419   | 292   | 400   | 261   | 2680  |
| 24    | 335   | 182  | 196  | 210  | 70   | 26   | 301  | 341   | 84    | 416   | 444   | 1600  |
| 25    | 275   | 116  | 84   | 107  | 35   | 85   | 196  | 182   | 64    | 245   | 807   | 1080  |
| 26    | 259   | 122  | 67   | 42   | 123  | 41   | 176  | 305   | 56    | 96    | 735   | 834   |
| 27    | 350   | 58   | 63   | 138  | 41   | 65   | 43   | 304   | 344   | 95    | 737   | 638   |
| 28    | 381   | 55   | 101  | 85   | 27   | 37   | 168  | 121   | 95    | 101   | 633   | 530   |
| 29    | 400   | 93   | 68   | 286  | ---  | 121  | 61   | 204   | 90    | 204   | 666   | 738   |
| 30    | 191   | 62   | 81   | 387  | ---  | 107  | 160  | 92    | e96   | 320   | 620   | 753   |
| 31    | 182   | ---  | 96   | 119  | ---  | 159  | ---  | 68    | ---   | 366   | 378   | ---   |
| TOTAL | 10500 | 4090 | 4256 | 3385 | 3840 | 1864 | 4012 | 7550  | 7141  | 6399  | 14533 | 25933 |
| MEAN  | 339   | 136  | 137  | 109  | 137  | 60.1 | 134  | 244   | 238   | 206   | 469   | 864   |
| MAX   | 1290  | 349  | 355  | 387  | 460  | 366  | 301  | 1340  | 655   | 472   | 987   | 7290  |
| MIN   | 77    | 48   | 63   | 38   | 27   | 22   | 33   | 30    | 56    | 35    | 138   | 222   |
| AC-FT | 20830 | 8110 | 8440 | 6710 | 7620 | 3700 | 7960 | 14980 | 14160 | 12690 | 28830 | 51440 |
| CFSM  | 1.95  | .78  | .79  | .63  | .79  | .35  | .77  | 1.40  | 1.37  | 1.19  | 2.69  | 4.97  |
| IN.   | 2.24  | .87  | .91  | .72  | .82  | .40  | .86  | 1.61  | 1.53  | 1.37  | 3.11  | 5.54  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1998, BY WATER YEAR (WY)

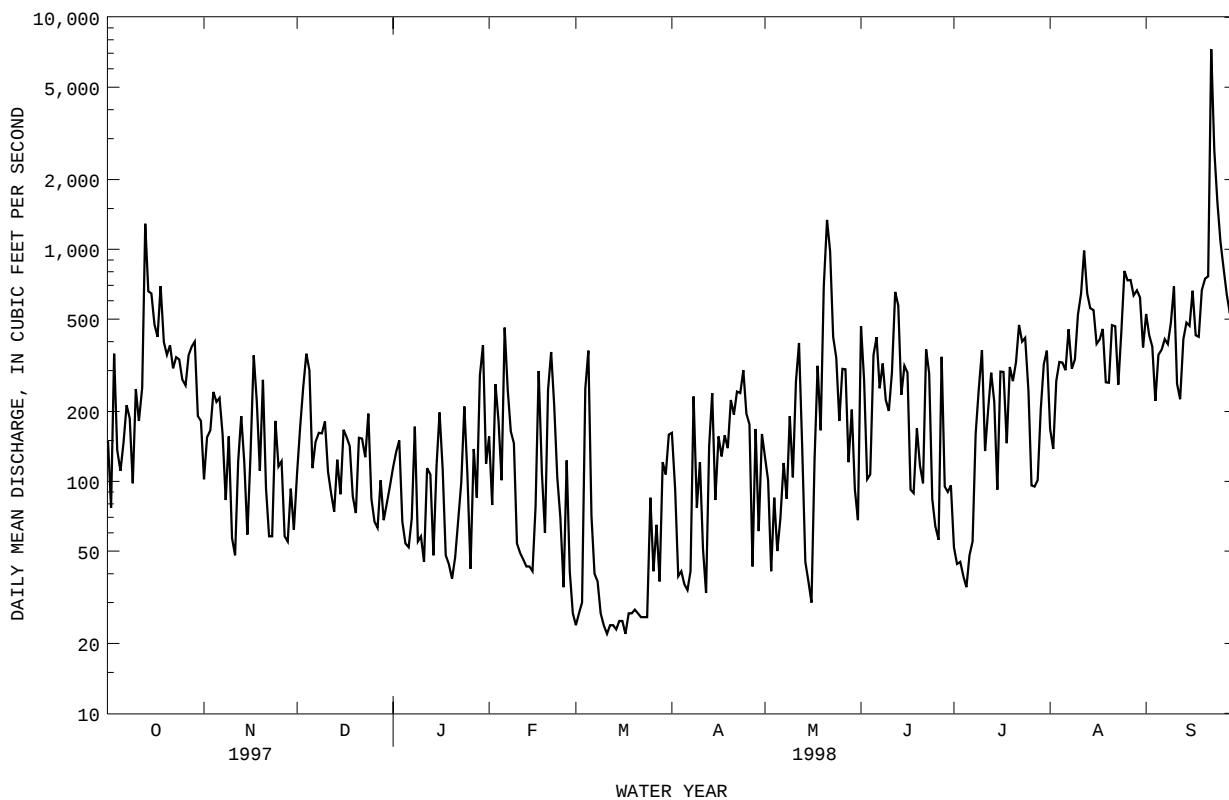
|      | MEAN | 584  | 500  | 277  | 240  | 223  | 208  | 329  | 547  | 333  | 243  | 259  | 527 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX  | 1984 | 1413 | 570  | 437  | 428  | 351  | 617  | 2000 | 683  | 374  | 474  | 1479 |     |
| (WY) | 1986 | 1986 | 1988 | 1988 | 1988 | 1985 | 1986 | 1986 | 1987 | 1987 | 1988 | 1996 |     |
| MIN  | 171  | 123  | 72.4 | 83.5 | 61.3 | 60.1 | 65.7 | 178  | 69.3 | 62.7 | 82.8 | 99.9 |     |
| (WY) | 1995 | 1995 | 1995 | 1995 | 1995 | 1998 | 1995 | 1994 | 1994 | 1994 | 1994 | 1994 |     |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1982 - 1998

| ANNUAL TOTAL             | 77375  | 93503          |        |
|--------------------------|--------|----------------|--------|
| ANNUAL MEAN              | 212    | 256            |        |
| HIGHEST ANNUAL MEAN      |        |                | 355    |
| LOWEST ANNUAL MEAN       |        |                | 729    |
| HIGHEST DAILY MEAN       | 2730   | Jan 22         | 7290   |
| LOWEST DAILY MEAN        | 29     | Jun 21         | 22     |
| ANNUAL SEVEN-DAY MINIMUM | 39     | Jun 24         | 24     |
| INSTANTANEOUS PEAK FLOW  |        | Not determined | 15.87  |
| INSTANTANEOUS PEAK STAGE |        |                | 15.87  |
| ANNUAL RUNOFF (AC-FT)    | 153500 | 185500         | 257400 |
| ANNUAL RUNOFF (CFSM)     | 1.22   | 1.47           | 2.04   |
| ANNUAL RUNOFF (INCHES)   | 16.54  | 19.99          | 27.74  |
| 10 PERCENT EXCEEDS       | 360    | 500            | 733    |
| 50 PERCENT EXCEEDS       | 181    | 159            | 232    |
| 90 PERCENT EXCEEDS       | 56     | 41             | 54     |

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR--Continued



RIO GRANDE DE ARECIBO BASIN  
50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR  
WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1982 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October, 1995 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1995.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,510 mg/L September 22, 1998; Minimum daily mean, 2 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 84,900 tons (77,000 tonnes) September 22, 1998; Minimum daily mean, 0.14 ton (0.013 tonne) March 24, 1998.

EXTREMES FOR CURRENT YEAR 1998.

SEDIMENT CONCENTRATION: Maximum daily mean, 3,510 mg/L September 22, 1998; Minimum daily mean, 2 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 84,900 tons (77,000 tonnes) September 22, 1998; Minimum daily mean, 0.14 ton (0.013 tonne) March 24, 1998.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 149                        | 37                                   | 19                                  | 102                        | 31                                   | 8.9                                 | 109                        | 20                                   | 10                                  |
| 2       | 77                         | 17                                   | 3.8                                 | 155                        | 36                                   | 21                                  | 172                        | 21                                   | 12                                  |
| 3       | 355                        | 68                                   | 82                                  | 166                        | 30                                   | 22                                  | 255                        | 46                                   | 39                                  |
| 4       | 136                        | 35                                   | 16                                  | 243                        | 55                                   | 44                                  | 355                        | 58                                   | 64                                  |
| 5       | 111                        | 29                                   | 13                                  | 220                        | 44                                   | 35                                  | 301                        | 63                                   | 58                                  |
| 6       | 147                        | 24                                   | 16                                  | 229                        | 46                                   | 38                                  | 114                        | 32                                   | 10                                  |
| 7       | 213                        | 31                                   | 38                                  | 159                        | 53                                   | 27                                  | 148                        | 42                                   | 19                                  |
| 8       | 187                        | 33                                   | 32                                  | 83                         | 23                                   | 5.3                                 | 162                        | 45                                   | 24                                  |
| 9       | 98                         | 18                                   | 5.6                                 | 156                        | 50                                   | 24                                  | 161                        | 39                                   | 21                                  |
| 10      | 250                        | 41                                   | 49                                  | 57                         | 39                                   | 6.0                                 | 181                        | 45                                   | 25                                  |
| 11      | 182                        | 36                                   | 23                                  | 48                         | 31                                   | 4.1                                 | 110                        | 40                                   | 12                                  |
| 12      | 253                        | 41                                   | 47                                  | 122                        | 36                                   | 19                                  | 89                         | 50                                   | 12                                  |
| 13      | 1290                       | 88                                   | 315                                 | 191                        | 40                                   | 25                                  | 74                         | 30                                   | 6.1                                 |
| 14      | 659                        | 75                                   | 147                                 | 120                        | 34                                   | 13                                  | 124                        | 33                                   | 12                                  |
| 15      | 646                        | 78                                   | 137                                 | 59                         | 20                                   | 3.6                                 | 88                         | 17                                   | 4.0                                 |
| 16      | 475                        | 54                                   | 71                                  | 128                        | 36                                   | 16                                  | 167                        | 31                                   | 19                                  |
| 17      | 420                        | 79                                   | 116                                 | 349                        | 60                                   | 74                                  | 155                        | 29                                   | 16                                  |
| 18      | 694                        | 126                                  | 249                                 | 221                        | 44                                   | 31                                  | 142                        | 24                                   | 12                                  |
| 19      | 398                        | 74                                   | 98                                  | 111                        | 28                                   | 10                                  | 86                         | 12                                   | 2.7                                 |
| 20      | 351                        | 62                                   | 65                                  | 274                        | 63                                   | 54                                  | 73                         | 11                                   | 2.1                                 |
| 21      | 386                        | 56                                   | 64                                  | 93                         | 27                                   | 7.5                                 | 154                        | 38                                   | 19                                  |
| 22      | 307                        | 53                                   | 48                                  | 58                         | 16                                   | 2.5                                 | 153                        | 41                                   | 19                                  |
| 23      | 343                        | 61                                   | 65                                  | 58                         | 12                                   | 2.4                                 | 127                        | 34                                   | 13                                  |
| 24      | 335                        | 61                                   | 64                                  | 182                        | 36                                   | 21                                  | 196                        | 47                                   | 27                                  |
| 25      | 275                        | 53                                   | 47                                  | 116                        | 25                                   | 10                                  | 84                         | 26                                   | 5.9                                 |
| 26      | 259                        | 53                                   | 44                                  | 122                        | 21                                   | 9.7                                 | 67                         | 22                                   | 4.0                                 |
| 27      | 350                        | 64                                   | 72                                  | 58                         | 10                                   | 1.5                                 | 63                         | 20                                   | 3.4                                 |
| 28      | 381                        | 74                                   | 91                                  | 55                         | 9                                    | 1.4                                 | 101                        | 29                                   | 8.6                                 |
| 29      | 400                        | 53                                   | 69                                  | 93                         | 14                                   | 4.3                                 | 68                         | 19                                   | 3.5                                 |
| 30      | 191                        | 49                                   | 34                                  | 62                         | 10                                   | 1.6                                 | 81                         | 22                                   | 7.2                                 |
| 31      | 182                        | 47                                   | 27                                  | ---                        | ---                                  | ---                                 | 96                         | 30                                   | 8.8                                 |
| TOTAL   | 10500                      | ---                                  | 2167.4                              | 4090                       | ---                                  | 542.8                               | 4256                       | ---                                  | 499.3                               |

## RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 115                        | 33                              | 12                                  | 156                        | 25                              | 17                                  | 24                         | 5                               | .35                                 |
| 2       | 134                        | 37                              | 16                                  | 79                         | 21                              | 5.1                                 | 27                         | 10                              | .76                                 |
| 3       | 150                        | 39                              | 20                                  | 262                        | 37                              | 68                                  | 30                         | 18                              | 1.4                                 |
| 4       | 67                         | 20                              | 3.6                                 | 182                        | 25                              | 30                                  | 251                        | 22                              | 21                                  |
| 5       | 54                         | 18                              | 2.7                                 | 101                        | 8                               | 2.3                                 | 366                        | 19                              | 23                                  |
| 6       | 52                         | 18                              | 2.5                                 | 460                        | 57                              | 111                                 | 71                         | 4                               | .79                                 |
| 7       | 69                         | 20                              | 4.7                                 | 248                        | 53                              | 45                                  | 40                         | 3                               | .36                                 |
| 8       | 172                        | 28                              | 22                                  | 164                        | 43                              | 26                                  | 37                         | 4                               | .35                                 |
| 9       | 55                         | 9                               | 1.3                                 | 146                        | 37                              | 22                                  | 27                         | 4                               | .28                                 |
| 10      | 58                         | 8                               | 1.2                                 | 54                         | 18                              | 2.6                                 | 24                         | 5                               | .31                                 |
| 11      | 45                         | 7                               | .84                                 | 49                         | 16                              | 2.1                                 | 22                         | 10                              | .58                                 |
| 12      | 114                        | 24                              | 14                                  | 46                         | 15                              | 1.8                                 | 24                         | 19                              | 1.3                                 |
| 13      | 107                        | 17                              | 7.4                                 | 43                         | 13                              | 1.5                                 | 24                         | 27                              | 1.8                                 |
| 14      | 48                         | 5                               | .70                                 | 43                         | 12                              | 1.4                                 | 23                         | 16                              | 1.0                                 |
| 15      | 116                        | 21                              | 11                                  | 41                         | 11                              | 1.2                                 | 25                         | 9                               | .62                                 |
| 16      | 198                        | 41                              | 30                                  | 78                         | 18                              | 6.1                                 | 25                         | 7                               | .45                                 |
| 17      | 113                        | 31                              | 13                                  | 299                        | 42                              | 44                                  | 22                         | 8                               | .47                                 |
| 18      | 48                         | 16                              | 2.1                                 | 108                        | 17                              | 5.1                                 | 27                         | 9                               | .67                                 |
| 19      | 44                         | 15                              | 1.8                                 | 60                         | 17                              | 2.8                                 | 27                         | 7                               | .52                                 |
| 20      | 38                         | 14                              | 1.5                                 | 248                        | 53                              | 45                                  | 28                         | 6                               | .41                                 |
| 21      | 47                         | 15                              | 2.7                                 | 361                        | 20                              | 23                                  | 27                         | 4                               | .31                                 |
| 22      | 68                         | 21                              | 4.3                                 | 212                        | 9                               | 5.5                                 | 26                         | 3                               | .22                                 |
| 23      | 99                         | 25                              | 11                                  | 104                        | 8                               | 2.2                                 | 26                         | 2                               | .17                                 |
| 24      | 210                        | 45                              | 32                                  | 70                         | 7                               | 1.4                                 | 26                         | 2                               | .14                                 |
| 25      | 107                        | 30                              | 11                                  | 35                         | 7                               | .66                                 | 85                         | 11                              | 3.9                                 |
| 26      | 42                         | 15                              | 1.8                                 | 123                        | 12                              | 6.2                                 | 41                         | 3                               | .34                                 |
| 27      | 138                        | 27                              | 20                                  | 41                         | 7                               | .77                                 | 65                         | 2                               | .45                                 |
| 28      | 85                         | 25                              | 6.6                                 | 27                         | 7                               | .52                                 | 37                         | 2                               | .22                                 |
| 29      | 286                        | 49                              | 82                                  | ---                        | ---                             | ---                                 | 121                        | 31                              | 14                                  |
| 30      | 387                        | 67                              | 98                                  | ---                        | ---                             | ---                                 | 107                        | 21                              | 7.2                                 |
| 31      | 119                        | 19                              | 9.1                                 | ---                        | ---                             | ---                                 | 159                        | 28                              | 24                                  |
| TOTAL   | 3385                       | ---                             | 446.84                              | 3840                       | ---                             | 480.25                              | 1864                       | ---                             | 107.37                              |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 162                        | 28                              | 19                                  | 127                        | 8                               | 3.3                                 | 467                        | 58                              | 110                                 |
| 2       | 92                         | 17                              | 5.9                                 | 101                        | 9                               | 2.5                                 | 273                        | 46                              | 43                                  |
| 3       | 39                         | 10                              | 1.1                                 | 41                         | 7                               | .73                                 | 102                        | 30                              | 9.3                                 |
| 4       | 41                         | 10                              | 1.1                                 | 85                         | 7                               | 2.3                                 | 107                        | 29                              | 12                                  |
| 5       | 36                         | 9                               | .92                                 | 50                         | 8                               | 1.1                                 | 350                        | 81                              | 125                                 |
| 6       | 34                         | 9                               | .84                                 | 69                         | 9                               | 5.0                                 | 418                        | 86                              | 116                                 |
| 7       | 41                         | 31                              | 3.3                                 | 120                        | 42                              | 18                                  | 252                        | 55                              | 59                                  |
| 8       | 232                        | 26                              | 20                                  | 84                         | 28                              | 11                                  | 322                        | 66                              | 73                                  |
| 9       | 77                         | 10                              | 2.4                                 | 191                        | 40                              | 27                                  | 224                        | 57                              | 51                                  |
| 10      | 121                        | 22                              | 16                                  | 104                        | 23                              | 8.6                                 | 201                        | 52                              | 36                                  |
| 11      | 51                         | 37                              | 5.4                                 | 269                        | 45                              | 80                                  | 295                        | 75                              | 86                                  |
| 12      | 33                         | 20                              | 1.8                                 | 395                        | 50                              | 84                                  | 655                        | 121                             | 300                                 |
| 13      | 142                        | 27                              | 21                                  | 146                        | 47                              | 24                                  | 573                        | 102                             | 184                                 |
| 14      | 240                        | 31                              | 49                                  | 45                         | 16                              | 1.9                                 | 236                        | 106                             | 70                                  |
| 15      | 83                         | 12                              | 4.0                                 | 37                         | 13                              | 1.3                                 | 315                        | 87                              | 88                                  |
| 16      | 156                        | 40                              | 18                                  | 30                         | 11                              | .98                                 | 294                        | 68                              | 70                                  |
| 17      | 128                        | 36                              | 16                                  | 124                        | 79                              | 26                                  | 92                         | 12                              | 3.4                                 |
| 18      | 158                        | 34                              | 24                                  | 315                        | 85                              | 99                                  | 89                         | 18                              | 4.8                                 |
| 19      | 139                        | 34                              | 19                                  | 166                        | 38                              | 24                                  | 169                        | 34                              | 23                                  |
| 20      | 224                        | 36                              | 37                                  | 693                        | 127                             | 277                                 | 117                        | 28                              | 10                                  |
| 21      | 194                        | 33                              | 32                                  | 1340                       | 127                             | 516                                 | 98                         | 18                              | 5.6                                 |
| 22      | 244                        | 40                              | 45                                  | 982                        | 265                             | 691                                 | 371                        | 44                              | 79                                  |
| 23      | 240                        | 13                              | 10                                  | 419                        | 254                             | 292                                 | 292                        | 48                              | 53                                  |
| 24      | 301                        | 10                              | 13                                  | 341                        | 214                             | 214                                 | 84                         | 8                               | 1.8                                 |
| 25      | 196                        | 7                               | 5.2                                 | 182                        | 64                              | 55                                  | 64                         | 5                               | .89                                 |
| 26      | 176                        | 8                               | 4.9                                 | 305                        | 118                             | 105                                 | 56                         | 5                               | .68                                 |
| 27      | 43                         | 6                               | .67                                 | 304                        | 62                              | 65                                  | 344                        | 45                              | 77                                  |
| 28      | 168                        | 7                               | 4.0                                 | 121                        | 38                              | 17                                  | 95                         | 14                              | 5.4                                 |
| 29      | 61                         | 8                               | 1.3                                 | 204                        | 79                              | 58                                  | 90                         | 12                              | 4.4                                 |
| 30      | 160                        | 7                               | 5.4                                 | 92                         | 44                              | 12                                  | e96                        | 10                              | e1.2                                |
| 31      | ---                        | ---                             | ---                                 | 68                         | 23                              | 4.1                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 4012                       | ---                             | 387.23                              | 7550                       | ---                             | 2726.81                             | 7141                       | ---                             | 1702.47                             |

## RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | e52                        | 9                                    | e.89                                | 168                        | 6                                    | 3.0                                 | 526                        | 94                                   | 144                                 |
| 2     | e44                        | 8                                    | e.71                                | 138                        | 4                                    | 1.5                                 | 426                        | 69                                   | 90                                  |
| 3     | 45                         | 8                                    | .91                                 | 271                        | 12                                   | 17                                  | 381                        | 61                                   | 65                                  |
| 4     | 39                         | 7                                    | .73                                 | 327                        | 37                                   | 47                                  | e222                       | 47                                   | e33                                 |
| 5     | 35                         | 6                                    | .60                                 | 325                        | 34                                   | 34                                  | 351                        | 50                                   | 50                                  |
| 6     | 48                         | 8                                    | 1.3                                 | 301                        | 22                                   | 27                                  | e370                       | 86                                   | e65                                 |
| 7     | 55                         | 9                                    | 1.3                                 | 452                        | 36                                   | 61                                  | e410                       | 95                                   | e95                                 |
| 8     | 160                        | 18                                   | 17                                  | 306                        | 70                                   | 57                                  | e390                       | 104                                  | e65                                 |
| 9     | 248                        | 31                                   | 33                                  | 335                        | 51                                   | 48                                  | 484                        | 77                                   | 120                                 |
| 10    | 368                        | 38                                   | 50                                  | 524                        | 71                                   | 117                                 | 691                        | 115                                  | 218                                 |
| 11    | 135                        | 9                                    | 3.7                                 | 644                        | 103                                  | 213                                 | 263                        | 60                                   | 52                                  |
| 12    | 203                        | 17                                   | 16                                  | 987                        | 174                                  | 466                                 | 226                        | 44                                   | 31                                  |
| 13    | 294                        | 23                                   | 29                                  | 646                        | 123                                  | 223                                 | 410                        | 78                                   | 95                                  |
| 14    | 220                        | 22                                   | 24                                  | 557                        | 95                                   | 153                                 | 483                        | 90                                   | 126                                 |
| 15    | 92                         | 9                                    | 2.2                                 | 547                        | 97                                   | 154                                 | 468                        | 86                                   | 121                                 |
| 16    | 297                        | 51                                   | 47                                  | 391                        | 79                                   | 91                                  | 663                        | 70                                   | 127                                 |
| 17    | 296                        | 19                                   | 24                                  | 409                        | 80                                   | 95                                  | 426                        | 68                                   | 85                                  |
| 18    | 146                        | 13                                   | 11                                  | 454                        | 83                                   | 109                                 | 420                        | 75                                   | 93                                  |
| 19    | 311                        | 40                                   | 44                                  | 267                        | 60                                   | 46                                  | 667                        | 108                                  | 202                                 |
| 20    | 270                        | 36                                   | 33                                  | 266                        | 62                                   | 47                                  | 748                        | 108                                  | 218                                 |
| 21    | 326                        | 40                                   | 44                                  | 471                        | 58                                   | 86                                  | 765                        | 121                                  | 251                                 |
| 22    | 472                        | 41                                   | 66                                  | 466                        | 62                                   | 87                                  | e7290                      | 3510                                 | e84900                              |
| 23    | 400                        | 50                                   | 69                                  | 261                        | 60                                   | 47                                  | 2680                       | 725                                  | 5710                                |
| 24    | 416                        | 37                                   | 59                                  | 444                        | 77                                   | 103                                 | 1600                       | 244                                  | 1060                                |
| 25    | 245                        | 10                                   | 10                                  | 807                        | 133                                  | 294                                 | 1080                       | 183                                  | 534                                 |
| 26    | 96                         | 5                                    | 1.3                                 | 735                        | 123                                  | 244                                 | 834                        | 145                                  | 328                                 |
| 27    | 95                         | 4                                    | 1.1                                 | 737                        | 111                                  | 220                                 | 638                        | 123                                  | 212                                 |
| 28    | 101                        | 5                                    | 1.4                                 | 633                        | 113                                  | 198                                 | 530                        | 102                                  | 146                                 |
| 29    | 204                        | 29                                   | 28                                  | 666                        | 122                                  | 220                                 | 738                        | 124                                  | 257                                 |
| 30    | 320                        | 30                                   | 40                                  | 620                        | 111                                  | 199                                 | 753                        | 149                                  | 310                                 |
| 31    | 366                        | 51                                   | 57                                  | 378                        | 68                                   | 81                                  | ---                        | ---                                  | ---                                 |
| TOTAL | 6399                       | ---                                  | 717.14                              | 14533                      | ---                                  | 3788.5                              | 25933                      | ---                                  | 95803                               |
| YEAR  | 93503                      |                                      | 109369.11                           |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 13... | 0230 | 2120                                                                  | 124                                                   | 710                                                                       | 88                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 06... | 2015 | 898                                                                   | 113                                                   | 274                                                                       | 97                                                                       |
| 17... | 1600 | 702                                                                   | 114                                                   | 216                                                                       | 86                                                                       |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 04... | 1815 | 620                                                                   | 85                                                    | 142                                                                       | 92                                                                       |
| JUN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 02... | 1726 | 635                                                                   | 103                                                   | 177                                                                       | 84                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 2100 | 845                                                                   | 78                                                    | 178                                                                       | 95                                                                       |
| 13... | 0640 | 466                                                                   | 146                                                   | 184                                                                       | 100                                                                      |

## RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

|              |      | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| SEP<br>22... | 0356 | 5750                                                                    | 7150                                                                    | 111000                                                                   | 47                                                                       | 65                                                                       | 81                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
| SEP<br>22... | 87   | 92                                                                      | 94                                                                      | 97                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR

LOCATION.--Lat 18°18'02", long 66°46'58", Hydrologic Unit 21010001, on downstream side of left abutment of bridge on Highway 111, 1.2 mi (1.9 km) upstream from natural tunnel, 1.5 mi (2.4 km) northeast of Angeles, and 5.8 mi (9.3 km) northwest of Utuado.

DRAINAGE AREA.--18.4 mi<sup>2</sup> (47.7 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1944 to June 1958 (daily stage and two to four measurements per month by Puerto Rico Water Resources Authority), November 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 938.32 ft (286.000 m) above mean sea level. Datum of gage was increased by 3.00 ft (0.914 m) on Oct. 1978.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 1     | 53   | 46   | 23   | 15   | 10   | 15   | e17  | e14  | 33   | 36   | 34   | e83   |
| 2     | 41   | 45   | 22   | 15   | 11   | 15   | 20   | e15  | 36   | 37   | 33   | e100  |
| 3     | 31   | 44   | 22   | 15   | 11   | 14   | 16   | e16  | 35   | 36   | 34   | e95   |
| 4     | 28   | 42   | 22   | 14   | 16   | 14   | 14   | e26  | 37   | 36   | 33   | e92   |
| 5     | 26   | 41   | 21   | 14   | 68   | 15   | 18   | e40  | 168  | 36   | 34   | 78    |
| 6     | 28   | 40   | 20   | 16   | 24   | 16   | 13   | e78  | e190 | 43   | 34   | 82    |
| 7     | 106  | 40   | 20   | 24   | 21   | 19   | e23  | e88  | e50  | 37   | 34   | 67    |
| 8     | 45   | 38   | 19   | 18   | 25   | 16   | e31  | e60  | e40  | 33   | 34   | 59    |
| 9     | 31   | 37   | 19   | 14   | 31   | 14   | e17  | s53  | e36  | 33   | 66   | 60    |
| 10    | 28   | 39   | 19   | 14   | 21   | 14   | e16  | 29   | e34  | e50  | 121  | 51    |
| 11    | 44   | 60   | 18   | 13   | 20   | 13   | e15  | 23   | e140 | e40  | 182  | 45    |
| 12    | 191  | 48   | 18   | 14   | 20   | 13   | e14  | 21   | e230 | 32   | 111  | 89    |
| 13    | 101  | 48   | 18   | 25   | 19   | 13   | e13  | 20   | e96  | 31   | 75   | 65    |
| 14    | 140  | 41   | 17   | 20   | 18   | 17   | e19  | 19   | e86  | e60  | 64   | 56    |
| 15    | 109  | 67   | 17   | 15   | 22   | 24   | e23  | 21   | e47  | 84   | 57   | 51    |
| 16    | 95   | 42   | 17   | 14   | 19   | 19   | e23  | 20   | e49  | 89   | 57   | 63    |
| 17    | 136  | 35   | 17   | 14   | 18   | 28   | e19  | 22   | e76  | 51   | 66   | 57    |
| 18    | 108  | 32   | 17   | 16   | 17   | 25   | e28  | 27   | 79   | 52   | 55   | 87    |
| 19    | 82   | 31   | 17   | 19   | 17   | 14   | e50  | 124  | 52   | 41   | 51   | 60    |
| 20    | 73   | 30   | 17   | 14   | 16   | 13   | e60  | 128  | 47   | 34   | 49   | 49    |
| 21    | 66   | 30   | 17   | 14   | 16   | 13   | e27  | 380  | e43  | 33   | 80   | 155   |
| 22    | 64   | 29   | 16   | 16   | 16   | 12   | e24  | 117  | 36   | 33   | 58   | 3310  |
| 23    | 62   | 28   | 17   | 13   | 15   | 11   | e23  | 73   | 36   | 34   | 52   | 375   |
| 24    | 59   | 29   | 19   | 12   | 16   | 12   | e20  | 55   | 36   | 36   | 69   | 220   |
| 25    | 56   | 29   | 16   | 13   | 16   | 10   | e19  | 47   | 52   | 34   | 129  | 152   |
| 26    | 54   | 33   | 16   | 11   | 20   | 11   | e18  | 45   | 38   | 33   | 68   | 128   |
| 27    | 52   | 25   | 16   | 11   | 16   | 11   | e17  | 40   | 47   | 32   | 91   | 113   |
| 28    | 50   | 24   | 16   | 11   | 15   | 11   | e17  | 37   | 36   | 32   | e187 | 106   |
| 29    | 49   | 25   | 16   | 11   | ---  | 44   | e16  | 36   | 36   | 31   | e95  | 184   |
| 30    | 47   | 24   | 15   | 10   | ---  | 86   | e15  | 45   | 36   | 30   | e86  | 120   |
| 31    | 46   | ---  | 16   | 10   | ---  | e36  | ---  | 36   | ---  | 31   | e90  | ---   |
| TOTAL | 2101 | 1122 | 560  | 455  | 554  | 588  | 645  | 1755 | 1957 | 1250 | 2229 | 6252  |
| MEAN  | 67.8 | 37.4 | 18.1 | 14.7 | 19.8 | 19.0 | 21.5 | 56.6 | 65.2 | 40.3 | 71.9 | 208   |
| MAX   | 191  | 67   | 23   | 25   | 68   | 86   | 60   | 380  | 230  | 89   | 187  | 3310  |
| MIN   | 26   | 24   | 15   | 10   | 10   | 10   | 13   | 14   | 33   | 30   | 33   | 45    |
| AC-FT | 4170 | 2230 | 1110 | 902  | 1100 | 1170 | 1280 | 3480 | 3880 | 2480 | 4420 | 12400 |
| CFSM  | 3.68 | 2.03 | .98  | .80  | 1.08 | 1.03 | 1.17 | 3.08 | 3.55 | 2.19 | 3.91 | 11.3  |
| IN.   | 4.25 | 2.27 | 1.13 | .92  | 1.12 | 1.19 | 1.30 | 3.55 | 3.96 | 2.53 | 4.51 | 12.64 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 79.8 | 67.1 | 41.9 | 29.6 | 26.0 | 24.8 | 35.6 | 56.8 | 42.6 | 35.8 | 46.2 | 77.7 |
| MAX  | 195  | 159  | 121  | 71.0 | 50.8 | 71.2 | 143  | 193  | 116  | 65.7 | 110  | 208  |
| (WY) | 1990 | 1969 | 1966 | 1997 | 1996 | 1972 | 1969 | 1963 | 1979 | 1981 | 1979 | 1998 |
| MIN  | 25.4 | 25.1 | 18.1 | 14.7 | 13.3 | 11.0 | 9.70 | 12.4 | 15.6 | 9.18 | 15.9 | 25.0 |
| (WY) | 1963 | 1995 | 1998 | 1998 | 1965 | 1984 | 1984 | 1977 | 1994 | 1994 | 1994 | 1994 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

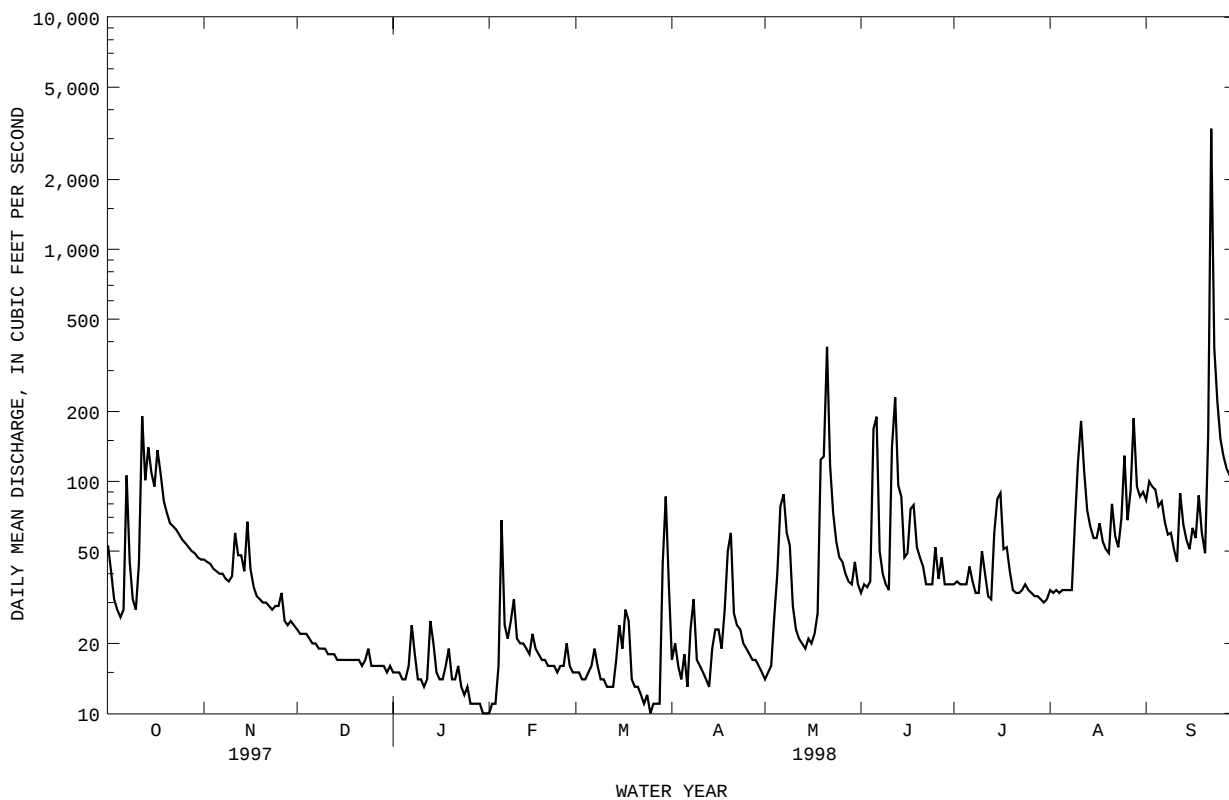
## FOR 1998 WATER YEAR

## WATER YEARS 1960 - 1998

|                          |       |        |       |
|--------------------------|-------|--------|-------|
| ANNUAL TOTAL             | 13416 | 19468  |       |
| ANNUAL MEAN              | 36.8  | 53.3   | 47.0  |
| HIGHEST ANNUAL MEAN      |       |        | 71.1  |
| LOWEST ANNUAL MEAN       |       |        | 20.7  |
| HIGHEST DAILY MEAN       | 251   | Jan 22 | 3310  |
| LOWEST DAILY MEAN        | 14    | May 20 | 10    |
| ANNUAL SEVEN-DAY MINIMUM | 15    | May 15 | 11    |
| INSTANTANEOUS PEAK FLOW  |       |        | 25500 |
| INSTANTANEOUS PEAK STAGE |       |        | 21.24 |
| INSTANTANEOUS LOW FLOW   |       |        | 9.1   |
| ANNUAL RUNOFF (AC-FT)    | 26610 | 38610  | 34080 |
| ANNUAL RUNOFF (CFSM)     | 2.00  | 2.90   | 2.56  |
| ANNUAL RUNOFF (INCHES)   | 27.12 | 39.36  | 34.73 |
| 10 PERCENT EXCEEDS       | 62    | 91     | 83    |
| 50 PERCENT EXCEEDS       | 29    | 32     | 33    |
| 90 PERCENT EXCEEDS       | 16    | 14     | 16    |

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50028000 RIO TANAMA NEAR UTUADO, PR--Continued



RIO GRANDE DE ARECIBO BASIN  
50028000 RIO TANAMA NEAR UTUADO, PR  
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: January 1968 to current year.

INSTRUMENTATION.--US D-49 SEDIMENT SAMPLER SINCE OCTOBER 1968.SEDIMENT PUMPING SAMPLER SINCE 1990

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean,20,400 mg/L November 27, 1968; minimum daily mean,<1 mg/L during water year 1985.  
SEDIMENT LOADS: Maximum daily,240,000 tons (218,000 tonnes) Sept. 22,1998, minimum daily, <0.01 ton ( <0.01tonne) several days during many years.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATIONS: Maximum daily mean,2,950 mg/L September 22, 1998; minimum daily mean,4 mg/L several days.  
SEDIMENT LOADS: Maximum daily, 240,000 tons (218,000 tonnes) September 22,1998; minimum daily,0.17 ton (0.15 tonne) several days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|-----------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 23... | 0935 | 62                                              | 164                                     | 7.8                                            | 23.0                               | 2.0                       | 8.2                               | 98                                                | <10                                           | 240                                                 | 620                                              |
| FEB 23... | 1525 | 15                                              | 174                                     | 7.5                                            | 25.5                               | 1.4                       | 8.3                               | 105                                               | <10                                           | K30                                                 | 230                                              |
| JUN 02... | 1100 | 30                                              | 168                                     | 8.2                                            | 25.5                               | 3.0                       | 8.8                               | 111                                               | <10                                           | K30                                                 | K120                                             |
| SEP 04... | 1300 | 87                                              | 148                                     | 6.8                                            | 24.7                               | 52                        | 7.8                               | 94                                                | <10                                           | K11000                                              | 20000                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03 AS N) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|----------------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 23... | 74                                      | 21                                      | 5.5                                         | 7.3                                     | .4                                | 1.9                                        | 52                                                       | <.5                               | 10                                       | 8.4                                        |
| FEB 23... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 61                                                       | --                                | --                                       | --                                         |
| JUN 02... | 62                                      | 15                                      | 5.8                                         | 8.4                                     | .5                                | 2.3                                        | 57                                                       | --                                | 12                                       | 8.5                                        |
| SEP 04... | 53                                      | 14                                      | 4.8                                         | 6.8                                     | .4                                | 2.5                                        | 49                                                       | <1.0                              | 8.0                                      | 7.3                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L AS SOLVED) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|-------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 23... | <.10                                      | 25                                        | 111                                                               | 18.5                                      | <1                                                     | --                                           | <.010                                        | 1.10                                         | .010                                         | --                                           |
| FEB 23... | --                                        | --                                        | --                                                                | --                                        | 1                                                      | --                                           | <.010                                        | .620                                         | .010                                         | --                                           |
| JUN 02... | <.10                                      | 24                                        | 111                                                               | 8.90                                      | <1                                                     | --                                           | <.010                                        | .680                                         | <.010                                        | --                                           |
| SEP 04... | <.10                                      | 23                                        | 96                                                                | 22.3                                      | 64                                                     | 1.08                                         | .018                                         | 1.10                                         | .040                                         | .47                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N03) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 23... | <.20                                                    | --                                     | --                                     | <.020                                 | <1                                 | <100                                            | <10                                           | <1                                               | <1                                                 | <10                                             |
| FEB 23... | <.20                                                    | --                                     | --                                     | <.020                                 | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 02... | .23                                                     | .91                                    | 4.0                                    | <.020                                 | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| SEP 04... | .51                                                     | 1.6                                    | 7.1                                    | .040                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045) | LEAD,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS PB)<br>(01051) | MANGA-<br>NESE,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS MN)<br>(01055) | MERCURY<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS HG)<br>(71900) | SELE-<br>NIUM,<br>TOTAL<br>(UG/L<br>AS SE)<br>(01147) | SILVER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS AG)<br>(01077) | ZINC,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS ZN)<br>(01092) | CYANIDE<br>TOTAL<br>(MG/L<br>AS CN)<br>(00720) | PHENOLS<br>TOTAL<br>(UG/L)<br>(32730) | METHY-<br>LENE<br>BLUE<br>ACTIVE<br>SUB-<br>STANCE<br>(MG/L)<br>(38260) |
|-----------|------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------|
| OCT 23... | 380                                                              | <1                                                               | 30                                                                         | <.10                                                               | <1                                                    | <1                                                                 | <10                                                              | <.010                                          | <1                                    | <.02                                                                    |
| FEB 23... | --                                                               | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                             | --                                    | --                                                                      |
| JUN 02... | 220                                                              | <1                                                               | 18                                                                         | <.10                                                               | <1                                                    | <1                                                                 | <10                                                              | <.010                                          | <1                                    | <.02                                                                    |
| SEP 04... | --                                                               | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                             | --                                    | --                                                                      |

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 53                         | 183                                  | 56                                  | 46                         | 31                                   | 3.8                                 | 23                         | 38                                   | 2.4                                 |
| 2       | 41                         | 108                                  | 12                                  | 45                         | 28                                   | 3.3                                 | 22                         | 36                                   | 2.1                                 |
| 3       | 31                         | 72                                   | 6.1                                 | 44                         | 23                                   | 2.7                                 | 22                         | 34                                   | 2.0                                 |
| 4       | 28                         | 57                                   | 4.2                                 | 42                         | 19                                   | 2.1                                 | 22                         | 32                                   | 1.9                                 |
| 5       | 26                         | 50                                   | 3.6                                 | 41                         | 15                                   | 1.7                                 | 21                         | 31                                   | 1.7                                 |
| 6       | 28                         | 58                                   | 4.9                                 | 40                         | 11                                   | 1.2                                 | 20                         | 27                                   | 1.5                                 |
| 7       | 106                        | 683                                  | 704                                 | 40                         | 8                                    | .84                                 | 20                         | 22                                   | 1.2                                 |
| 8       | 45                         | 140                                  | 19                                  | 38                         | 6                                    | .65                                 | 19                         | 18                                   | .95                                 |
| 9       | 31                         | 64                                   | 5.4                                 | 37                         | 7                                    | .68                                 | 19                         | 15                                   | .77                                 |
| 10      | 28                         | 58                                   | 4.3                                 | 39                         | 7                                    | .78                                 | 19                         | 13                                   | .63                                 |
| 11      | 44                         | 151                                  | 30                                  | 60                         | 169                                  | 48                                  | 18                         | 10                                   | .51                                 |
| 12      | 191                        | 928                                  | 1350                                | 48                         | 159                                  | 22                                  | 18                         | 9                                    | .41                                 |
| 13      | 101                        | 476                                  | 134                                 | 48                         | 166                                  | 24                                  | 18                         | 7                                    | .33                                 |
| 14      | 140                        | 971                                  | 427                                 | 41                         | 52                                   | 6.3                                 | 17                         | 7                                    | .32                                 |
| 15      | 109                        | 421                                  | 137                                 | 67                         | 431                                  | 141                                 | 17                         | 10                                   | .47                                 |
| 16      | 95                         | 492                                  | 128                                 | 42                         | 112                                  | 14                                  | 17                         | 16                                   | .72                                 |
| 17      | 136                        | 1220                                 | 992                                 | 35                         | 26                                   | 2.5                                 | 17                         | 20                                   | .92                                 |
| 18      | 108                        | 260                                  | 85                                  | 32                         | 23                                   | 1.9                                 | 17                         | 15                                   | .68                                 |
| 19      | 82                         | 95                                   | 21                                  | 31                         | 21                                   | 1.8                                 | 17                         | 11                                   | .48                                 |
| 20      | 73                         | 53                                   | 11                                  | 30                         | 20                                   | 1.6                                 | 17                         | 8                                    | .37                                 |
| 21      | 66                         | 33                                   | 5.9                                 | 30                         | 17                                   | 1.3                                 | 17                         | 8                                    | .36                                 |
| 22      | 64                         | 23                                   | 3.9                                 | 29                         | 13                                   | 1.0                                 | 16                         | 8                                    | .35                                 |
| 23      | 62                         | 9                                    | 1.5                                 | 28                         | 12                                   | .89                                 | 17                         | 9                                    | .44                                 |
| 24      | 59                         | 9                                    | 1.5                                 | 29                         | 14                                   | 1.1                                 | 19                         | 36                                   | 1.9                                 |
| 25      | 56                         | 11                                   | 1.7                                 | 29                         | 16                                   | 1.3                                 | 16                         | 29                                   | 1.3                                 |
| 26      | 54                         | 15                                   | 2.1                                 | 33                         | 77                                   | 8.8                                 | 16                         | 26                                   | 1.1                                 |
| 27      | 52                         | 16                                   | 2.3                                 | 25                         | 45                                   | 3.1                                 | 16                         | 22                                   | .95                                 |
| 28      | 50                         | 11                                   | 1.6                                 | 24                         | 41                                   | 2.6                                 | 16                         | 19                                   | .78                                 |
| 29      | 49                         | 8                                    | 1.0                                 | 25                         | 41                                   | 2.7                                 | 16                         | 15                                   | .63                                 |
| 30      | 47                         | 15                                   | 1.9                                 | 24                         | 40                                   | 2.6                                 | 15                         | 10                                   | .43                                 |
| 31      | 46                         | 33                                   | 4.1                                 | ---                        | ---                                  | ---                                 | 16                         | 7                                    | .30                                 |
| TOTAL   | 2101                       | ---                                  | 4162.0                              | 1122                       | ---                                  | 306.24                              | 560                        | ---                                  | 28.90                               |

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 15                         | 5                               | .21                                 | 10                         | 9                               | .23                                 | 15                         | 4                               | .17                                 |
| 2       | 15                         | 5                               | .22                                 | 11                         | 8                               | .23                                 | 15                         | 4                               | .17                                 |
| 3       | 15                         | 6                               | .23                                 | 11                         | 7                               | .20                                 | 14                         | 7                               | .28                                 |
| 4       | 14                         | 6                               | .25                                 | 16                         | 13                              | 1.3                                 | 14                         | 12                              | .46                                 |
| 5       | 14                         | 8                               | .32                                 | 68                         | 345                             | 90                                  | 15                         | 18                              | .74                                 |
| 6       | 16                         | 11                              | .44                                 | 24                         | 79                              | 5.3                                 | 16                         | 16                              | .70                                 |
| 7       | 24                         | 39                              | 3.7                                 | 21                         | 53                              | 3.0                                 | 19                         | 13                              | .68                                 |
| 8       | 18                         | 31                              | 1.6                                 | 25                         | 64                              | 5.9                                 | 16                         | 11                              | .49                                 |
| 9       | 14                         | 13                              | .50                                 | 31                         | 115                             | 11                                  | 14                         | 10                              | .37                                 |
| 10      | 14                         | 7                               | .28                                 | 21                         | 36                              | 2.1                                 | 14                         | 8                               | .31                                 |
| 11      | 13                         | 7                               | .26                                 | 20                         | 15                              | .79                                 | 13                         | 7                               | .26                                 |
| 12      | 14                         | 8                               | .29                                 | 20                         | 8                               | .43                                 | 13                         | 8                               | .27                                 |
| 13      | 25                         | 63                              | 4.5                                 | 19                         | 6                               | .31                                 | 13                         | 8                               | .28                                 |
| 14      | 20                         | 75                              | 4.1                                 | 18                         | 6                               | .28                                 | 17                         | 16                              | .84                                 |
| 15      | 15                         | 71                              | 2.8                                 | 22                         | 5                               | .29                                 | 24                         | 46                              | 3.1                                 |
| 16      | 14                         | 68                              | 2.5                                 | 19                         | 5                               | .25                                 | 19                         | 32                              | 1.7                                 |
| 17      | 14                         | 63                              | 2.4                                 | 18                         | 5                               | .23                                 | 28                         | 65                              | 11                                  |
| 18      | 16                         | 59                              | 2.5                                 | 17                         | 4                               | .21                                 | 25                         | 60                              | 5.5                                 |
| 19      | 19                         | 50                              | 2.7                                 | 17                         | 4                               | .19                                 | 14                         | 17                              | .64                                 |
| 20      | 14                         | 26                              | 1.0                                 | 16                         | 4                               | .18                                 | 13                         | 16                              | .57                                 |
| 21      | 14                         | 18                              | .69                                 | 16                         | 4                               | .18                                 | 13                         | 14                              | .48                                 |
| 22      | 16                         | 17                              | .78                                 | 16                         | 4                               | .19                                 | 12                         | 12                              | .37                                 |
| 23      | 13                         | 8                               | .27                                 | 15                         | 5                               | .19                                 | 11                         | 10                              | .31                                 |
| 24      | 12                         | 8                               | .27                                 | 16                         | 5                               | .22                                 | 12                         | 9                               | .29                                 |
| 25      | 13                         | 8                               | .29                                 | 16                         | 5                               | .22                                 | 10                         | 9                               | .24                                 |
| 26      | 11                         | 10                              | .30                                 | 20                         | 5                               | .28                                 | 11                         | 8                               | .24                                 |
| 27      | 11                         | 11                              | .35                                 | 16                         | 5                               | .21                                 | 11                         | 9                               | .27                                 |
| 28      | 11                         | 13                              | .36                                 | 15                         | 5                               | .19                                 | 11                         | 11                              | .31                                 |
| 29      | 11                         | 12                              | .34                                 | ---                        | ---                             | ---                                 | 44                         | 203                             | 76                                  |
| 30      | 10                         | 11                              | .30                                 | ---                        | ---                             | ---                                 | 86                         | 522                             | 203                                 |
| 31      | 10                         | 9                               | .25                                 | ---                        | ---                             | ---                                 | e36                        | 119                             | e14                                 |
| TOTAL   | 455                        | ---                             | 35.00                               | 554                        | ---                             | 124.10                              | 588                        | ---                             | 324.04                              |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | e17                        | 28                              | e1.3                                | e14                        | 7                               | e.28                                | 33                         | 53                              | 4.7                                 |
| 2       | 20                         | 35                              | 2.1                                 | e15                        | 7                               | e.18                                | 36                         | 68                              | 7.3                                 |
| 3       | 16                         | 19                              | .82                                 | e16                        | 7                               | e.16                                | 35                         | 62                              | 5.9                                 |
| 4       | 14                         | 15                              | .55                                 | e26                        | 7                               | e2.9                                | 37                         | 106                             | 12                                  |
| 5       | 18                         | 16                              | .80                                 | e40                        | 7                               | e1.5                                | 168                        | 1080                            | 1690                                |
| 6       | 13                         | 17                              | .62                                 | e78                        | 6                               | e79                                 | e190                       | 318                             | e2080                               |
| 7       | e23                        | 16                              | e1.2                                | e88                        | 6                               | e86                                 | e50                        | 106                             | e6.6                                |
| 8       | e31                        | 15                              | e11                                 | e60                        | 1060                            | e55                                 | e40                        | 35                              | e1.5                                |
| 9       | e17                        | 15                              | e1.3                                | s53                        | 214                             | e55                                 | e36                        | 86                              | e7.3                                |
| 10      | e16                        | 14                              | e.22                                | 29                         | 35                              | 2.9                                 | e34                        | 89                              | e5.9                                |
| 11      | e15                        | 14                              | e.17                                | 23                         | 18                              | 1.2                                 | e140                       | 903                             | e129                                |
| 12      | e14                        | 14                              | e.55                                | 21                         | 16                              | .91                                 | e230                       | 251                             | e2080                               |
| 13      | e13                        | 13                              | e.62                                | 20                         | 13                              | .70                                 | e96                        | 183                             | e453                                |
| 14      | e19                        | 13                              | e.48                                | 19                         | 9                               | .48                                 | e86                        | 134                             | e203                                |
| 15      | e23                        | 12                              | e1.2                                | 21                         | 7                               | .38                                 | e47                        | 97                              | e3.4                                |
| 16      | e23                        | 12                              | e1.2                                | 20                         | 5                               | .28                                 | e49                        | 71                              | e3.4                                |
| 17      | e19                        | 12                              | e.48                                | 22                         | 26                              | 1.9                                 | e76                        | 310                             | e15                                 |
| 18      | e28                        | 11                              | e2.9                                | 27                         | 108                             | 11                                  | 79                         | 481                             | 172                                 |
| 19      | e50                        | 11                              | e6.6                                | 124                        | 1660                            | 1060                                | 52                         | 156                             | 23                                  |
| 20      | e60                        | 11                              | e15                                 | 128                        | 987                             | 522                                 | 47                         | 51                              | 6.5                                 |
| 21      | e27                        | 10                              | e2.9                                | 380                        | 1070                            | 1780                                | e43                        | 19                              | e2.0                                |
| 22      | e24                        | 10                              | e3.1                                | 117                        | 221                             | 80                                  | 36                         | 14                              | 1.4                                 |
| 23      | e23                        | 10                              | e1.2                                | 73                         | 76                              | 15                                  | 36                         | 12                              | 1.1                                 |
| 24      | e20                        | 9                               | e2.1                                | 55                         | 44                              | 6.6                                 | 36                         | 10                              | .97                                 |
| 25      | e19                        | 9                               | e1.7                                | 47                         | 27                              | 3.4                                 | 52                         | 159                             | 43                                  |
| 26      | e18                        | 9                               | e1.3                                | 45                         | 19                              | 2.3                                 | 38                         | 86                              | 9.1                                 |
| 27      | e17                        | 8                               | e1.3                                | 40                         | 14                              | 1.5                                 | 47                         | 137                             | 29                                  |
| 28      | e17                        | 8                               | e1.3                                | 37                         | 10                              | 1.0                                 | 36                         | 60                              | 5.8                                 |
| 29      | e16                        | 8                               | e.49                                | 36                         | 10                              | .96                                 | 36                         | 28                              | 2.7                                 |
| 30      | e15                        | 8                               | e.18                                | 45                         | 87                              | 14                                  | 36                         | 16                              | 1.5                                 |
| 31      | ---                        | ---                             | ---                                 | 36                         | 61                              | 6.0                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 645                        | ---                             | 64.68                               | 1755                       | ---                             | 3792.53                             | 1957                       | ---                             | 7006.07                             |

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 36                         | 15                              | 1.4                                 | 34                         | 20                              | 1.8                                 | e83                        | 179                             | e40                                 |
| 2     | 37                         | 31                              | 3.8                                 | 33                         | 30                              | 2.7                                 | e100                       | 563                             | e205                                |
| 3     | 36                         | 57                              | 5.6                                 | 34                         | 69                              | 6.2                                 | e95                        | 421                             | e108                                |
| 4     | 36                         | 28                              | 2.6                                 | 33                         | 159                             | 14                                  | e92                        | 490                             | e128                                |
| 5     | 36                         | 17                              | 1.7                                 | 34                         | 277                             | 25                                  | 78                         | 501                             | 107                                 |
| 6     | 43                         | 497                             | 90                                  | 34                         | 237                             | 22                                  | 82                         | 231                             | 49                                  |
| 7     | 37                         | 91                              | 9.0                                 | 34                         | 195                             | 18                                  | 67                         | 84                              | 15                                  |
| 8     | 33                         | 68                              | 6.2                                 | 34                         | 141                             | 13                                  | 59                         | 37                              | 6.0                                 |
| 9     | 33                         | 54                              | 4.8                                 | 66                         | 741                             | 378                                 | 60                         | 141                             | 27                                  |
| 10    | e50                        | 87                              | e29                                 | 121                        | 665                             | 786                                 | 51                         | 63                              | 8.8                                 |
| 11    | e40                        | 91                              | e17                                 | 182                        | 1980                            | 2080                                | 45                         | 25                              | 3.0                                 |
| 12    | 32                         | 35                              | 3.0                                 | 111                        | 551                             | 173                                 | 89                         | 345                             | 224                                 |
| 13    | 31                         | 32                              | 2.7                                 | 75                         | 155                             | 32                                  | 65                         | 129                             | 23                                  |
| 14    | e60                        | 62                              | e35                                 | 64                         | 56                              | 9.7                                 | 56                         | 37                              | 5.6                                 |
| 15    | 84                         | 1200                            | 876                                 | 57                         | 40                              | 6.1                                 | 51                         | 33                              | 4.5                                 |
| 16    | 89                         | 564                             | 239                                 | 57                         | 30                              | 4.6                                 | 63                         | 117                             | 26                                  |
| 17    | 51                         | 194                             | 29                                  | 66                         | 140                             | 35                                  | 57                         | 128                             | 22                                  |
| 18    | 52                         | 848                             | 320                                 | 55                         | 82                              | 12                                  | 87                         | 361                             | 120                                 |
| 19    | 41                         | 131                             | 17                                  | 51                         | 41                              | 5.7                                 | 60                         | 106                             | 18                                  |
| 20    | 34                         | 62                              | 5.8                                 | 49                         | 22                              | 2.9                                 | 49                         | 34                              | 4.5                                 |
| 21    | 33                         | 36                              | 3.3                                 | 80                         | 294                             | 67                                  | 155                        | 1710                            | 3930                                |
| 22    | 33                         | 33                              | 2.9                                 | 58                         | 55                              | 8.8                                 | 3310                       | 2950                            | 240000                              |
| 23    | 34                         | 30                              | 2.7                                 | 52                         | 18                              | 2.5                                 | 375                        | 2610                            | 3080                                |
| 24    | 36                         | 28                              | 2.7                                 | 69                         | 182                             | 80                                  | 220                        | 156                             | 99.8                                |
| 25    | 34                         | 25                              | 2.3                                 | 129                        | 1610                            | 811                                 | 152                        | 50                              | 21                                  |
| 26    | 33                         | 23                              | 2.1                                 | 68                         | 50                              | 9.6                                 | 128                        | 42                              | 15                                  |
| 27    | 32                         | 21                              | 1.8                                 | 91                         | 796                             | 453                                 | 113                        | 36                              | 11                                  |
| 28    | 32                         | 17                              | 1.5                                 | e187                       | 2200                            | e3450                               | 106                        | 35                              | 10                                  |
| 29    | 31                         | 14                              | 1.2                                 | e95                        | 449                             | e116                                | 184                        | 991                             | 1130                                |
| 30    | 30                         | 13                              | 1.0                                 | e86                        | 323                             | e75                                 | 120                        | 166                             | 56                                  |
| 31    | 31                         | 16                              | 1.3                                 | e90                        | 232                             | e56                                 | ---                        | ---                             | ---                                 |
| TOTAL | 1250                       | ---                             | 1721.4                              | 2229                       | ---                             | 8756.6                              | 6252                       | ---                             | 249497.2                            |
| YEAR  | 19468                      |                                 | 275818.96                           |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                                          |                                                                          |
| 18... | 0715 | 113                                                                   | 187                                                                      | 57                                                                       |
| MAY   |      |                                                                       |                                                                          |                                                                          |
| 07... | 1035 | 3.1                                                                   | 188                                                                      | 1.6                                                                      |
| 08... | 1841 | 314                                                                   | 2510                                                                     | 2130                                                                     |
| 19... | 1635 | 359                                                                   | 3510                                                                     | 3400                                                                     |
| 20... | 2145 | 372                                                                   | 1600                                                                     | 1610                                                                     |
| JUN   |      |                                                                       |                                                                          |                                                                          |
| 11... | 1825 | 453                                                                   | 1980                                                                     | 2420                                                                     |
| JUL   |      |                                                                       |                                                                          |                                                                          |
| 06... | 1758 | 128                                                                   | 2220                                                                     | 767                                                                      |
| AUG   |      |                                                                       |                                                                          |                                                                          |
| 10... | 1754 | 535                                                                   | 2450                                                                     | 3540                                                                     |
| SEP   |      |                                                                       |                                                                          |                                                                          |
| 02... | 1722 | 236                                                                   | 1920                                                                     | 1220                                                                     |

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

## WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

|       |      | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|-------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| DATE  | TIME |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| MAY   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 08... | 1631 | 1530                                                                    | 7660                                                                    | 31600                                                                    | 33                                                                       | 43                                                                       | 57                                                                       |                                                                          |
| 21... | 1615 | 625                                                                     | 3850                                                                    | 6500                                                                     | 32                                                                       | 44                                                                       | 58                                                                       |                                                                          |
| JUN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 11... | 1640 | 1620                                                                    | 12000                                                                   | 52400                                                                    | 38                                                                       | 49                                                                       | 60                                                                       |                                                                          |
| SEP   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 02... | 1730 | 356                                                                     | 1650                                                                    | 1590                                                                     | 27                                                                       | 38                                                                       | 55                                                                       |                                                                          |
| DATE  |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
| MAY   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 08... | 69   | 79                                                                      | 82                                                                      | 92                                                                       | 98                                                                       | 99                                                                       | 100                                                                      |                                                                          |
| 21... | 71   | 82                                                                      | 85                                                                      | 92                                                                       | 96                                                                       | 99                                                                       | 100                                                                      |                                                                          |
| JUN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 11... | 69   | 77                                                                      | 79                                                                      | 89                                                                       | 96                                                                       | 99                                                                       | 100                                                                      |                                                                          |
| SEP   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 02... | 65   | 81                                                                      | 83                                                                      | 94                                                                       | 98                                                                       | 100                                                                      | 100                                                                      |                                                                          |

## RIO GRANDE DE ARECIBO BASIN

50028400 RIO TANAMA AT CHARCO HONDO, PR

LOCATION.--Lat 18°24'52", long 66°42'52", Hydrologic Unit 21010002 on right bank near to an abandoned power house at Charco Hondo, 1.5 mi (2.4 km) upstream from mouth, and 4 mi (6 km) south of Arecibo.

DRAINAGE AREA.--57.6 mi<sup>2</sup> (149.2 km<sup>2</sup>).

PERIOD OF RECORD.--April 1969 to June 1971, October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 60 ft (18 m), from topographic map.

REMARKS.--Records poor. Diversion 0.8 mi (1.3 km) upstream for municipal supply of Arecibo. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG   | SEP   |
|-------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| 1     | 91   | 71   | 49   | 38   | 32   | 30   | 45   | 30   | 66   | 52   | 134   | 229   |
| 2     | 125  | 71   | 46   | 39   | 32   | 30   | 40   | 28   | 50   | 50   | 71    | 198   |
| 3     | 105  | 68   | 45   | 39   | 32   | 29   | e35  | 29   | 64   | 57   | 82    | 197   |
| 4     | 79   | 68   | 44   | 38   | 32   | 29   | 31   | 30   | 75   | 54   | 66    | 174   |
| 5     | 77   | 66   | 44   | 38   | 88   | 34   | 35   | 34   | 150  | 49   | 103   | 160   |
| 6     | 77   | 65   | 43   | 39   | 48   | 33   | 30   | 83   | 172  | 86   | 64    | 161   |
| 7     | 125  | 63   | e42  | 43   | 37   | 41   | 28   | 164  | 88   | 104  | 156   | 205   |
| 8     | 152  | 64   | e42  | 51   | 36   | 36   | 63   | 125  | 71   | 60   | 146   | 176   |
| 9     | 89   | 61   | 42   | 37   | 51   | 31   | 37   | 120  | 64   | 53   | 206   | 152   |
| 10    | 79   | 62   | e42  | 36   | 38   | 29   | 32   | 55   | 69   | 64   | 257   | 122   |
| 11    | 90   | 71   | 43   | 36   | 35   | 27   | 30   | 43   | 231  | 100  | 328   | 102   |
| 12    | 148  | 81   | 42   | 36   | 35   | 27   | 29   | 38   | 214  | 56   | 349   | 144   |
| 13    | 291  | 61   | 41   | 46   | 33   | 27   | 29   | 36   | 128  | 53   | 228   | 159   |
| 14    | 665  | 58   | 41   | 49   | 33   | 28   | 28   | 36   | 112  | 77   | 161   | 132   |
| 15    | 367  | 69   | 41   | 39   | 36   | 36   | 27   | 34   | 81   | 117  | 137   | 101   |
| 16    | 237  | 80   | 41   | 36   | 34   | 38   | 46   | 35   | 86   | 249  | 145   | 105   |
| 17    | 171  | 54   | 40   | 36   | 33   | 33   | 45   | 34   | 133  | 292  | 152   | 113   |
| 18    | 205  | 52   | 41   | 44   | 32   | 45   | 37   | e40  | 151  | 166  | 116   | 205   |
| 19    | 146  | 50   | 41   | 45   | 36   | 27   | 66   | e72  | 122  | 120  | 94    | 189   |
| 20    | 126  | 48   | 40   | 39   | 31   | 25   | 123  | e221 | 79   | 94   | 86    | 124   |
| 21    | 112  | e47  | 40   | 39   | 31   | 25   | 67   | e254 | 70   | 80   | 157   | 488   |
| 22    | 104  | 47   | 43   | 39   | 30   | 24   | 46   | e527 | 72   | 69   | 144   | e6400 |
| 23    | 97   | 46   | 44   | 36   | 30   | 23   | 49   | 167  | 63   | 76   | 96    | e1500 |
| 24    | 92   | 46   | 47   | 35   | 29   | 24   | 42   | 126  | 58   | 125  | 88    | e350  |
| 25    | 87   | e46  | 42   | 35   | 30   | 24   | 39   | 83   | 65   | 89   | 272   | e280  |
| 26    | 84   | e52  | 41   | 35   | 34   | 24   | 35   | 96   | 86   | 63   | 124   | e240  |
| 27    | 81   | 51   | 41   | 35   | 32   | 24   | 35   | 110  | 80   | 69   | 140   | e220  |
| 28    | 78   | 46   | 40   | 33   | 32   | 24   | 34   | 70   | 98   | 71   | 434   | e210  |
| 29    | 76   | 48   | 40   | 33   | ---  | 39   | 33   | 57   | 61   | 58   | 330   | e360  |
| 30    | 74   | 63   | e86  | 33   | ---  | 180  | 30   | 64   | 55   | 61   | 175   | e240  |
| 31    | 72   | ---  | 39   | 33   | ---  | 90   | ---  | 92   | ---  | 130  | 175   | ---   |
| TOTAL | 4402 | 1775 | 1353 | 1190 | 1012 | 1136 | 1246 | 2933 | 2914 | 2844 | 5216  | 13436 |
| MEAN  | 142  | 59.2 | 43.6 | 38.4 | 36.1 | 36.6 | 41.5 | 94.6 | 97.1 | 91.7 | 168   | 448   |
| MAX   | 665  | 81   | 86   | 51   | 88   | 180  | 123  | 527  | 231  | 292  | 434   | 6400  |
| MIN   | 72   | 46   | 39   | 33   | 29   | 23   | 27   | 28   | 50   | 49   | 64    | 101   |
| AC-FT | 8730 | 3520 | 2680 | 2360 | 2010 | 2250 | 2470 | 5820 | 5780 | 5640 | 10350 | 26650 |
| CFSM  | 6.40 | 2.67 | 1.97 | 1.73 | 1.63 | 1.65 | 1.87 | 4.26 | 4.38 | 4.13 | 7.58  | 20.2  |
| IN.   | 7.38 | 2.97 | 2.27 | 1.99 | 1.70 | 1.90 | 2.09 | 4.91 | 4.88 | 4.77 | 8.74  | 22.51 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

|      | MEAN | 162  | 131  | 78.4 | 59.5 | 50.1 | 42.6 | 65.6 | 126  | 88.7 | 65.3 | 81.0 | 141 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX  | 335  | 260  | 219  | 167  | 106  | 70.0 | 141  | 371  | 196  | 120  | 168  | 448  |     |
| (WY) | 1990 | 1982 | 1982 | 1997 | 1996 | 1971 | 1986 | 1986 | 1995 | 1969 | 1998 | 1998 |     |
| MIN  | 72.1 | 50.4 | 36.4 | 22.3 | 16.8 | 16.6 | 25.9 | 15.8 | 23.3 | 22.0 | 35.1 | 44.9 |     |
| (WY) | 1983 | 1995 | 1989 | 1989 | 1989 | 1988 | 1989 | 1989 | 1989 | 1989 | 1994 | 1994 |     |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

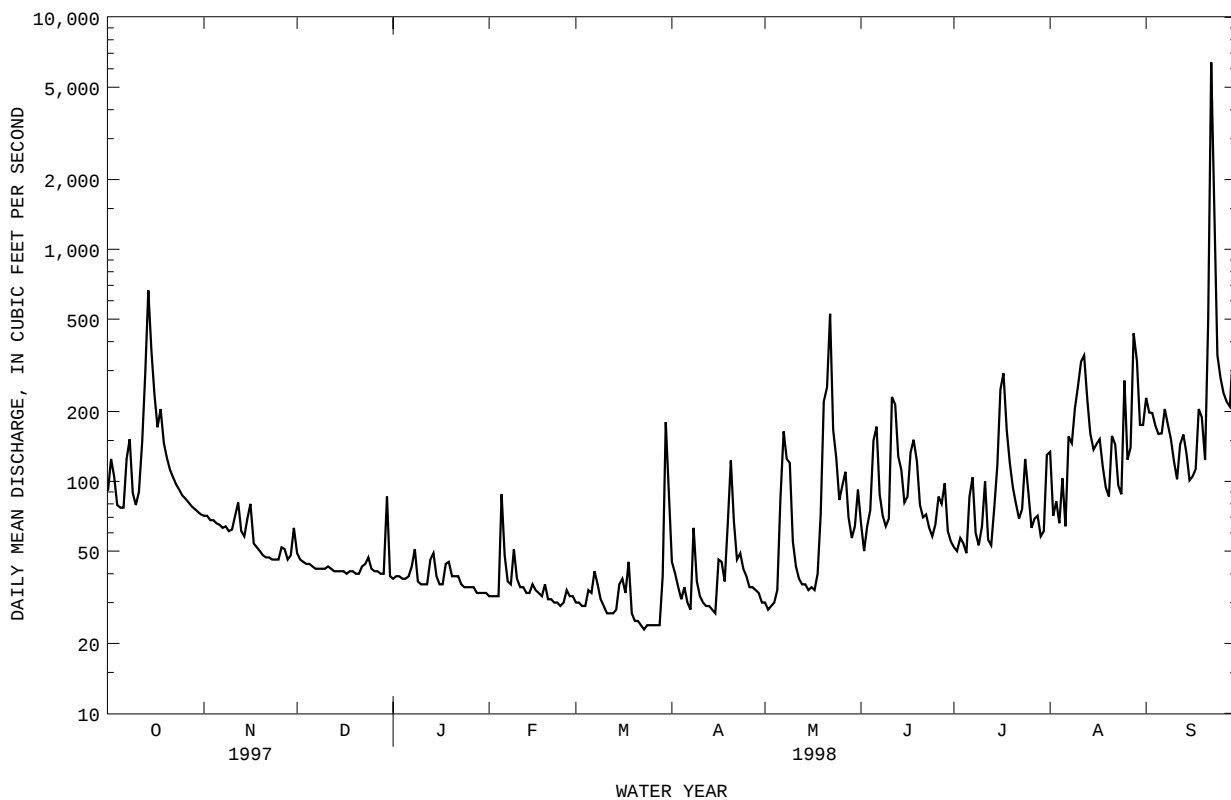
## FOR 1998 WATER YEAR

## WATER YEARS 1969 - 1998

|                          |       |        |                |
|--------------------------|-------|--------|----------------|
| ANNUAL TOTAL             | 28311 | 39457  |                |
| ANNUAL MEAN              | 77.6  | 108    |                |
| HIGHEST ANNUAL MEAN      |       |        | 89.1           |
| LOWEST ANNUAL MEAN       |       |        | 124            |
| HIGHEST DAILY MEAN       | 665   | Oct 14 | 6400           |
| LOWEST DAILY MEAN        | 33    | May 1  | 23             |
| ANNUAL SEVEN-DAY MINIMUM | 34    | May 14 | 24             |
| INSTANTANEOUS PEAK FLOW  |       |        | Not determined |
| INSTANTANEOUS PEAK STAGE |       |        | 24.56          |
| ANNUAL RUNOFF (AC-FT)    | 56150 | 78260  | 64510          |
| ANNUAL RUNOFF (CFSM)     | 3.49  | 4.87   | 4.01           |
| ANNUAL RUNOFF (INCHES)   | 47.44 | 66.12  | 54.50          |
| 10 PERCENT EXCEEDS       | 127   | 184    | 176            |
| 50 PERCENT EXCEEDS       | 61    | 58     | 65             |
| 90 PERCENT EXCEEDS       | 38    | 31     | 29             |

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50028400 RIO TANAMA AT CHARCO HONDO, PR--Continued



## RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 13.9 mi (22.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Rio Tanamá, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi<sup>2</sup> (520 km<sup>2</sup>).

PERIOD OF RECORD.--January 1963 to January 1965 (monthly measurements only), February 1965 to April 1969 (occasional measurements only), May 1969 to September 1983, October 1996 to September 1997.

GAGE.--Water-stage recorder. Datum of gage is 3.73 ft (1.14 m) above mean sea level.

REMARKS.--Records poor. Flow regulated by Lago Dos Bocas dam, 13.9 mi (22.4 km) upstream. The mean daily discharge for September 22, 1998 is not available, because there not rating definition above 13.0 ft; gage-height peak for September 21, 1998 was 17.0 ft. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN   | FEB   | MAR  | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| 1     | 272   | 151   | 119  | 132   | 209   | 82   | 291   | 223   | 639   | e110  | 303   | 927   |
| 2     | 187   | 241   | 183  | 160   | 140   | 82   | 172   | 181   | 453   | e109  | 205   | 1020  |
| 3     | 462   | 218   | 286  | 196   | 307   | 80   | 85    | 102   | 236   | 127   | 445   | 1380  |
| 4     | 247   | 353   | 435  | 91    | 306   | 326  | 75    | 159   | 240   | 117   | 494   | 983   |
| 5     | 160   | 316   | 392  | 78    | 209   | 590  | 71    | 114   | 525   | 108   | 499   | 1280  |
| 6     | 237   | 328   | 136  | 73    | 564   | 175  | 65    | 118   | 625   | 122   | 434   | 1340  |
| 7     | 273   | 273   | 172  | 96    | 355   | 108  | 72    | 308   | 454   | 181   | e729  | 1510  |
| 8     | 353   | 140   | 185  | 265   | 247   | 107  | 339   | 196   | 481   | 272   | 516   | 1400  |
| 9     | 172   | 249   | 198  | 96    | 239   | 91   | 158   | 363   | 392   | 415   | 578   | 868   |
| 10    | 334   | 119   | 199  | 95    | 96    | 83   | 197   | 241   | 340   | 612   | 875   | 1280  |
| 11    | 276   | 114   | 122  | 79    | 85    | 79   | 112   | 362   | 439   | 292   | 1120  | 516   |
| 12    | 379   | 201   | 86   | 164   | 78    | 74   | 74    | 593   | 941   | 362   | 1940  | 430   |
| 13    | 1840  | 297   | 70   | 169   | 78    | 69   | 220   | 290   | 862   | 475   | 1050  | 720   |
| 14    | 966   | 216   | 116  | 106   | e76   | 61   | 327   | 118   | 435   | 428   | 855   | 847   |
| 15    | 912   | 118   | 82   | 138   | e70   | 69   | 168   | 101   | 465   | 231   | 832   | 825   |
| 16    | 742   | 231   | 170  | 289   | e121  | 78   | 266   | 91    | 495   | 522   | 584   | 1150  |
| 17    | 607   | 456   | 159  | 214   | e494  | 69   | 227   | 240   | 255   | 566   | 590   | 756   |
| 18    | 975   | 302   | 135  | 105   | e187  | 90   | 255   | 463   | 255   | 323   | 748   | 739   |
| 19    | 599   | 164   | 80   | 104   | e135  | 72   | 233   | 334   | 342   | 567   | 427   | 1180  |
| 20    | 531   | 336   | 62   | 90    | e407  | 63   | 379   | 960   | 239   | 499   | 355   | 1310  |
| 21    | 557   | 146   | 149  | 87    | 513   | 60   | 355   | 1940  | 199   | 577   | 778   | 1360  |
| 22    | 451   | 90    | 149  | 126   | 385   | 59   | 363   | 2330  | 494   | 825   | 792   | ---   |
| 23    | 498   | 84    | 115  | 145   | 205   | 64   | 393   | 786   | 457   | 719   | 435   | 9390  |
| 24    | 495   | 214   | 206  | 299   | 149   | 61   | 435   | 618   | 187   | 731   | 704   | 5500  |
| 25    | 383   | 143   | 87   | 172   | 91    | 123  | 285   | 394   | 154   | 483   | 1510  | 3630  |
| 26    | 384   | 160   | 74   | 85    | 224   | 68   | 314   | 442   | 174   | 192   | 1310  | 2780  |
| 27    | 477   | 90    | 69   | 187   | 113   | 91   | 106   | 514   | 470   | 185   | 1320  | e2190 |
| 28    | 529   | 80    | 113  | 151   | 88    | 56   | 259   | 259   | 248   | 194   | 1120  | 1870  |
| 29    | 554   | 104   | 87   | 335   | ---   | 197  | 133   | 341   | 193   | 341   | 1140  | 2600  |
| 30    | 325   | 93    | 90   | 541   | ---   | 266  | 257   | 222   | e171  | 516   | 1130  | 2800  |
| 31    | 271   | ---   | 131  | 199   | ---   | 280  | ---   | 214   | ---   | 615   | 636   | ---   |
| TOTAL | 15448 | 6027  | 4657 | 5067  | 6171  | 3773 | 6686  | 13617 | 11860 | 11816 | 24454 | ---   |
| MEAN  | 498   | 201   | 150  | 163   | 220   | 122  | 223   | 439   | 395   | 381   | 789   | ---   |
| MAX   | 1840  | 456   | 435  | 541   | 564   | 590  | 435   | 2330  | 941   | 825   | 1940  | ---   |
| MIN   | 160   | 80    | 62   | 73    | 70    | 56   | 65    | 91    | 154   | 108   | 205   | ---   |
| AC-FT | 30640 | 11950 | 9240 | 10050 | 12240 | 7480 | 13260 | 27010 | 23520 | 23440 | 48500 | ---   |
| CFSM  | 2.49  | 1.00  | .75  | .82   | 1.10  | .61  | 1.11  | 2.20  | 1.98  | 1.91  | 3.94  | ---   |
| IN.   | 2.87  | 1.12  | .87  | .94   | 1.15  | .70  | 1.24  | 2.53  | 2.21  | 2.20  | 4.55  | ---   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

|      | MEAN | 792  | 720  | 515  | 353  | 297  | 315  | 377  | 556  | 454  | 381  | 442  | 704 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX  | 1577 | 1388 | 1327 | 651  | 425  | 627  | 641  | 1192 | 1220 | 854  | 1269 | 1866 |     |
| (WY) | 1971 | 1978 | 1982 | 1997 | 1997 | 1972 | 1983 | 1980 | 1979 | 1979 | 1979 | 1979 |     |
| MIN  | 404  | 201  | 150  | 155  | 152  | 122  | 196  | 188  | 139  | 189  | 218  | 271  |     |
| (WY) | 1983 | 1998 | 1998 | 1973 | 1974 | 1998 | 1975 | 1977 | 1977 | 1997 | 1974 | 1997 |     |

## SUMMARY STATISTICS

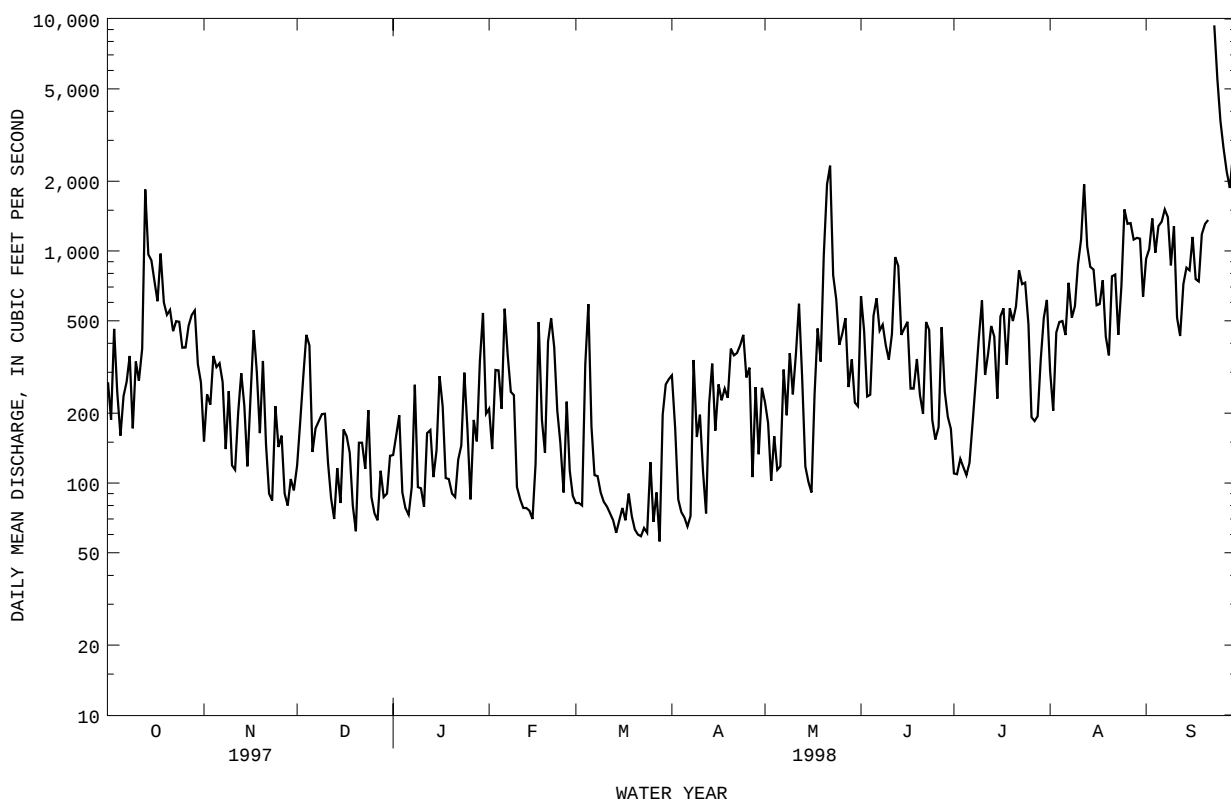
## FOR 1997 CALENDAR YEAR

## WATER YEARS 1969 - 1998

|                          |                |        |  |  |  |  |  |  |                |     |        |      |  |
|--------------------------|----------------|--------|--|--|--|--|--|--|----------------|-----|--------|------|--|
| ANNUAL TOTAL             | 114972         |        |  |  |  |  |  |  |                |     |        |      |  |
| ANNUAL MEAN              | 315            |        |  |  |  |  |  |  |                | 501 |        |      |  |
| HIGHEST ANNUAL MEAN      |                |        |  |  |  |  |  |  |                | 691 |        | 1979 |  |
| LOWEST ANNUAL MEAN       |                |        |  |  |  |  |  |  |                | 290 |        | 1974 |  |
| HIGHEST DAILY MEAN       | 4120           | Jan 22 |  |  |  |  |  |  | 15900          |     | Aug 31 | 1979 |  |
| LOWEST DAILY MEAN        | 56             | Mar 28 |  |  |  |  |  |  | 56             |     | Mar 28 | 1998 |  |
| ANNUAL SEVEN-DAY MINIMUM | 93             | Dec 25 |  |  |  |  |  |  | 67             |     | Mar 18 | 1998 |  |
| INSTANTANEOUS PEAK FLOW  | Not determined | Sep 22 |  |  |  |  |  |  | Not determined |     | Sep 22 | 1998 |  |
| INSTANTANEOUS PEAK STAGE | 19.28          | Sep 22 |  |  |  |  |  |  | 19.28          |     | Sep 22 | 1998 |  |
| INSTANTANEOUS LOW FLOW   |                |        |  |  |  |  |  |  | 50             |     | Feb 26 | 1974 |  |
| ANNUAL RUNOFF (AC-FT)    | 228000         |        |  |  |  |  |  |  | 363100         |     |        |      |  |
| ANNUAL RUNOFF (CFSM)     | 1.57           |        |  |  |  |  |  |  | 2.51           |     |        |      |  |
| ANNUAL RUNOFF (INCHES)   | 21.38          |        |  |  |  |  |  |  | 34.05          |     |        |      |  |
| 10 PERCENT EXCEEDS       | 518            |        |  |  |  |  |  |  | 962            |     |        |      |  |
| 50 PERCENT EXCEEDS       | 272            |        |  |  |  |  |  |  | 351            |     |        |      |  |
| 90 PERCENT EXCEEDS       | 100            |        |  |  |  |  |  |  | 133            |     |        |      |  |

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR--Continued



## RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 8.3 mi (13.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Rio Tanama, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi<sup>2</sup> (520 km<sup>2</sup>), approximately.

PERIOD OF RECORD.--Water years 1963-66, 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (MG/L) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|----------------------------------------------------------|------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| NOV 06... | 1030 | 194                                             | 254                                     | 7.5                                            | 25.5                               | 7.6                       | 7.5                               | 90                                                       | <10                                                  | 210                                            | K160                                             |
| FEB 27... | 0945 | 101                                             | 281                                     | 7.7                                            | 24.0                               | 3.4                       | 7.9                               | 93                                                       | <10                                                  | 500                                            | 270                                              |
| JUN 23... | 1120 | 214                                             | 273                                     | 8.0                                            | 28.0                               | 10                        | 6.8                               | 86                                                       | <10                                                  | 390                                            | 240                                              |
| SEP 14... | 1230 | E500                                            | 254                                     | 7.4                                            | 26.5                               | 27                        | 7.1                               | 88                                                       | <5                                                   | 3000                                           | 2500                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 06... | 96                                      | 28                                      | 7.0                                         | 11                                      | .5                                | 1.7                                        | 98                                                  | <.5                               | 6.1                                      | 11                                         |
| FEB 27... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 110                                                 | --                                | --                                       | --                                         |
| JUN 23... | 110                                     | 34                                      | 5.6                                         | 8.8                                     | .4                                | 2.1                                        | 100                                                 | --                                | 14                                       | 10                                         |
| SEP 14... | 110                                     | 35                                      | 4.9                                         | 8.0                                     | .3                                | 2.0                                        | 100                                                 | <1.0                              | 11                                       | 9.3                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SiO2) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 06... | <.10                                      | 29                                        | 148                                                     | 77.5                                      | 1                                                      | .704                                         | .016                                         | .720                                         | .020                                         | --                                           |
| FEB 27... | --                                        | --                                        | --                                                      | --                                        | 5                                                      | .426                                         | .014                                         | .440                                         | .030                                         | --                                           |
| JUN 23... | <.10                                      | 15                                        | 150                                                     | 87.0                                      | 11                                                     | --                                           | <.010                                        | .630                                         | .040                                         | --                                           |
| SEP 14... | <.10                                      | 16                                        | 146                                                     | E197                                      | 3                                                      | .844                                         | .016                                         | .860                                         | .030                                         | .21                                          |

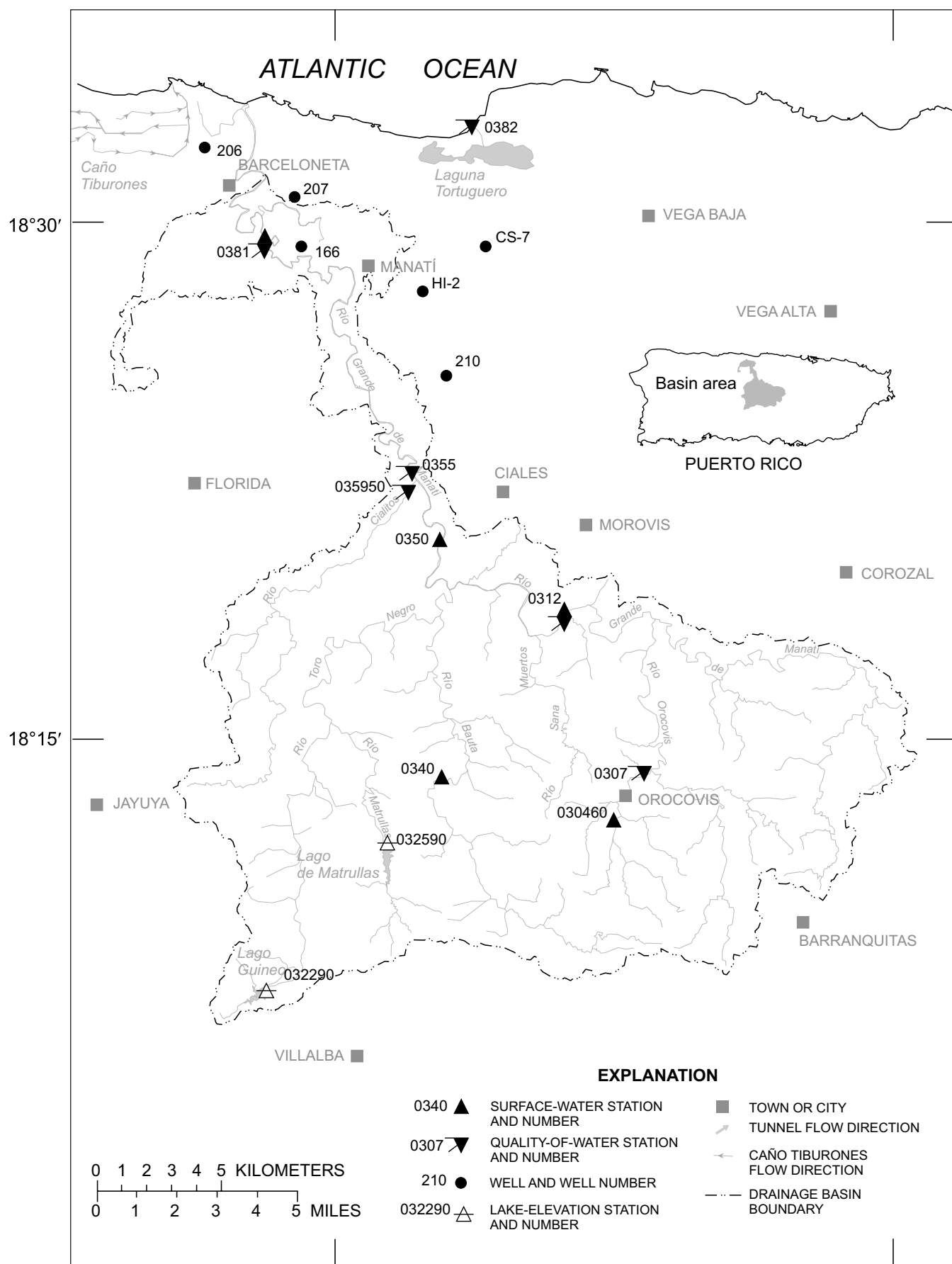
| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N03) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 06... | <.20                                                    | --                                     | --                                     | .030                                  | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| FEB 27... | <.20                                                    | --                                     | --                                     | <.020                                 | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 23... | <.20                                                    | --                                     | --                                     | .060                                  | <1                                 | <100                                            | 30                                            | <1                                               | <1                                                 | <10                                             |
| SEP 14... | .24                                                     | 1.1                                    | 4.9                                    | .060                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]



**Figure 14.** Río Grande de Manatí basin.

## RIO GRANDE DE MANATI BASIN

50030460 RIO OROCOVIS AT OROCOVIS, PR

LOCATION.--Lat 18°13'25", long 66°23'34", Hydrologic Unit 21010001, on right bank, 0.4 mi (0.6 km) south of junction of Highways 155 and 156 in Orocovis, 2.1 mi (3.38 km) upstream from Río Botijas, and 250 ft (76 m) upstream from bridge on Highway 599.

DRAINAGE AREA.--5.03 mi<sup>2</sup> (13.03 km<sup>2</sup>).

PERIOD OF RECORD.--April 1981 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft (152 m), from topographic map.

REMARKS.--Records poor. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB    | MAR   | APR    | MAY    | JUN   | JUL  | AUG   | SEP    |
|-------|--------|-------|-------|-------|--------|-------|--------|--------|-------|------|-------|--------|
| 1     | 1.1    | .88   | .56   | e.41  | .35    | e.59  | .89    | .61    | 3.9   | 1.2  | 1.3   | 1.5    |
| 2     | 2.2    | .77   | .56   | e.38  | .33    | e.56  | .76    | .73    | 3.8   | 1.3  | 1.1   | 67     |
| 3     | 1.7    | .82   | .80   | e.41  | .35    | e.54  | .64    | .70    | 3.4   | 1.5  | 1.0   | 49     |
| 4     | 3.0    | .94   | 1.2   | e.50  | 23     | e.57  | .68    | .55    | 3.7   | 1.7  | 1.0   | 30     |
| 5     | 3.2    | .83   | .67   | e1.1  | 162    | e.80  | .81    | .42    | 3.3   | 1.9  | 1.2   | 11     |
| 6     | 2.1    | .85   | .51   | e11   | e22    | .98   | .60    | .58    | 2.7   | 2.5  | 4.9   | 11     |
| 7     | 11     | .82   | .49   | e4.3  | e2.9   | 1.0   | 1.1    | .65    | 2.3   | 3.0  | 11    | 55     |
| 8     | 10     | .76   | .45   | e2.5  | e37    | 1.0   | 1.2    | 40     | 2.5   | 3.0  | 2.5   | 29     |
| 9     | 4.3    | .78   | .48   | e2.0  | e30    | 1.0   | .74    | 14     | 2.5   | 2.1  | 2.0   | 11     |
| 10    | 1.3    | 5.5   | .47   | e3.0  | e2.9   | .84   | .68    | 3.1    | 2.5   | 1.7  | 1.8   | 6.4    |
| 11    | 2.7    | .97   | .47   | e1.2  | e1.2   | .70   | .89    | 1.5    | 2.2   | 1.7  | 1.6   | 8.4    |
| 12    | 3.3    | .85   | .50   | e1.4  | e.82   | .58   | 128    | .62    | 7.4   | 1.7  | 2.0   | 5.2    |
| 13    | 4.1    | .78   | e.46  | e2.5  | e.60   | .55   | 34     | 10     | 3.7   | 1.7  | 1.5   | 5.4    |
| 14    | 98     | .77   | e.48  | e2.9  | e.69   | .60   | 6.1    | 219    | 2.0   | 1.8  | 1.2   | 10     |
| 15    | 51     | .75   | e.45  | e1.1  | e1.1   | .68   | 2.3    | 110    | 1.5   | 1.9  | 1.2   | 7.9    |
| 16    | 28     | .75   | e.48  | e.85  | e.79   | .68   | 1.7    | 21     | 1.5   | 1.5  | 1.7   | 4.7    |
| 17    | 60     | .77   | e.46  | e.70  | e.70   | .60   | 1.0    | 10     | 1.9   | 1.4  | 1.8   | 3.6    |
| 18    | 30     | .76   | e.47  | e.63  | e.71   | .71   | 1.4    | 56     | 1.7   | 1.5  | 1.6   | 4.5    |
| 19    | 9.7    | .76   | e.48  | e.57  | e.67   | .79   | 2.3    | 31     | 1.5   | 1.4  | 1.5   | 4.3    |
| 20    | 4.1    | .78   | e.61  | e.56  | e.66   | .74   | 1.7    | 23     | 1.3   | 1.8  | 1.2   | 5.8    |
| 21    | 2.2    | .77   | e.58  | e.51  | e.65   | .70   | 2.4    | 99     | 1.3   | 1.9  | 5.9   | e575   |
| 22    | 1.4    | .71   | e.49  | e.48  | e.65   | .60   | 4.0    | 53     | 2.2   | 1.8  | 16    | e1130  |
| 23    | 1.3    | .74   | e.48  | e.46  | e.81   | .70   | 6.1    | 18     | 1.0   | 1.4  | 11    | e158   |
| 24    | 1.2    | 1.1   | e.48  | e.43  | e.58   | .61   | 1.9    | 12     | 1.4   | 1.4  | 50    | e71    |
| 25    | 1.5    | .62   | e.45  | e.42  | e.56   | .65   | 1.3    | 10     | 1.0   | 1.2  | 124   | e48    |
| 26    | 1.2    | .65   | e.55  | e.41  | e.67   | .49   | 1.1    | 9.2    | .91   | 1.3  | 10    | e37    |
| 27    | .85    | .66   | e.45  | e.44  | e.60   | .70   | .86    | 9.2    | .85   | 1.8  | 3.1   | e31    |
| 28    | .87    | .61   | e.44  | .41   | e.67   | .63   | .64    | 6.5    | .96   | 1.4  | 1.9   | e28    |
| 29    | .84    | .61   | e.46  | .56   | ---    | 5.5   | .56    | 5.4    | 1.1   | 1.1  | 1.6   | e48    |
| 30    | .83    | ---   | e.45  | .44   | ---    | 2.0   | .62    | 4.7    | 1.2   | 1.5  | 1.2   | e33    |
| 31    | .85    | ---   | e.44  | .33   | ---    | 1.2   | ---    | 4.6    | ---   | 1.2  | 1.4   | ---    |
| TOTAL | 343.84 | 27.93 | 16.32 | 42.90 | 293.96 | 28.29 | 206.97 | 775.06 | 67.22 | 52.3 | 269.2 | 2489.7 |
| MEAN  | 11.1   | .93   | .53   | 1.38  | 10.5   | .91   | 6.90   | 25.0   | 2.24  | 1.69 | 8.68  | 83.0   |
| MAX   | 98     | 5.5   | 1.2   | 11    | 162    | 5.5   | 128    | 219    | 7.4   | 3.0  | 124   | 1130   |
| MIN   | .83    | .57   | .44   | .33   | .33    | .49   | .56    | .42    | .85   | 1.1  | 1.0   | 1.5    |
| AC-FT | 682    | 55    | 32    | 85    | 583    | 56    | 411    | 1540   | 133   | 104  | 534   | 4940   |
| CFSM  | 2.21   | .19   | .10   | .28   | 2.09   | .18   | 1.37   | 4.97   | .45   | .34  | 1.73  | 16.5   |
| IN.   | 2.54   | .21   | .12   | .32   | 2.17   | .21   | 1.53   | 5.73   | .50   | .39  | 1.99  | 18.41  |

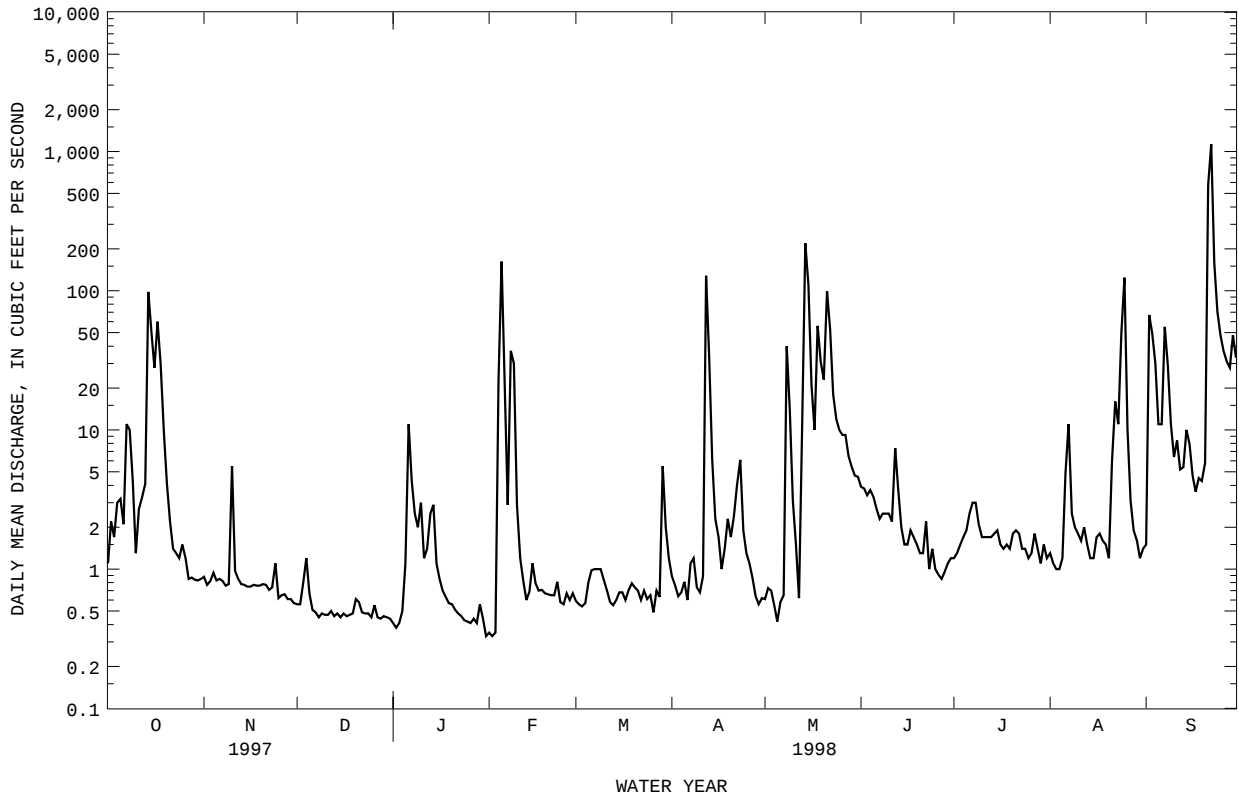
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 15.8 | 6.37 | 4.74 | 6.08 | 4.15 | 1.73 | 5.38 | 14.9 | 4.20 | 3.40 | 4.08 | 24.8 |
| MAX  | 58.0 | 15.2 | 15.8 | 34.3 | 15.7 | 3.07 | 21.0 | 45.9 | 15.2 | 9.07 | 12.3 | 83.0 |
| (WY) | 1990 | 1991 | 1982 | 1992 | 1996 | 1996 | 1993 | 1995 | 1992 | 1996 | 1989 | 1998 |
| MIN  | 1.95 | .93  | .53  | .77  | .96  | .90  | .93  | .86  | .88  | .88  | 1.03 | .88  |
| (WY) | 1994 | 1998 | 1998 | 1995 | 1995 | 1994 | 1995 | 1997 | 1994 | 1994 | 1982 | 1994 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1981 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 1043.62                | 4613.69             |                         |
| ANNUAL MEAN              | 2.86                   | 12.6                | 7.89                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 12.6                    |
| LOWEST ANNUAL MEAN       |                        |                     | 1.49                    |
| HIGHEST DAILY MEAN       | 98 Oct 14              | 1130 Sep 22         | 1570 Sep 10 1996        |
| LOWEST DAILY MEAN        | .23 Jul 10             | .33 Jan 31          | .20 Oct 4 1992          |
| ANNUAL SEVEN-DAY MINIMUM | .40 Jun 16             | .40 Jan 28          | .33 Oct 11 1992         |
| INSTANTANEOUS PEAK FLOW  |                        | 6930 Sep 21         | 8890 Sep 10 1996        |
| INSTANTANEOUS PEAK STAGE |                        | 16.06 Sep 21        | 17.38 Sep 10 1996       |
| ANNUAL RUNOFF (AC-FT)    | 2070                   | 9150                | 5710                    |
| ANNUAL RUNOFF (CFSM)     | .57                    | 2.51                | 1.57                    |
| ANNUAL RUNOFF (INCHES)   | 7.72                   | 34.12               | 21.30                   |
| 10 PERCENT EXCEEDS       | 3.8                    | 22                  | 12                      |
| 50 PERCENT EXCEEDS       | 1.1                    | 1.2                 | 1.9                     |
| 90 PERCENT EXCEEDS       | .48                    | .49                 | .78                     |

e Estimated

RIO GRANDE DE MANATI BASIN  
50030460 RIO OROCOVIS AT OROCOVIS, PR--Continued



## RIO GRANDE DE MANATI BASIN

50030700 RIO OROCOVIS NEAR OROCOVIS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'20", Long 66°22'58", at flat low bridge about 300 ft (91 m) northwest of Highway 568, 1.0 mi (1.6 km) north of Orocovis plaza.

DRAINAGE AREA.--10.1 mi<sup>2</sup> (26.2 km<sup>2</sup>).

PERIOD OF RECORD.--Water year 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 15... | 1430 | 44                                              | 225                                     | 7.4                                      | 23.5                               | 27                        | 7.6                               | 95                                                | <10                                                  | 6000                                                | 33000                                            |
| FEB 19... | 0930 | 5.9                                             | 356                                     | 7.9                                      | 20.5                               | 1.6                       | 8.1                               | 94                                                | <10                                                  | 320                                                 | K170                                             |
| JUN 16... | 1030 | 8.0                                             | 313                                     | 8.1                                      | 26.0                               | 4.0                       | 7.4                               | 97                                                | <10                                                  | 290                                                 | 360                                              |
| SEP 01... | 0815 | 5.8                                             | 333                                     | 7.9                                      | 24.5                               | 1.1                       | 7.5                               | 95                                                | <10                                                  | K620                                                | 400                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 15... | 82                                      | 19                                      | 8.3                                         | 10                                      | .5                                | 1.9                                        | 66                                                  | <.5                               | 13                                       | 17                                         |
| FEB 19... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 140                                                 | --                                | --                                       | --                                         |
| JUN 16... | 130                                     | 31                                      | 12                                          | 13                                      | .5                                | 2.2                                        | 130                                                 | --                                | 8.3                                      | 15                                         |
| SEP 01... | 140                                     | 35                                      | 12                                          | 14                                      | .5                                | 8.3                                        | 140                                                 | <1.0                              | 8.4                                      | 17                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 15... | .10                                       | 26                                        | 134                                                     | 16.0                                      | 31                                                     | .650                                         | .110                                         | .750                                         | .260                                         | .34                                          |
| FEB 19... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | .680                                         | .050                                         | .730                                         | .110                                         | --                                           |
| JUN 16... | <.10                                      | 33                                        | 193                                                     | 4.18                                      | 2                                                      | --                                           | <.010                                        | .920                                         | .020                                         | --                                           |
| SEP 01... | .11                                       | 33                                        | 213                                                     | 3.32                                      | 3                                                      | --                                           | <.010                                        | .750                                         | .020                                         | --                                           |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 15... | .59                                                     | 1.3                                  | 6.0                                    | .230                                  | <1                                 | <100                                            | 20                                            | <1                                               | 3                                                  | <10                                             |
| FEB 19... | <.20                                                    | --                                   | --                                     | .110                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 16... | <.20                                                    | --                                   | --                                     | .120                                  | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| SEP 01... | <.20                                                    | --                                   | --                                     | .120                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR

LOCATION.--Lat 18°17'45", long 66°24'47", Hydrologic Unit 21010001, on right bank , 0.1 mi (0.2 km) downstream from Quebrada Perchas, 0.8 mi (1.3 km) upstream from Rio Sana Muerto, and 2.2 mi (3.5 km) south of Morovis.

DRAINAGE AREA.--55.2 mi<sup>2</sup> (143.0 km<sup>2</sup>).

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 440 ft (134 m), from topographic map. Feb. 2, 1966 to Apr. 27, 1967, staff gage read twice daily.

REMARKS.--Records poor. Public water-supply pumpage, about 300 ft (91 m) above the station, influences low-flow discharges. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV  | DEC   | JAN   | FEB    | MAR   | APR    | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|--------|------|-------|-------|--------|-------|--------|------|------|------|------|-------|
| 1     | 10     | e16  | 13    | 9.4   | 6.1    | 12    | e37    | e17  | 48   | 24   | 16   | e17   |
| 2     | 10     | e15  | 14    | 10    | 6.2    | 11    | 22     | e16  | 44   | 25   | 16   | e77   |
| 3     | 31     | e15  | 14    | 11    | 8.6    | 12    | e17    | e16  | 96   | 58   | 16   | e89   |
| 4     | 13     | e15  | 13    | 9.7   | 41     | 12    | e13    | e17  | 63   | 46   | 16   | e73   |
| 5     | 10     | e15  | 13    | 11    | 633    | 11    | 13     | e16  | 51   | 31   | 16   | e43   |
| 6     | 8.9    | e16  | 13    | 38    | 131    | 12    | 12     | e22  | 41   | 32   | 18   | e38   |
| 7     | 86     | e15  | 13    | e39   | 54     | 12    | 11     | e14  | 37   | 34   | 33   | e55   |
| 8     | 129    | e14  | 11    | e15   | 105    | 13    | 16     | e21  | 36   | 25   | e25  | e51   |
| 9     | 138    | e14  | 10    | e12   | 264    | 11    | 12     | e27  | 35   | 25   | e21  | e34   |
| 10    | 47     | e20  | 11    | e10   | 93     | 11    | 9.8    | e20  | 37   | 25   | e18  | e29   |
| 11    | 25     | 44   | 11    | e15   | 52     | 10    | 9.2    | 33   | 30   | 26   | e19  | 33    |
| 12    | 47     | 35   | 10    | e35   | 36     | 9.6   | 157    | 23   | 28   | 22   | e18  | 56    |
| 13    | 69     | 19   | 10    | e15   | 28     | 9.8   | 166    | 20   | 43   | 22   | e17  | 39    |
| 14    | 235    | 16   | 10    | e28   | 22     | 9.4   | 76     | 1070 | 33   | 20   | e16  | 40    |
| 15    | e160   | 15   | 9.8   | e25   | 27     | 9.8   | 37     | 780  | 27   | 23   | e16  | 37    |
| 16    | e130   | 15   | 9.8   | e15   | 21     | 10    | 81     | 170  | 27   | 20   | e17  | 26    |
| 17    | e160   | 17   | 9.6   | e10   | 17     | e7.4  | 40     | 122  | 53   | 20   | e17  | 22    |
| 18    | e220   | 16   | 10    | e9.0  | 18     | e6.9  | 44     | 79   | e58  | 21   | e19  | 24    |
| 19    | e110   | 16   | 13    | e23   | 15     | e8.4  | e154   | 183  | e39  | 21   | e18  | 32    |
| 20    | e70    | 15   | 10    | e22   | 15     | 9.4   | 76     | 220  | 34   | 21   | e20  | 28    |
| 21    | e45    | 14   | 9.7   | e15   | 15     | 20    | 56     | 254  | 33   | 48   | e24  | 1530  |
| 22    | e35    | 13   | 9.7   | e17   | 14     | 14    | 36     | 224  | 45   | 23   | e25  | 7010  |
| 23    | e30    | 13   | 9.8   | e13   | 13     | 11    | 35     | 132  | 37   | 19   | e22  | 540   |
| 24    | e25    | 14   | 10    | e10   | 12     | 11    | 38     | 99   | 37   | 20   | e89  | 254   |
| 25    | e23    | 14   | 10    | e9.0  | 11     | 8.1   | 25     | 77   | 35   | 19   | e27  | 216   |
| 26    | e21    | 13   | 9.5   | e8.0  | 14     | 8.5   | 29     | 68   | 31   | 18   | e21  | 184   |
| 27    | e20    | 14   | 9.7   | e7.0  | 14     | 7.8   | 34     | 84   | 29   | 57   | e21  | 175   |
| 28    | e18    | 13   | 9.2   | 6.6   | 14     | 9.2   | e28    | 67   | 27   | 27   | e19  | 179   |
| 29    | e18    | 12   | 8.7   | 6.3   | ---    | 10    | e21    | 55   | 26   | 20   | 28   | 436   |
| 30    | e16    | 13   | 8.7   | 6.2   | ---    | e120  | e18    | 58   | 25   | 19   | 23   | 302   |
| 31    | e16    | ---  | 8.8   | 6.9   | ---    | e150  | ---    | 73   | ---  | 19   | 19   | ---   |
| TOTAL | 1975.9 | 496  | 332.0 | 467.1 | 1699.9 | 577.3 | 1323.0 | 4077 | 1185 | 830  | 690  | 11669 |
| MEAN  | 63.7   | 16.5 | 10.7  | 15.1  | 60.7   | 18.6  | 44.1   | 132  | 39.5 | 26.8 | 22.3 | 389   |
| MAX   | 235    | 44   | 14    | 39    | 633    | 150   | 166    | 1070 | 96   | 58   | 89   | 7010  |
| MIN   | 8.9    | 12   | 8.7   | 6.2   | 6.1    | 6.9   | 9.2    | 14   | 25   | 18   | 16   | 17    |
| AC-FT | 3920   | 984  | 659   | 926   | 3370   | 1150  | 2620   | 8090 | 2350 | 1650 | 1370 | 23150 |
| CFSM  | 1.15   | .30  | .19   | .27   | 1.10   | .34   | .80    | 2.38 | .72  | .49  | .40  | 7.05  |
| IN.   | 1.33   | .33  | .22   | .31   | 1.15   | .39   | .89    | 2.75 | .80  | .56  | .46  | 7.86  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1998, BY WATER YEAR (WY)

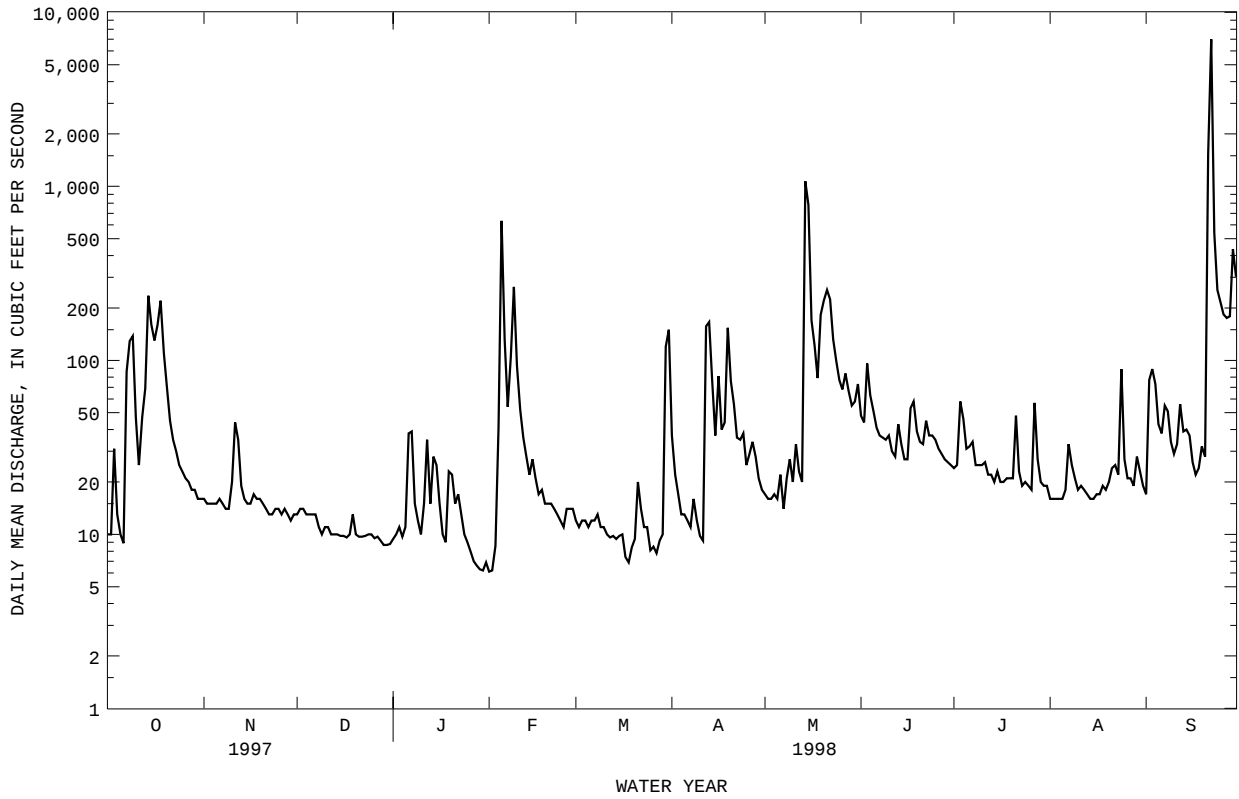
|      | MEAN | 149  | 139  | 105  | 80.1 | 63.4 | 63.1 | 105  | 157  | 59.6 | 44.7 | 52.9 | 109 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX  | 1037 | 491  | 522  | 228  | 179  | 226  | 412  | 915  | 173  | 157  | 435  | 432  |     |
| (WY) | 1971 | 1971 | 1966 | 1997 | 1969 | 1972 | 1969 | 1985 | 1987 | 1979 | 1979 | 1996 |     |
| MIN  | 24.0 | 11.4 | 8.65 | 10.4 | 15.3 | 12.7 | 8.80 | 15.7 | 6.75 | 5.54 | 9.70 | 6.87 |     |
| (WY) | 1978 | 1995 | 1995 | 1995 | 1994 | 1984 | 1995 | 1994 | 1994 | 1994 | 1984 | 1994 |     |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1965 - 1998

|                          |         |         |              |
|--------------------------|---------|---------|--------------|
| ANNUAL TOTAL             | 18105.5 | 25322.2 |              |
| ANNUAL MEAN              | 49.6    | 69.4    | 93.8         |
| HIGHEST ANNUAL MEAN      |         |         | 248          |
| LOWEST ANNUAL MEAN       |         |         | 24.2         |
| HIGHEST DAILY MEAN       | 2100    | Jan 22  | 7010 Sep 22  |
| LOWEST DAILY MEAN        | 7.2     | Sep 18  | 6.1 Feb 1    |
| ANNUAL SEVEN-DAY MINIMUM | 7.7     | Sep 15  | 6.5 Jan 27   |
| INSTANTANEOUS PEAK FLOW  |         |         | 32700 Sep 21 |
| INSTANTANEOUS PEAK STAGE |         |         | 15.65 Sep 21 |
| ANNUAL RUNOFF (AC-FT)    | 35910   |         | 50230        |
| ANNUAL RUNOFF (CFSM)     | .90     |         | 1.26         |
| ANNUAL RUNOFF (INCHES)   | 12.20   |         | 17.06        |
| 10 PERCENT EXCEEDS       | 88      |         | 101          |
| 50 PERCENT EXCEEDS       | 23      |         | 20           |
| 90 PERCENT EXCEEDS       | 9.7     |         | 9.8          |

e Estimated

RIO GRANDE DE MANATI BASIN  
50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR--Continued



## RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
|           |      |                                                 |                                         |                                                |                                    |                           |                                   |                                                   |                                                      |                                                     |                                                  |
| OCT 15... | 1030 | 149                                             | 240                                     | 8.0                                            | 25.0                               | 58                        | 8.5                               | 105                                               | <10                                                  | 6000                                                | 5500                                             |
| FEB 19... | 1115 | 14                                              | 321                                     | 7.9                                            | 24.5                               | 3.8                       | 7.9                               | 97                                                | <10                                                  | K130                                                | K72                                              |
| JUN 16... | 1330 | 27                                              | 284                                     | 8.4                                            | 31.0                               | .45                       | 8.7                               | 120                                               | <10                                                  | <10                                                 | <10                                              |
| SEP 01... | 1010 | 18                                              | 290                                     | 7.8                                            | 28.5                               | 1.3                       | 7.9                               | 104                                               | <10                                                  | K27                                                 | K100                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
|           |                                         |                                         |                                             |                                         |                                   |                                            |                                                     |                                   |                                          |                                            |
| OCT 15... | 88                                      | 22                                      | 8.4                                         | 11                                      | .5                                | 2.9                                        | 66                                                  | <.5                               | 14                                       | 19                                         |
| FEB 19... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 120                                                 | --                                | --                                       | --                                         |
| JUN 16... | 110                                     | 27                                      | 12                                          | 13                                      | .5                                | 2.9                                        | 110                                                 | --                                | 8.6                                      | 16                                         |
| SEP 01... | 120                                     | 28                                      | 11                                          | 14                                      | .5                                | 2.6                                        | 110                                                 | <1.0                              | 10                                       | 17                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
|           |                                           |                                           |                                                         |                                           |                                                        |                                              |                                              |                                              |                                              |                                              |
| OCT 15... | .12                                       | 24                                        | 141                                                     | 56.7                                      | 58                                                     | .390                                         | .060                                         | .460                                         | .170                                         | .20                                          |
| FEB 19... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | --                                           | <.010                                        | .580                                         | <.010                                        | --                                           |
| JUN 16... | .13                                       | 17                                        | 162                                                     | 11.7                                      | <1                                                     | --                                           | <.010                                        | .220                                         | .020                                         | --                                           |
| SEP 01... | .13                                       | 26                                        | 175                                                     | 8.31                                      | 2                                                      | --                                           | <.010                                        | .510                                         | .030                                         | --                                           |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM, WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
|           |                                                         |                                      |                                        |                                       |                                    |                                                 |                                               |                                                   |                                                    |                                                 |
| OCT 15... | .37                                                     | .83                                  | 3.7                                    | .060                                  | <1                                 | <100                                            | 20                                            | <1                                                | 5                                                  | <10                                             |
| FEB 19... | <.20                                                    | --                                   | --                                     | .040                                  | --                                 | --                                              | --                                            | --                                                | --                                                 | --                                              |
| JUN 16... | <.20                                                    | --                                   | --                                     | .020                                  | <1                                 | <100                                            | 20                                            | <1                                                | <1                                                 | <10                                             |
| SEP 01... | <.20                                                    | --                                   | --                                     | .070                                  | --                                 | --                                              | --                                            | --                                                | --                                                 | --                                              |

## RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GRANDE DE MANATI BASIN

50032290 LAGO EL GUINEO AT DAMSITE NEAR VILLALBA, PR

LOCATION.--Lat 18°09'41", long 66°31'36", Hydrologic Unit 21010001, at damsite on Río Toro Negro, 3.0 mi (4.8 km) northwest from Villalba plaza and 1.9 mi (3.1 km) northeast of Cerro Maravillas. The reservoir itself fixes the territorial limits between the Municipality of Ciales and Orocovis.

DRAINAGE AREA.--1.64 mi<sup>2</sup> (4.25 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year. Prior to October 1994, published as Lago El Guineo at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago El Guineo was completed in 1931. It provides a maximum storage of approximately 2,180 ac-ft (2.688 hm<sup>3</sup>) for power and irrigation. Waters are discharged through an outlet power tunnel into the Río Toro Negro and conveyed to the head water works of Toro Negro Hydroelectric Plant No.2, for energy generation at Toro Negro Hydroelectric plant No.1, and are discharged into the Guayabal Reservoir to be later used for irrigation at South Coast Irrigation System. The dam is rockfill with a vertical concrete corewall, rock toes, and riprap facing of upstream slope, with a total length of 565 ft (172 m), a maximum structural height of 125 ft (38 m) to top of corewall. At a maximum reservoir water surface elevation the uncontrolled morning-glory tunnel spillway crest has an elevation of 2,960 ft (902 m) above mean sea level and a design capacity of 7,000 ft<sup>3</sup>/s. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,964.40 ft (903.55 m), Sept. 22, 1998; minimum elevation, 2,919.79 ft (899.95 m), May 27, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,964.40 ft (903.55 m), Sept. 22; minimum elevation, 2,939.48 ft (895.95 m), Oct. 1.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,872              | 0                      | 2,950              | 1,308                  |
| 2,919              | 361                    | 2,961              | 1,852                  |
| 2,925              | 491                    | 2,966              | 2,180                  |
| 2,943              | 1,029                  |                    |                        |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     | JUN     | JUL     | AUG     | SEP     |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1   | 2939.70 | 2949.92 | 2953.22 | 2952.61 | 2952.64 | 2955.12 | 2959.46 | 2960.68 | 2960.71 | 2960.66 | 2960.64 | A       |
| 2   | 2939.85 | 2950.07 | 2953.32 | 2952.66 | 2952.69 | 2955.19 | 2959.58 | 2960.68 | 2960.71 | 2960.70 | 2960.71 | A       |
| 3   | 2939.98 | 2950.22 | 2953.27 | 2952.71 | 2952.55 | 2955.36 | A       | 2960.68 | 2960.71 | 2960.71 | 2960.54 | A       |
| 4   | 2940.07 | 2950.15 | 2953.23 | 2952.77 | 2952.97 | 2955.43 | 2959.80 | 2960.68 | 2960.74 | 2960.71 | 2960.35 | 2959.60 |
| 5   | 2940.11 | 2950.08 | 2953.32 | 2952.81 | 2953.66 | 2955.49 | 2959.97 | 2960.68 | 2960.81 | 2960.69 | 2960.16 | 2959.39 |
| 6   | 2940.18 | 2949.48 | 2953.39 | 2952.86 | 2953.18 | 2955.56 | 2960.06 | 2960.70 | 2960.72 | 2960.74 | A       | 2959.91 |
| 7   | 2941.08 | 2949.41 | 2953.47 | 2952.95 | 2953.29 | 2955.71 | A       | 2960.70 | 2960.70 | 2960.69 | 2960.70 | 2960.51 |
| 8   | 2941.33 | 2949.54 | 2953.55 | 2952.89 | 2953.95 | 2955.79 | A       | 2960.79 | 2960.71 | 2960.69 | 2960.78 | 2959.77 |
| 9   | 2941.52 | 2950.20 | 2953.53 | 2952.75 | 2953.67 | 2955.84 | 2960.71 | 2960.70 | 2960.71 | 2960.49 | 2960.74 | 2958.42 |
| 10  | 2941.69 | 2950.49 | 2953.60 | 2952.79 | 2953.48 | 2955.89 | 2960.70 | 2960.69 | 2960.58 | 2960.41 | 2960.63 | 2957.06 |
| 11  | 2941.87 | 2950.65 | 2953.58 | 2952.94 | 2953.60 | 2955.94 | 2960.82 | 2960.69 | 2960.40 | 2960.49 | 2960.67 | 2955.84 |
| 12  | 2942.25 | 2950.79 | 2953.64 | 2953.02 | 2953.69 | 2956.00 | 2960.80 | 2960.70 | 2960.36 | 2960.56 | 2960.63 | 2955.36 |
| 13  | 2944.01 | 2950.91 | 2953.71 | 2952.67 | 2953.76 | 2956.04 | 2960.72 | 2960.77 | 2960.52 | 2960.54 | 2960.56 | 2955.32 |
| 14  | 2946.56 | 2950.83 | 2953.79 | 2952.71 | 2953.97 | 2956.46 | 2960.71 | 2960.96 | 2960.66 | 2960.91 | 2960.59 | 2954.13 |
| 15  | 2947.48 | 2951.74 | 2953.82 | 2952.64 | 2954.08 | 2957.01 | 2960.70 | 2960.76 | 2960.50 | 2960.68 | 2960.69 | 2953.87 |
| 16  | 2947.30 | 2951.93 | 2953.45 | 2952.68 | 2954.18 | 2957.16 | 2960.70 | 2960.72 | 2960.40 | 2960.83 | 2960.72 | 2953.99 |
| 17  | 2953.36 | 2952.08 | 2952.86 | 2952.72 | 2954.26 | 2957.24 | 2960.69 | 2960.71 | 2960.67 | 2960.82 | 2960.64 | 2953.87 |
| 18  | 2954.38 | 2952.03 | 2952.50 | 2953.03 | 2954.33 | 2957.30 | 2960.73 | 2960.71 | A       | 2960.81 | 2960.57 | 2952.98 |
| 19  | 2954.94 | 2952.16 | 2952.26 | 2953.18 | 2954.39 | 2957.37 | 2960.70 | 2960.70 | 2960.50 | 2960.79 | 2960.43 | 2951.64 |
| 20  | 2954.37 | 2952.10 | 2952.05 | 2953.25 | 2954.47 | 2957.56 | 2960.84 | 2960.85 | 2960.69 | 2960.77 | 2960.28 | 2951.07 |
| 21  | 2953.74 | 2952.22 | 2952.15 | 2953.31 | 2954.54 | 2957.68 | 2960.71 | 2960.78 | 2960.73 | 2960.72 | 2960.37 | 2962.62 |
| 22  | 2953.05 | 2952.34 | 2952.21 | 2952.63 | 2954.61 | 2957.81 | 2960.69 | 2960.72 | 2960.55 | 2960.72 | 2960.75 | A       |
| 23  | 2952.25 | 2952.45 | 2952.28 | 2952.67 | 2954.65 | 2957.92 | 2960.75 | 2960.71 | 2960.61 | 2960.55 | 2960.70 | A       |
| 24  | 2951.45 | 2952.55 | 2952.25 | 2952.74 | 2954.78 | 2958.00 | 2960.83 | 2960.71 | 2960.69 | 2960.49 | A       | A       |
| 25  | 2951.68 | 2952.50 | 2952.31 | 2952.79 | 2954.87 | 2958.16 | 2960.72 | 2960.71 | 2960.69 | 2960.61 | A       | A       |
| 26  | 2951.88 | 2952.64 | 2952.37 | 2952.69 | 2954.93 | 2958.26 | 2960.70 | 2960.72 | 2960.69 | 2960.68 | A       | 2962.30 |
| 27  | 2951.37 | 2952.74 | 2952.44 | 2952.53 | 2954.99 | 2958.40 | 2960.70 | 2960.71 | 2960.69 | 2960.69 | A       | A       |
| 28  | 2950.50 | 2952.84 | 2952.50 | 2952.57 | 2955.05 | 2958.49 | 2960.70 | 2960.71 | 2960.69 | 2960.69 | A       | 2958.28 |
| 29  | 2949.60 | 2953.01 | 2952.55 | 2952.61 | ---     | 2958.68 | 2960.68 | 2960.70 | 2960.69 | 2960.59 | A       | 2957.08 |
| 30  | 2949.61 | 2953.12 | 2952.55 | 2952.57 | ---     | 2959.12 | 2960.68 | 2960.72 | 2960.67 | 2960.48 | A       | 2955.78 |
| 31  | 2949.76 | ---     | 2952.56 | 2952.60 | ---     | 2959.32 | ---     | 2960.70 | ---     | 2960.45 | A       | ---     |
| MAX | 2954.94 | 2953.12 | 2953.82 | 2953.31 | 2955.05 | 2959.32 | ---     | 2960.96 | ---     | 2960.91 | ---     | ---     |
| MIN | 2939.70 | 2949.41 | 2952.05 | 2952.53 | 2952.55 | 2955.12 | ---     | 2960.68 | ---     | 2960.41 | ---     | ---     |

A No gage-height record

## RIO GRANDE DE MANATI BASIN

50032590 LAGO DE MATRULLAS AT DAMSITE NEAR OROCOVIS, PR

LOCATION.--Lat 18°12'46", long 66°28'50", Hydrologic Unit 21010001, in shelter house at damsite, and 5.8 mi (9.3 km) southwest of Orocovis.

DRAINAGE AREA.--4.46 mi<sup>2</sup> (11.55 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year. Prior to October 1994, published as Lago de Matrullas at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Matrullas was completed in 1934. The dam is an earthfill structure about 120 ft (37 m) height, a top width of 30 ft (9 m) and a length of 710 ft (216 m), and has a maximum storage capacity of about 4,274 ac-ft (5.220 hm<sup>3</sup>) at top of dam elevation. The Matrullas Dam is owned by the Puerto Rico Electric Power Authority and is part of the Toro Negro Hydroelectric Project; a project developed by the P.R.E.P.A. for the primary purpose of generating electric power. Discharges from the Power Plants are collected by the Jacaguas River which flows into Guayabal Dam, at which dam they are regulated for irrigation of lands served by the Juana Díaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,419.90 ft (737.58 m), Sept. 10, 1996; minimum elevation, 2,375.55 ft (724.06 m), Sept. 24, 25, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,419.60 ft (737.49 m), Sept. 22; minimum elevation, 2,409.24 ft (734.34 m), Oct. 1.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,338              | 2                      | 2,399              | 1,845                  |
| 2,360              | 302                    | 2,420              | 3,331                  |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     | JUN     | JUL     | AUG     | SEP     |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1   | 2409.64 | 2414.70 | 2413.64 | 2413.28 | 2413.34 | 2413.85 | 2410.38 | 2414.72 | 2415.25 | 2414.93 | 2415.16 | 2413.93 |
| 2   | 2409.90 | 2414.84 | 2413.53 | 2413.35 | 2413.40 | 2413.64 | 2410.50 | 2414.89 | 2415.25 | 2414.82 | 2415.25 | 2415.40 |
| 3   | 2410.03 | 2414.73 | 2413.34 | 2413.41 | 2413.16 | 2413.46 | A       | 2415.06 | 2415.20 | 2414.63 | 2415.17 | 2415.28 |
| 4   | 2410.14 | 2414.59 | 2413.14 | 2413.48 | 2414.16 | 2413.24 | 2410.51 | 2414.92 | 2415.37 | 2414.84 | 2415.05 | 2415.28 |
| 5   | 2410.25 | 2414.47 | 2412.94 | 2413.55 | 2415.26 | 2413.02 | 2410.66 | 2414.79 | 2415.44 | 2415.02 | 2414.89 | 2415.27 |
| 6   | 2410.34 | 2414.26 | 2413.02 | 2413.61 | 2415.10 | 2412.83 | 2410.44 | 2414.73 | 2415.33 | 2415.01 | A       | 2415.45 |
| 7   | 2410.40 | 2414.10 | 2413.11 | 2413.68 | 2415.22 | 2413.10 | 2412.48 | 2414.64 | 2415.32 | 2415.19 | 2415.33 | 2415.38 |
| 8   | 2410.64 | 2414.23 | 2412.89 | 2413.46 | 2415.50 | 2413.22 | 2412.56 | 2414.99 | 2415.23 | 2415.26 | 2415.34 | 2415.08 |
| 9   | 2410.69 | 2414.44 | 2412.67 | 2413.30 | 2415.19 | 2413.00 | 2412.78 | 2415.22 | 2415.20 | 2415.09 | 2415.33 | 2414.69 |
| 10  | 2410.70 | 2414.42 | 2412.45 | 2413.37 | 2415.05 | 2412.77 | 2412.95 | 2415.27 | 2415.17 | 2415.00 | 2415.17 | 2414.25 |
| 11  | 2410.89 | 2414.57 | 2412.30 | 2413.43 | 2414.91 | 2412.52 | 2413.28 | 2415.17 | 2415.16 | 2415.15 | 2415.29 | 2414.05 |
| 12  | 2411.11 | 2414.41 | 2412.11 | 2413.51 | 2414.67 | 2412.30 | 2414.44 | 2415.19 | 2415.27 | 2415.25 | 2415.23 | 2413.85 |
| 13  | 2412.30 | 2414.24 | 2412.20 | 2413.44 | 2414.49 | 2412.06 | 2414.62 | 2415.10 | 2415.31 | 2415.08 | 2415.14 | 2413.94 |
| 14  | 2414.33 | 2414.05 | 2412.29 | 2413.23 | 2414.67 | 2412.15 | 2414.61 | 2413.56 | 2415.30 | 2415.15 | 2415.05 | 2413.79 |
| 15  | 2414.90 | 2414.19 | 2412.07 | 2412.99 | 2414.80 | 2412.25 | 2414.53 | 2413.94 | 2415.18 | 2415.13 | 2415.18 | 2413.67 |
| 16  | 2415.10 | 2414.31 | 2412.07 | 2412.76 | 2414.91 | 2412.01 | 2414.56 | 2414.27 | 2415.16 | 2415.03 | 2415.26 | 2413.77 |
| 17  | 2415.51 | 2414.13 | 2412.17 | 2412.83 | 2414.78 | 2411.78 | 2414.76 | 2414.12 | 2415.23 | 2414.91 | 2415.12 | 2413.85 |
| 18  | A       | 2413.96 | 2412.31 | 2413.33 | 2414.58 | 2411.53 | 2415.19 | 2413.88 | A       | 2415.08 | 2415.33 | 2414.88 |
| 19  | A       | 2414.06 | 2412.41 | 2413.47 | 2414.42 | 2411.29 | 2415.32 | 2414.46 | 2415.11 | 2415.22 | 2415.14 | 2414.56 |
| 20  | 2415.16 | 2413.87 | 2412.49 | 2413.56 | 2414.22 | 2411.09 | 2415.36 | 2414.36 | 2415.27 | 2415.27 | 2415.09 | 2414.38 |
| 21  | 2415.06 | 2413.79 | 2412.57 | 2413.64 | 2414.30 | 2411.18 | 2415.19 | 2414.03 | 2415.30 | 2415.08 | 2415.28 | 2418.56 |
| 22  | 2415.01 | 2413.89 | 2412.67 | 2413.33 | 2414.39 | 2411.28 | 2415.15 | 2414.89 | 2415.16 | 2414.99 | 2415.40 | 2416.21 |
| 23  | 2414.96 | 2414.00 | 2412.65 | 2413.40 | 2414.17 | 2411.36 | 2415.10 | 2415.08 | 2415.28 | 2414.87 | 2415.31 | 2415.76 |
| 24  | 2414.85 | 2413.79 | 2412.72 | 2413.47 | 2413.95 | 2411.11 | 2415.04 | 2415.36 | 2415.28 | 2415.03 | A       | 2415.64 |
| 25  | 2415.05 | 2413.60 | 2412.79 | 2413.54 | 2413.77 | 2410.88 | 2415.22 | 2415.36 | 2415.28 | 2415.16 | 2415.28 | 2415.56 |
| 26  | 2415.21 | 2413.41 | 2412.87 | 2413.30 | 2413.60 | 2410.63 | 2415.25 | 2415.34 | 2415.13 | 2415.25 | 2415.13 | 2415.52 |
| 27  | 2415.06 | 2413.50 | 2412.94 | 2413.06 | 2413.68 | 2410.41 | 2415.09 | 2415.31 | 2415.26 | 2415.26 | 2414.94 | 2415.49 |
| 28  | 2414.91 | 2413.59 | 2413.02 | 2413.11 | 2413.76 | 2410.50 | 2414.98 | 2415.30 | 2415.27 | 2415.25 | 2414.73 | 2415.58 |
| 29  | 2414.76 | 2413.71 | 2413.09 | 2413.17 | ---     | 2410.65 | 2414.84 | 2415.28 | 2415.12 | 2415.25 | 2414.57 | 2415.46 |
| 30  | 2414.65 | 2413.82 | 2413.15 | 2413.23 | ---     | 2410.75 | 2414.83 | 2415.34 | 2415.03 | 2415.25 | 2414.43 | 2415.44 |
| 31  | 2414.54 | ---     | 2413.21 | 2413.28 | ---     | 2410.59 | ---     | 2415.32 | ---     | 2415.04 | 2414.20 | ---     |
| MAX | ---     | 2414.84 | 2413.64 | 2413.68 | 2415.50 | 2413.85 | ---     | 2415.36 | ---     | 2415.27 | ---     | 2418.56 |
| MIN | ---     | 2413.41 | 2412.07 | 2412.76 | 2413.16 | 2410.41 | ---     | 2413.56 | ---     | 2414.63 | ---     | 2413.67 |

A No gage-height record

## RIO GRANDE DE MANATI BASIN

50034000 RIO BAUTA NEAR OROCOVIS, PR

LOCATION.--Lat 18°14'10", long 66°27'18", Hydrologic Unit 21010001, on left bank, at bridge on Highway 157 (12.1 km), and 4.2 mi (6.8 km) west of Orocovis.

DRAINAGE AREA.--16.7 mi<sup>2</sup> (43.3 km<sup>2</sup>).

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow measurements only), February to September 1969 (occasional measurements only), October 1969 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 772.82 ft (235.556 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV   | DEC   | JAN   | FEB    | MAR   | APR  | MAY    | JUN  | JUL   | AUG    | SEP    |
|-------|------|-------|-------|-------|--------|-------|------|--------|------|-------|--------|--------|
| 1     | 46   | 12    | 7.6   | 6.2   | 5.9    | 8.3   | 15   | 10     | 23   | 14    | 9.5    | 19     |
| 2     | 35   | 12    | 8.5   | 6.3   | 5.9    | 7.9   | 21   | 9.1    | 23   | 14    | 8.5    | 189    |
| 3     | 25   | 11    | 8.4   | 6.1   | 5.9    | 8.2   | 37   | 8.7    | 23   | 15    | 8.6    | 195    |
| 4     | 22   | 11    | 7.6   | 6.2   | 62     | 8.7   | 16   | 8.3    | 28   | 16    | 7.9    | 213    |
| 5     | 20   | 12    | 7.6   | 6.8   | 403    | 8.2   | 12   | 7.9    | 68   | 16    | 7.9    | 75     |
| 6     | 19   | 11    | 7.6   | 6.5   | 73     | 8.0   | 11   | 8.3    | 38   | 16    | 8.2    | 80     |
| 7     | 67   | 10    | 7.2   | 6.6   | 33     | 8.7   | 79   | 12     | 27   | 16    | 31     | 102    |
| 8     | 107  | 10    | 7.2   | 6.7   | 174    | 8.6   | 74   | 106    | 23   | 15    | 20     | 72     |
| 9     | 74   | 10    | 7.2   | 6.1   | 174    | 7.4   | 31   | 70     | 22   | 14    | 20     | 47     |
| 10    | 36   | 21    | 7.2   | 5.9   | 50     | 6.8   | 20   | 26     | 21   | 14    | 17     | 37     |
| 11    | 53   | 13    | 7.1   | 5.9   | 31     | 6.5   | 15   | 16     | 20   | 14    | 13     | 38     |
| 12    | 91   | 12    | 7.3   | 5.9   | 24     | 6.5   | 392  | 11     | 25   | 13    | 15     | 38     |
| 13    | 94   | 11    | 7.2   | 8.5   | 18     | 6.5   | 147  | 54     | 24   | 12    | 11     | 46     |
| 14    | 517  | 10    | 7.2   | 13    | 16     | 6.2   | 53   | 351    | 20   | 14    | 9.0    | 58     |
| 15    | 268  | 10    | 7.2   | 7.2   | 17     | 6.2   | 32   | 339    | 19   | 17    | 7.9    | 60     |
| 16    | 133  | 9.6   | 7.1   | 6.5   | 13     | 5.9   | 31   | 109    | 18   | 15    | 10     | 43     |
| 17    | 118  | 9.6   | 8.2   | 6.2   | 12     | 5.6   | 30   | 62     | 23   | 13    | 13     | 36     |
| 18    | 145  | 9.4   | 7.7   | 46    | 11     | 5.6   | 98   | 218    | 21   | 12    | 17     | 195    |
| 19    | 58   | 9.1   | 7.4   | 33    | 9.9    | 5.5   | 97   | 215    | 18   | 12    | 17     | 114    |
| 20    | 35   | 8.7   | 6.7   | 9.7   | 9.1    | 5.8   | 38   | 184    | 17   | 12    | 22     | 55     |
| 21    | 26   | 8.7   | 6.5   | 8.7   | 9.0    | 7.9   | 41   | 434    | 17   | 14    | 36     | e1820  |
| 22    | 21   | 8.7   | 11    | 7.7   | 8.3    | 6.2   | 34   | 191    | 19   | 11    | 99     | e10000 |
| 23    | 19   | 8.7   | 11    | 6.7   | 7.7    | 6.4   | 41   | 73     | 17   | 11    | 90     | e1400  |
| 24    | 17   | 8.3   | 7.4   | 6.5   | 7.3    | 5.9   | 32   | 50     | 17   | 11    | 156    | e290   |
| 25    | 16   | 8.3   | 6.6   | 6.5   | 7.7    | 5.8   | 24   | 41     | 17   | 11    | 386    | e200   |
| 26    | 15   | 8.3   | 6.5   | 6.5   | 13     | 6.1   | 20   | 36     | 17   | 9.5   | 70     | e150   |
| 27    | 14   | 8.1   | 6.1   | 6.4   | 9.6    | 5.6   | 17   | 34     | 16   | 14    | 43     | e120   |
| 28    | 14   | 7.9   | 6.2   | 6.2   | 8.7    | 5.6   | 14   | 30     | 15   | 11    | 34     | e100   |
| 29    | 13   | 8.1   | 6.5   | 6.2   | ---    | 14    | 12   | 28     | 15   | 11    | 27     | e240   |
| 30    | 13   | 8.5   | 6.4   | 6.2   | ---    | 48    | 10   | 27     | 15   | 10    | 23     | e280   |
| 31    | 12   | ---   | 6.1   | 6.1   | ---    | 30    | ---  | 25     | ---  | 9.9   | 20     | ---    |
| TOTAL | 2143 | 306.0 | 229.5 | 279.0 | 1219.0 | 282.6 | 1494 | 2794.3 | 666  | 407.4 | 1257.5 | 16312  |
| MEAN  | 69.1 | 10.2  | 7.40  | 9.00  | 43.5   | 9.12  | 49.8 | 90.1   | 22.2 | 13.1  | 40.6   | 544    |
| MAX   | 517  | 21    | 11    | 46    | 403    | 48    | 392  | 434    | 68   | 17    | 386    | 10000  |
| MIN   | 12   | 7.9   | 6.1   | 5.9   | 5.9    | 5.5   | 10   | 7.9    | 15   | 9.5   | 7.9    | 19     |
| AC-FT | 4250 | 607   | 455   | 553   | 2420   | 561   | 2960 | 5540   | 1320 | 808   | 2490   | 32350  |
| CFSM  | 4.14 | .61   | .44   | .54   | 2.61   | .55   | 2.98 | 5.40   | 1.33 | .79   | 2.43   | 32.6   |
| IN.   | 4.77 | .68   | .51   | .62   | 2.72   | .63   | 3.33 | 6.22   | 1.48 | .91   | 2.80   | 36.34  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

|      | MEAN | 83.8 | 50.7 | 27.0 | 20.7 | 16.3 | 14.8 | 27.2 | 50.6 | 18.8 | 15.9 | 21.0 | 120 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX  | 392  | 205  | 108  | 83.4 | 43.5 | 59.9 | 80.2 | 179  | 78.6 | 104  | 152  | 1104 |     |
| (WY) | 1971 | 1971 | 1971 | 1992 | 1998 | 1972 | 1980 | 1981 | 1979 | 1979 | 1979 | 1996 |     |
| MIN  | 14.6 | 7.12 | 4.29 | 3.66 | 5.70 | 4.18 | 4.92 | 4.24 | 3.59 | 3.22 | 3.97 | 3.55 |     |
| (WY) | 1994 | 1995 | 1995 | 1995 | 1994 | 1994 | 1995 | 1994 | 1994 | 1994 | 1994 | 1994 |     |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

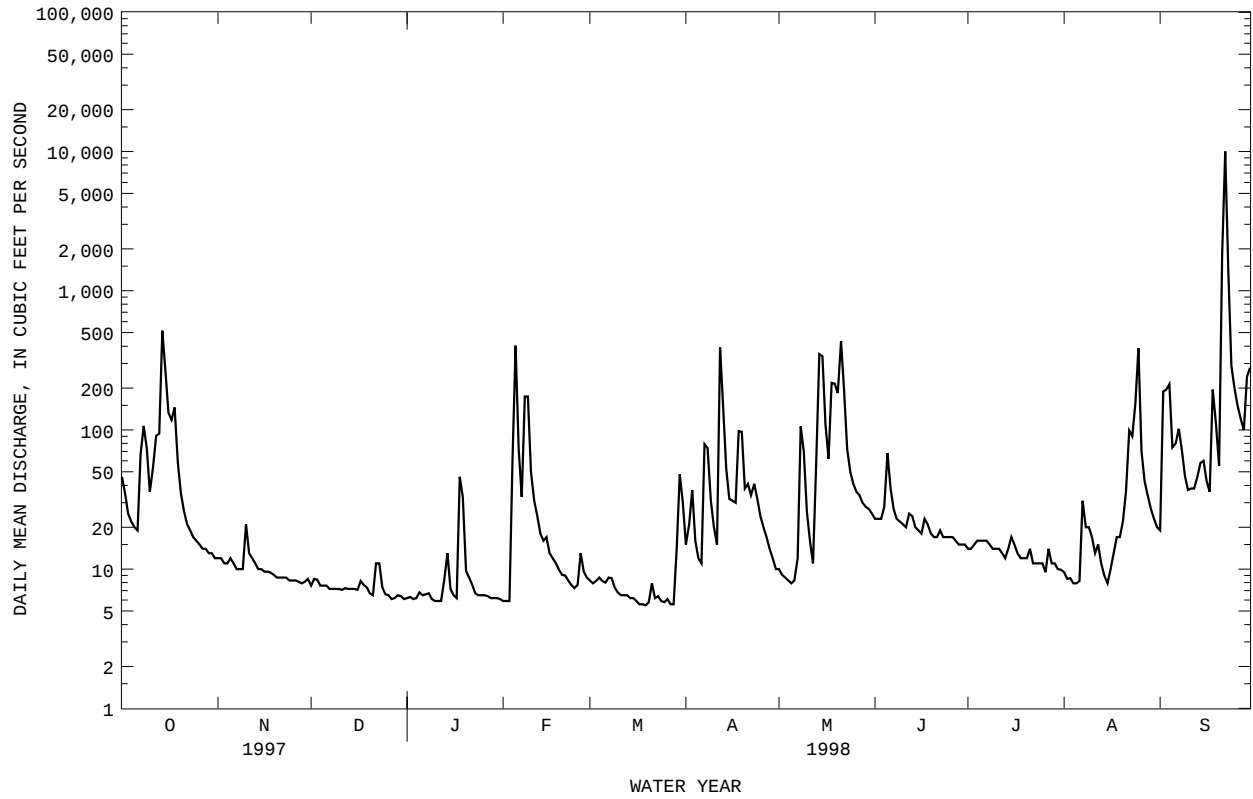
## FOR 1998 WATER YEAR

## WATER YEARS 1969 - 1998

|                          |        |         |       |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL             | 7009.4 | 27390.3 |       |
| ANNUAL MEAN              | 19.2   | 75.0    | 38.9  |
| HIGHEST ANNUAL MEAN      |        |         | 117   |
| LOWEST ANNUAL MEAN       |        |         | 6.56  |
| HIGHEST DAILY MEAN       | 517    | Oct 14  | 10000 |
| LOWEST DAILY MEAN        | 3.6    | Jul 18  | 5.5   |
| ANNUAL SEVEN-DAY MINIMUM | 4.2    | Jul 22  | 5.8   |
| INSTANTANEOUS PEAK FLOW  |        |         | 28200 |
| INSTANTANEOUS PEAK STAGE |        |         | 25.93 |
| INSTANTANEOUS LOW FLOW   |        |         | 5.0   |
| ANNUAL RUNOFF (AC-FT)    | 13900  | 54330   | 28190 |
| ANNUAL RUNOFF (CFSM)     | 1.15   | 4.49    | 2.33  |
| ANNUAL RUNOFF (INCHES)   | 15.61  | 61.01   | 31.66 |
| 10 PERCENT EXCEEDS       | 32     | 104     | 64    |
| 50 PERCENT EXCEEDS       | 9.5    | 14      | 13    |
| 90 PERCENT EXCEEDS       | 5.3    | 6.5     | 5.4   |

e Estimated

RIO GRANDE DE MANATI BASIN  
50034000 RIO BAUTA NEAR OROCOVIS, PR--Continued



## RIO GRANDE DE MANATI BASIN

50035000 RIO GRANDE DE MANATI AT CIALES, PR

LOCATION.--Lat 18°19'26", long 66°27'36", Hydrologic Unit 21010001, on left bank, 1.6 mi (2.6 km) upstream from Hwy 145 bridge, 0.8 mi (1.3 km) downstream from Quebrada Saliente, 0.9 mi (1.4 km) upstream from Quebrada Cojo Valés, and 1.2 mi (1.9 km) southeast of Ciales.

DRAINAGE AREA.--128 mi<sup>2</sup> (332 km<sup>2</sup>), excludes 6.0 mi<sup>2</sup> (15.5 km<sup>2</sup>), the runoff from which is diverted through El Guineo and Matrullas reservoirs.

PERIOD OF RECORD.--September 1946 to September 1953, May 1956 to December 1957 (unpublished, available in files of Caribbean District Office and in the National Water Data Storage and Retrieval System, Washington, D.C.); February 1959 to September 1960 (monthly discharge measurements only); October 1960 to current year. Equivalent record from January 1971 to December 1972 published as 50035200 Río Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi<sup>2</sup> (342 km<sup>2</sup>).

GAGE.--Water-stage recorder. Elevation of gage is 140 ft (43 m), from topographic map. Prior to Apr. 1, 1962, staff gage, read twice daily, at site 100 ft (30 m) upstream at same datum. January 1971 to December 1972 at site 1.6 mi (2.6 km) downstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights of major floods, pointed out by local residents are as follows: August 1899, 50 ft (15 m), September 1928, 36 ft (11 m), and September 1932, 34 ft (10 m) at site 1.6 mi (2.6 km) upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB   | MAR  | APR   | MAY   | JUN  | JUL  | AUG   | SEP    |
|-------|-------|------|------|------|-------|------|-------|-------|------|------|-------|--------|
| 1     | 68    | 48   | 51   | e31  | e25   | e45  | e130  | e71   | 127  | 56   | e52   | 60     |
| 2     | 173   | 49   | 47   | e34  | e25   | e43  | e86   | e63   | 161  | 57   | e40   | 543    |
| 3     | 99    | 46   | 53   | e36  | e28   | e44  | e72   | e60   | 174  | 105  | e38   | 635    |
| 4     | 63    | 49   | 47   | e39  | e56   | e45  | e72   | e56   | 163  | e100 | e36   | 505    |
| 5     | 47    | 50   | 44   | e37  | e1060 | e43  | e58   | e55   | 293  | e71  | e37   | 269    |
| 6     | 41    | 50   | 42   | e59  | e291  | e43  | e50   | 57    | 267  | e67  | e58   | 231    |
| 7     | 169   | 45   | 41   | e182 | e146  | e46  | e48   | 58    | 153  | e77  | e245  | 361    |
| 8     | 440   | 43   | 37   | e84  | e190  | e51  | e410  | 68    | 138  | e64  | 298   | 332    |
| 9     | 442   | 44   | 32   | e57  | e498  | e44  | e130  | 77    | 123  | e61  | 249   | 194    |
| 10    | 150   | 121  | e34  | e46  | e191  | e42  | e82   | 66    | 119  | e67  | 166   | 158    |
| 11    | 95    | 149  | e36  | e235 | e118  | e41  | e68   | 63    | 115  | e65  | 90    | 115    |
| 12    | 330   | 137  | e37  | e94  | e87   | e40  | e300  | 63    | 96   | e61  | 117   | 186    |
| 13    | 308   | 75   | e37  | e89  | e75   | e41  | e460  | 62    | 138  | e52  | 79    | 132    |
| 14    | 1180  | 58   | e37  | e324 | e63   | e41  | e200  | e205  | 115  | e54  | 55    | 137    |
| 15    | 581   | 55   | e35  | e117 | e73   | e42  | e135  | e1510 | 103  | e58  | 54    | 139    |
| 16    | 479   | 68   | e34  | e63  | e62   | e42  | e140  | e321  | 94   | e60  | 52    | 95     |
| 17    | 669   | 60   | e34  | e47  | e55   | e38  | e540  | e258  | 152  | e55  | 64    | 112    |
| 18    | 808   | 61   | e34  | e49  | e56   | e37  | e220  | e254  | 213  | e56  | 64    | 282    |
| 19    | 324   | 55   | e38  | e268 | e49   | e37  | e367  | e411  | 127  | e58  | 104   | 336    |
| 20    | 204   | 53   | e39  | e93  | e51   | e39  | e320  | e549  | 103  | e54  | 82    | 182    |
| 21    | 136   | 53   | e35  | e57  | e49   | e64  | e332  | e556  | 118  | e86  | 135   | e3290  |
| 22    | 101   | 51   | e40  | e95  | e46   | e50  | e279  | e804  | 160  | 63   | 231   | e10100 |
| 23    | 85    | 49   | e44  | e48  | e46   | e43  | e233  | e454  | 103  | 49   | 259   | e1090  |
| 24    | 74    | 49   | e38  | e35  | e44   | e43  | e203  | e311  | 99   | 52   | 174   | e593   |
| 25    | 67    | 49   | e33  | e33  | e43   | e39  | e168  | e236  | 106  | 51   | 1710  | e492   |
| 26    | 65    | 55   | e31  | e35  | e48   | e37  | e142  | e188  | 85   | 46   | 299   | e451   |
| 27    | 58    | 53   | e32  | e31  | e49   | e38  | e127  | 200   | 65   | 109  | 155   | e426   |
| 28    | 54    | 47   | e31  | e28  | e49   | e38  | e103  | 157   | 63   | 74   | 156   | e446   |
| 29    | 52    | 45   | e32  | e26  | ---   | e40  | e87   | 138   | 65   | 56   | 103   | e861   |
| 30    | 51    | 61   | e32  | e25  | ---   | e120 | e80   | 154   | 60   | 53   | 79    | e688   |
| 31    | 51    | ---  | e33  | e25  | ---   | e350 | ---   | 174   | ---  | e66  | 84    | ---    |
| TOTAL | 7464  | 1828 | 1170 | 2422 | 3573  | 1706 | 5642  | 7699  | 3898 | 2003 | 5365  | 23441  |
| MEAN  | 241   | 60.9 | 37.7 | 78.1 | 128   | 55.0 | 188   | 248   | 130  | 64.6 | 173   | 781    |
| MAX   | 1180  | 149  | 53   | 324  | 1060  | 350  | 540   | 1510  | 293  | 109  | 1710  | 10100  |
| MIN   | 41    | 43   | 31   | 25   | 25    | 37   | 48    | 55    | 60   | 46   | 36    | 60     |
| AC-FT | 14800 | 3630 | 2320 | 4800 | 7090  | 3380 | 11190 | 15270 | 7730 | 3970 | 10640 | 46500  |
| CFSM  | 1.88  | .48  | .29  | .61  | 1.00  | .43  | 1.47  | 1.94  | 1.02 | .50  | 1.35  | 6.10   |
| IN.   | 2.17  | .53  | .34  | .70  | 1.04  | .50  | 1.64  | 2.24  | 1.13 | .58  | 1.56  | 6.81   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1998, BY WATER YEAR (WY)

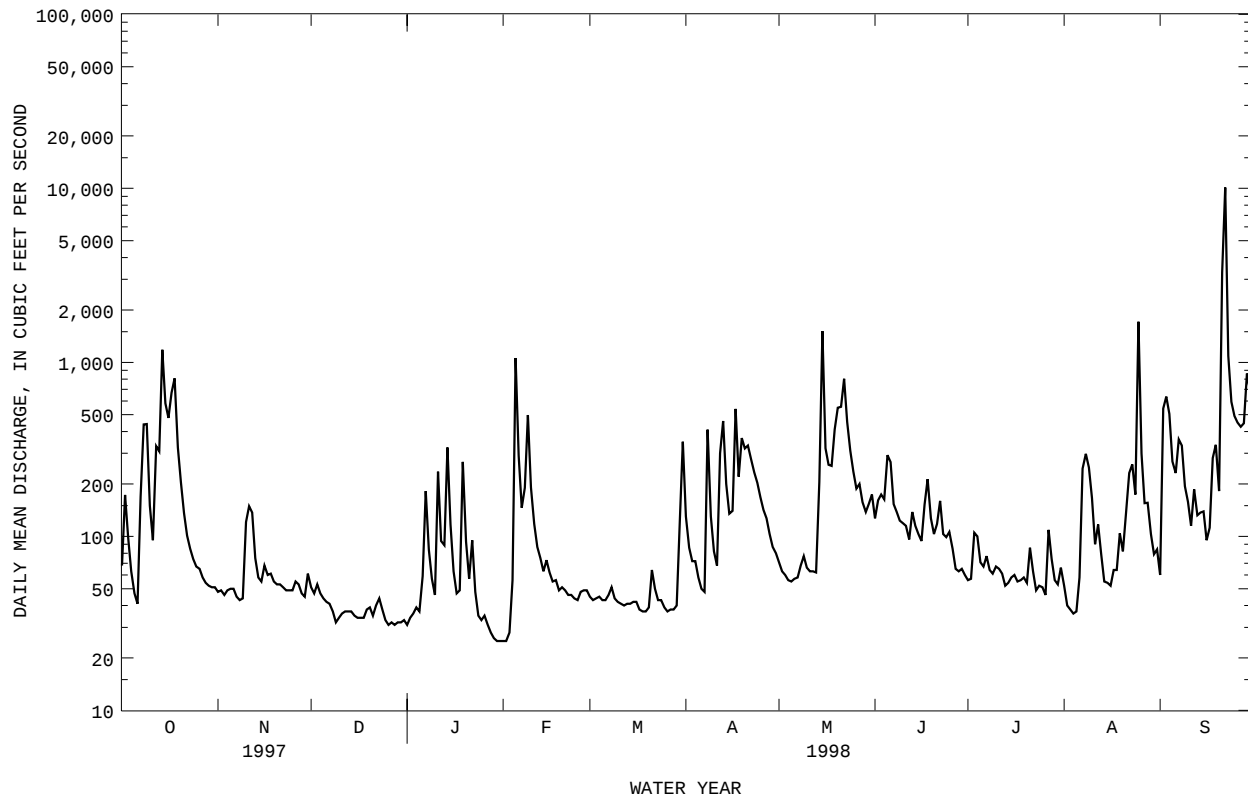
|      | MEAN | MAX  | (WY) | MIN  | (WY) |
|------|------|------|------|------|------|
| 1946 | 421  | 2422 | 1971 | 91.9 | 1994 |
| 1947 | 335  | 1006 | 1971 | 34.7 | 1995 |
| 1948 | 252  | 1296 | 1966 | 29.7 | 1995 |
| 1949 | 192  | 679  | 1952 | 26.2 | 1995 |
| 1950 | 167  | 1394 | 1950 | 41.6 | 1957 |
| 1951 | 135  | 477  | 1969 | 29.7 | 1994 |
| 1952 | 254  | 1174 | 1969 | 28.5 | 1984 |
| 1953 | 411  | 2293 | 1985 | 29.6 | 1994 |
| 1954 | 151  | 458  | 1979 | 17.8 | 1994 |
| 1955 | 104  | 438  | 1979 | 14.1 | 1994 |
| 1956 | 149  | 1212 | 1979 | 27.0 | 1994 |
| 1957 | 309  | 1295 | 1996 | 23.9 | 1994 |

## RIO GRANDE DE MANATI BASIN

50035000 RIO GRANDE DE MANATI AT CIALES, PR--Continued

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR |        | FOR 1998 WATER YEAR |        | WATER YEARS 1946 - 1998 |             |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|-------------|
| ANNUAL TOTAL             | 47478                  |        | 66211               |        | 241                     |             |
| ANNUAL MEAN              | 130                    |        | 181                 |        | 520                     |             |
| HIGHEST ANNUAL MEAN      |                        |        |                     |        | 47.3                    |             |
| LOWEST ANNUAL MEAN       |                        |        |                     |        | 1971                    |             |
| HIGHEST DAILY MEAN       | 4200                   | Jan 22 | 10100               | Sep 22 | 42700                   | May 18 1985 |
| LOWEST DAILY MEAN        | 22                     | Aug 7  | 25                  | Jan 30 | 8.5                     | Jul 28 1994 |
| ANNUAL SEVEN-DAY MINIMUM | 28                     | Jul 24 | 26                  | Jan 28 | 9.5                     | Jul 24 1994 |
| INSTANTANEOUS PEAK FLOW  |                        |        | 78900               | Sep 21 | 128000                  | Sep 10 1996 |
| INSTANTANEOUS PEAK STAGE |                        |        | 22.38               | Sep 21 | 25.20                   | Sep 10 1996 |
| INSTANTANEOUS LOW FLOW   |                        |        | 21                  | Feb 4  | 8.5                     | Jul 27 1994 |
| ANNUAL RUNOFF (AC-FT)    | 94170                  |        | 131300              |        | 174600                  |             |
| ANNUAL RUNOFF (CFSM)     | 1.02                   |        | 1.42                |        | 1.88                    |             |
| ANNUAL RUNOFF (INCHES)   | 13.80                  |        | 19.24               |        | 25.58                   |             |
| 10 PERCENT EXCEEDS       | 206                    |        | 334                 |        | 435                     |             |
| 50 PERCENT EXCEEDS       | 61                     |        | 66                  |        | 112                     |             |
| 90 PERCENT EXCEEDS       | 35                     |        | 37                  |        | 50                      |             |

e Estimated



## 50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, PR

LOCATION.--Lat 18°20'46", long 66°28'06", at bridge on Highway 149, about 800 ft (244 m) upstream from confluence with Rio Cialitos, 0.5 mi (0.8 km) north of Ciales plaza.

PERIOD OF RECORD.--Water years 1979 to current year.

| DATE         | TIME | DIS-CHARGE,<br>INST. CUBIC<br>FEET PER<br>SECOND<br>(00061) | SPE-CIFIC<br>CON-DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076) | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CAC03)<br>(00900) |
|--------------|------|-------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------|
|              |      |                                                             |                                                      |                                                                      |                                                 |                                         |                                                |                                                                           |                                                                            |                                                                            |                                                                    |                                                            |
| NOV<br>04... | 0935 | 69                                                          | 247                                                  | 8.0                                                                  | 26.0                                            | 1.9                                     | 7.3                                            | 89                                                                        | <10                                                                        | 210                                                                        | K73                                                                | 81                                                         |
| MAR<br>05... | 1220 | 52                                                          | 262                                                  | 8.2                                                                  | 27.5                                            | 2.1                                     | 8.5                                            | 107                                                                       | <10                                                                        | 200                                                                        | K70                                                                | --                                                         |
| MAY<br>28... | 1250 | 192                                                         | 228                                                  | 8.3                                                                  | 27.5                                            | 1.3                                     | 8.1                                            | 98                                                                        | <10                                                                        | 240                                                                        | K50                                                                | 86                                                         |
| AUG<br>19... | 1315 | 159                                                         | 216                                                  | 7.8                                                                  | 28.0                                            | 11                                      | 7.8                                            | 100                                                                       | <10                                                                        | K1300                                                                      | 410                                                                | 85                                                         |

| DATE         | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915) | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925) | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930) | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931) | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935) | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CAC03<br>(00410) | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745) | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS S04)<br>(00945) | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940) | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SIO2)<br>(00955) | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) |
|--------------|---------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|
| NOV<br>04... | 19                                                      | 7.9                                                             | 35                                                      | 2                                                  | 3.7                                                            | 93                                                                     | <.5                                           | 15                                                       | 33                                                             | <.10                                                          | 28                                                           | 190                                                                            |
| MAR<br>05... | --                                                      | --                                                              | --                                                      | --                                                 | --                                                             | 100                                                                    | --                                            | --                                                       | --                                                             | --                                                            | --                                                           | --                                                                             |
| MAY<br>28... | 22                                                      | 7.5                                                             | 11                                                      | .5                                                 | 2.2                                                            | 89                                                                     | --                                            | 8.4                                                      | 12                                                             | <.10                                                          | 24                                                           | 140                                                                            |
| AUG<br>19... | 22                                                      | 7.1                                                             | 10                                                      | .5                                                 | 1.9                                                            | 69                                                                     | <1.0                                          | 8.1                                                      | 11                                                             | <.10                                                          | 23                                                           | 124                                                                            |

| DATE         | SOLIDS,<br>DIS-<br>SOLVED<br>(TONS<br>PER<br>DAY)<br>(70302) | RESIDUE                                                  | NITRO-                                        | NITRO-                                        | NITRO-                                        | NITRO-                                        | NITRO-                                                   | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002) | BARIUM,                                       | BORON,                                       | CADMIUM                                        |
|--------------|--------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------|
|              |                                                              | TOTAL                                                    | GEN,                                          | GEN,                                          | GEN,                                          | GEN,                                          | GEN, AM-                                                 |                                                       |                                                | RECOV-                                        | RECOV-                                       | WATER                                          |
|              |                                                              | AT 105<br>DEG. C,<br>SUS-<br>PENDED<br>(MG/L)<br>(00530) | NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) |                                                       |                                                | ERABLE<br>TOTAL<br>(UG/L<br>AS BA)<br>(01007) | ERABLE<br>TOTAL<br>(UG/L<br>AS B)<br>(01022) | UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027) |
| NOV<br>04... | 35.4                                                         | 8                                                        | --                                            | <.010                                         | .150                                          | .010                                          | <.20                                                     | .060                                                  | <1                                             | <100                                          | 20                                           | <1                                             |
| MAR<br>05... | --                                                           | 1                                                        | --                                            | <.010                                         | .050                                          | .030                                          | <.20                                                     | .060                                                  | --                                             | --                                            | --                                           | --                                             |
| MAY<br>28... | 72.8                                                         | 1                                                        | .390                                          | .010                                          | .400                                          | .020                                          | <.20                                                     | <.020                                                 | <1                                             | <100                                          | 30                                           | <1                                             |
| AUG<br>19... | 53.2                                                         | 13                                                       | .180                                          | .010                                          | .190                                          | .030                                          | <.20                                                     | .060                                                  | --                                             | --                                            | --                                           | --                                             |

[illegible]

## RIO GRANDE DE MANATI BASIN

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'18", Long 66°28'28", 100 ft (30 m) upstream from bridge on Highway 649, 0.7 mi (1.1 km) upstream from mouth, and about 0.4 mi (0.6 km) west of Ciales plaza.

DRAINAGE AREA.--17.0 mi<sup>2</sup> (44.0 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1969-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

|           |                                                         | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)   | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)          | TEMPER-ATURE WATER (DEG C) (00010)        | TUR-BID-ITY (NTU) (00076)                              | OXYGEN, DIS-SOLVED (MG/L) (00300)             | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)   | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) |
|-----------|---------------------------------------------------------|-------------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|
| NOV 04... | 1105                                                    | 12                                              | 227                                       | 8.1                                                     | 24.0                                      | 3.2                                                    | 8.4                                           | 99                                                  | <10                                                  | 2000                                                |
| MAR 03... | 1300                                                    | 4.6                                             | 256                                       | 7.8                                                     | 23.0                                      | 2.2                                                    | 8.3                                           | 97                                                  | <10                                                  | 420                                                 |
| MAY 28... | 1110                                                    | 15                                              | 220                                       | 8.3                                                     | 26.0                                      | 4.0                                                    | 8.0                                           | 98                                                  | <10                                                  | 430                                                 |
| AUG 19... | 1205                                                    | 20                                              | 228                                       | 7.9                                                     | 26.5                                      | 13                                                     | 7.8                                           | 98                                                  | <10                                                  | K930                                                |
| DATE      | STREP-TOCOCCEI FECAL, (COLS. PER 100 ML) (31679)        | HARD-NESS TOTAL (MG/L AS CAC03) (00900)         | CALCIUM DIS-SOLVED (MG/L AS CA) (00915)   | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)             | SODIUM, DIS-SOLVED (MG/L AS NA) (00930)   | SODIUM AD-SORP-TION RATIO (00931)                      | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)    | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745)                    | SULFATE DIS-SOLVED (MG/L AS S04) (00945)            |
| NOV 04... | 500                                                     | 89                                              | 21                                        | 8.9                                                     | 31                                        | 1                                                      | 3.2                                           | 95                                                  | <.5                                                  | 14                                                  |
| MAR 03... | 380                                                     | --                                              | --                                        | --                                                      | --                                        | --                                                     | --                                            | 110                                                 | --                                                   | --                                                  |
| MAY 28... | 310                                                     | 84                                              | 24                                        | 5.8                                                     | 10                                        | .5                                                     | 1.9                                           | 90                                                  | --                                                   | 6.4                                                 |
| AUG 19... | 2000                                                    | 88                                              | 25                                        | 6.0                                                     | 9.6                                       | .4                                                     | 2.0                                           | 87                                                  | <1.0                                                 | 6.4                                                 |
| DATE      | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)              | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)       | SILICA, DIS-SOLVED (MG/L AS SiO2) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)  | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)        | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)         | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)        |
| NOV 04... | 27                                                      | <.10                                            | 28                                        | 190                                                     | 6.20                                      | 8                                                      | <.010                                         | .400                                                | .020                                                 | --                                                  |
| MAR 03... | --                                                      | --                                              | --                                        | --                                                      | --                                        | 2                                                      | <.010                                         | .250                                                | .020                                                 | --                                                  |
| MAY 28... | 11                                                      | <.10                                            | 26                                        | 140                                                     | 5.79                                      | 8                                                      | <.010                                         | .410                                                | .030                                                 | --                                                  |
| AUG 19... | 10                                                      | <.10                                            | 26                                        | 138                                                     | 7.56                                      | 13                                                     | <.010                                         | .620                                                | .030                                                 | .24                                                 |
| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600)            | NITRO-GEN, TOTAL (MG/L AS NO3) (71887)    | PHOS-PHORUS TOTAL (MG/L AS P) (00665)                   | ARSENIC TOTAL (UG/L AS AS) (01002)        | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)        | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)    | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)   | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)     |
| NOV 04... | <.20                                                    | --                                              | --                                        | .060                                                    | <1                                        | <100                                                   | 10                                            | <1                                                  | <1                                                   | <10                                                 |
| MAR 03... | <.20                                                    | --                                              | --                                        | .040                                                    | --                                        | --                                                     | --                                            | --                                                  | --                                                   | --                                                  |
| MAY 28... | <.20                                                    | --                                              | --                                        | .050                                                    | <1                                        | <100                                                   | 30                                            | <1                                                  | <1                                                   | <10                                                 |
| AUG 19... | .27                                                     | .89                                             | 3.9                                       | .060                                                    | --                                        | --                                                     | --                                            | --                                                  | --                                                   | --                                                  |

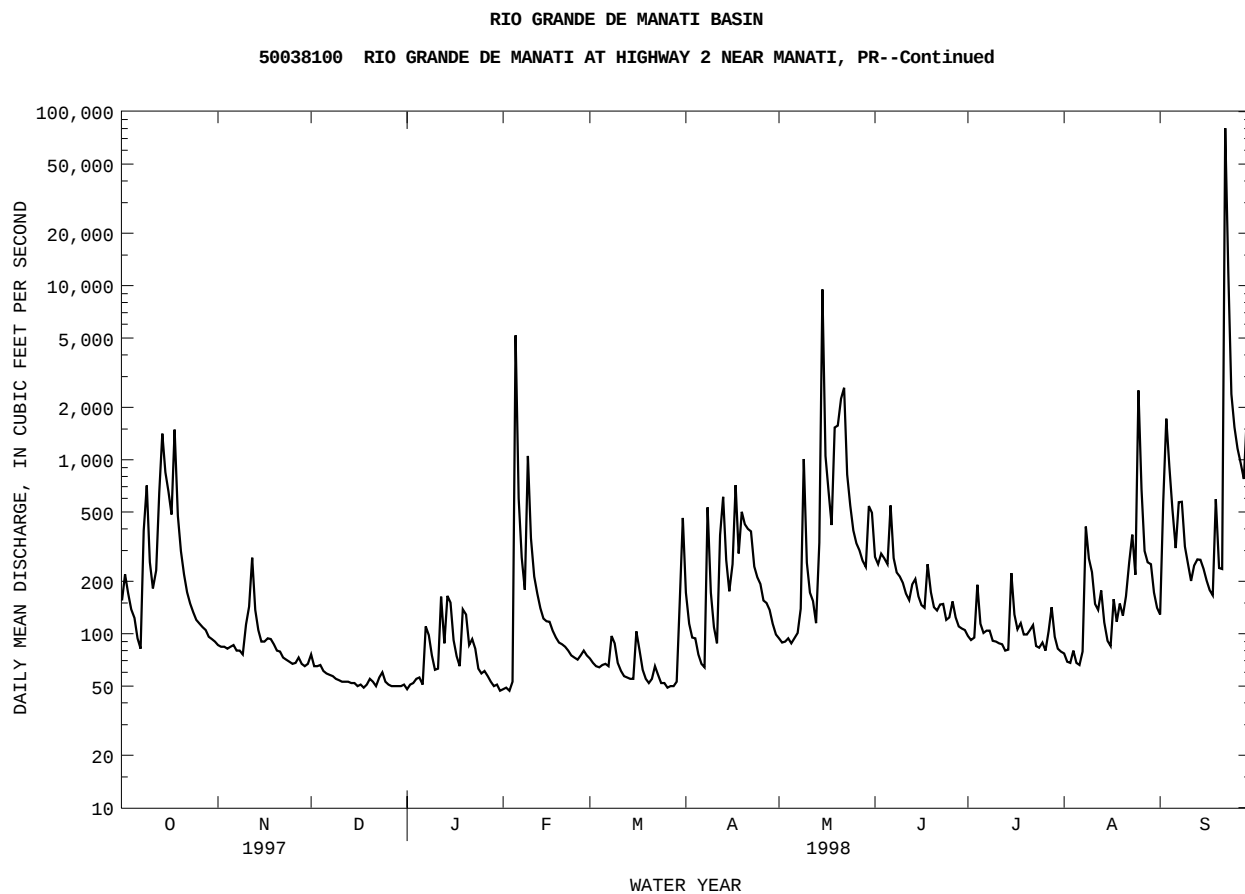
## RIO GRANDE DE MANATI BASIN

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]





## RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 27... | 1030 | 108                                             | 307                                     | 7.6                                            | 28.0                               | 4.9                       | 6.3                               | 80                                                | <10                                                  | K8100                                               | 340                                             |
| FEB 25... | 1150 | 71                                              | 351                                     | 7.8                                            | 27.5                               | 5.7                       | 7.8                               | 98                                                | <10                                                  | 4000                                                | 790                                             |
| JUN 24... | 1015 | 120                                             | 296                                     | 7.8                                            | 29.0                               | 3.9                       | 7.1                               | 92                                                | <10                                                  | 410                                                 | K82                                             |
| AUG 28... | 1135 | 284                                             | 223                                     | 7.3                                            | 29.0                               | 19                        | 6.5                               | 84                                                | <10                                                  | K270                                                | K540                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 27... | 130                                     | 38                                      | 7.5                                         | 11                                      | .4                                | 1.9                                        | 120                                                 | <.5                               | 9.7                                      | 13                                         |
| FEB 25... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 150                                                 | --                                | --                                       | --                                         |
| JUN 24... | 120                                     | 37                                      | 7.6                                         | 11                                      | .4                                | 2.0                                        | 130                                                 | --                                | 8.5                                      | 13                                         |
| AUG 28... | 88                                      | 25                                      | 5.9                                         | 9.3                                     | .4                                | 2.0                                        | 83                                                  | <1.0                              | 7.9                                      | 11                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 27... | .10                                       | 21                                        | 174                                                     | 50.5                                      | 17                                                     | .809                                         | .021                                         | .830                                         | .050                                         | .50                                          |
| FEB 25... | --                                        | --                                        | --                                                      | --                                        | 7                                                      | .588                                         | .012                                         | .600                                         | .030                                         | .52                                          |
| JUN 24... | .11                                       | 15                                        | 172                                                     | 55.6                                      | 13                                                     | --                                           | <.010                                        | .550                                         | .040                                         | --                                           |
| AUG 28... | <.10                                      | 22                                        | 133                                                     | 102                                       | 29                                                     | 1.07                                         | .030                                         | 1.10                                         | .150                                         | .23                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 27... | .55                                                     | 1.4                                  | 6.1                                    | .170                                  | <1                                 | <100                                            | 20                                            | <1                                               | 1                                                  | <10                                             |
| FEB 25... | .55                                                     | 1.1                                  | 5.1                                    | .050                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 24... | <.20                                                    | --                                   | --                                     | .070                                  | 1                                  | <100                                            | 30                                            | <1                                               | 1                                                  | <10                                             |
| AUG 28... | .38                                                     | 1.5                                  | 6.6                                    | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR.--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## LAGUNA TORTUGUERO BASIN

50038200 LAGUNA TORTUGUERO OUTLET NEAR VEGA BAJA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'29", long 66°26'50", at bridge on Highway 686, 4.2 mi (6.8 km) northeast of Manati, and 4.4 mi (7.1 km) northwest of Vega Baja plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1964-66, 1969-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | TIME | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS) | TEMPER-<br>ATURE<br>WATER<br>(DEG C) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML) | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CAC03 |         |
|--------------|------|----------------------------------------|-----------------------------------------------------------|--------------------------------------|----------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------|---------|
|              |      | (00095)                                | (00400)                                                   | (00010)                              | (00300)                                                        | (00301)                                               | (00340)                                                         | (31616)                                                 | (31679)                                                     | (00410) |
| OCT<br>14... | 1400 | 1100                                   | 8.0                                                       | 29.5                                 | 5.6                                                            | 74                                                    | 40                                                              | 310                                                     | 2700                                                        | 110     |
| FEB<br>17... | 1520 | 1120                                   | 7.6                                                       | 28.0                                 | 7.1                                                            | 90                                                    | 20                                                              | K150                                                    | K64                                                         | 110     |
| MAY<br>20... | 1045 | 1170                                   | 7.7                                                       | 30.0                                 | 6.6                                                            | 88                                                    | 20                                                              | 470                                                     | 100                                                         | 110     |
| AUG<br>27... | 1150 | 1250                                   | 7.8                                                       | 30.5                                 | 5.7                                                            | 76                                                    | 20                                                              | 460                                                     | 180                                                         | 100     |

| DATE         | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745) | RESIDUE<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605) | NITRO-<br>GEN,AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) |
|--------------|-----------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|
| OCT<br>14... | .7                                            | 1                                                                  | .390                                                            | .010                                                            | .400                                                            | .230                                                            | .67                                                             | .90                                                                           | 1.3                                                  | 5.8                                                    |
| FEB<br>17... | --                                            | 1                                                                  | --                                                              | <.010                                                           | .260                                                            | .160                                                            | .94                                                             | 1.1                                                                           | 1.4                                                  | 6.0                                                    |
| MAY<br>20... | --                                            | 2                                                                  | .365                                                            | .015                                                            | .380                                                            | .250                                                            | .95                                                             | 1.2                                                                           | 1.6                                                  | 7.0                                                    |
| AUG<br>27... | <1.0                                          | 3                                                                  | .348                                                            | .010                                                            | .360                                                            | .340                                                            | .86                                                             | 1.2                                                                           | 1.6                                                  | 6.9                                                    |

| DATE         | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045) | MANGA-<br>NESE,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS MN)<br>(01055) | ZINC,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS ZN)<br>(01092) | CYANIDE<br>TOTAL<br>(MG/L<br>AS CN)<br>(00720) | PHENOLS<br>TOTAL<br>(UG/L)<br>(32730) | METHY-<br>LENE<br>BLUE<br>ACTIVE<br>SUB-<br>STANCE<br>(MG/L)<br>(38260) |
|--------------|-------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------|
| OCT<br>14... | <.020                                                 | 80                                                               | <10                                                                | 80                                                               | <10                                                                        | <10                                                              | <.01                                           | <1                                    | .11                                                                     |
| FEB<br>17... | <.020                                                 | --                                                               | --                                                                 | --                                                               | --                                                                         | --                                                               | --                                             | --                                    | --                                                                      |
| MAY<br>20... | <.020                                                 | 60                                                               | <10                                                                | 50                                                               | <10                                                                        | <10                                                              | <.01                                           | 2                                     | .10                                                                     |
| AUG<br>27... | <.020                                                 | --                                                               | --                                                                 | --                                                               | --                                                                         | --                                                               | --                                             | --                                    | --                                                                      |

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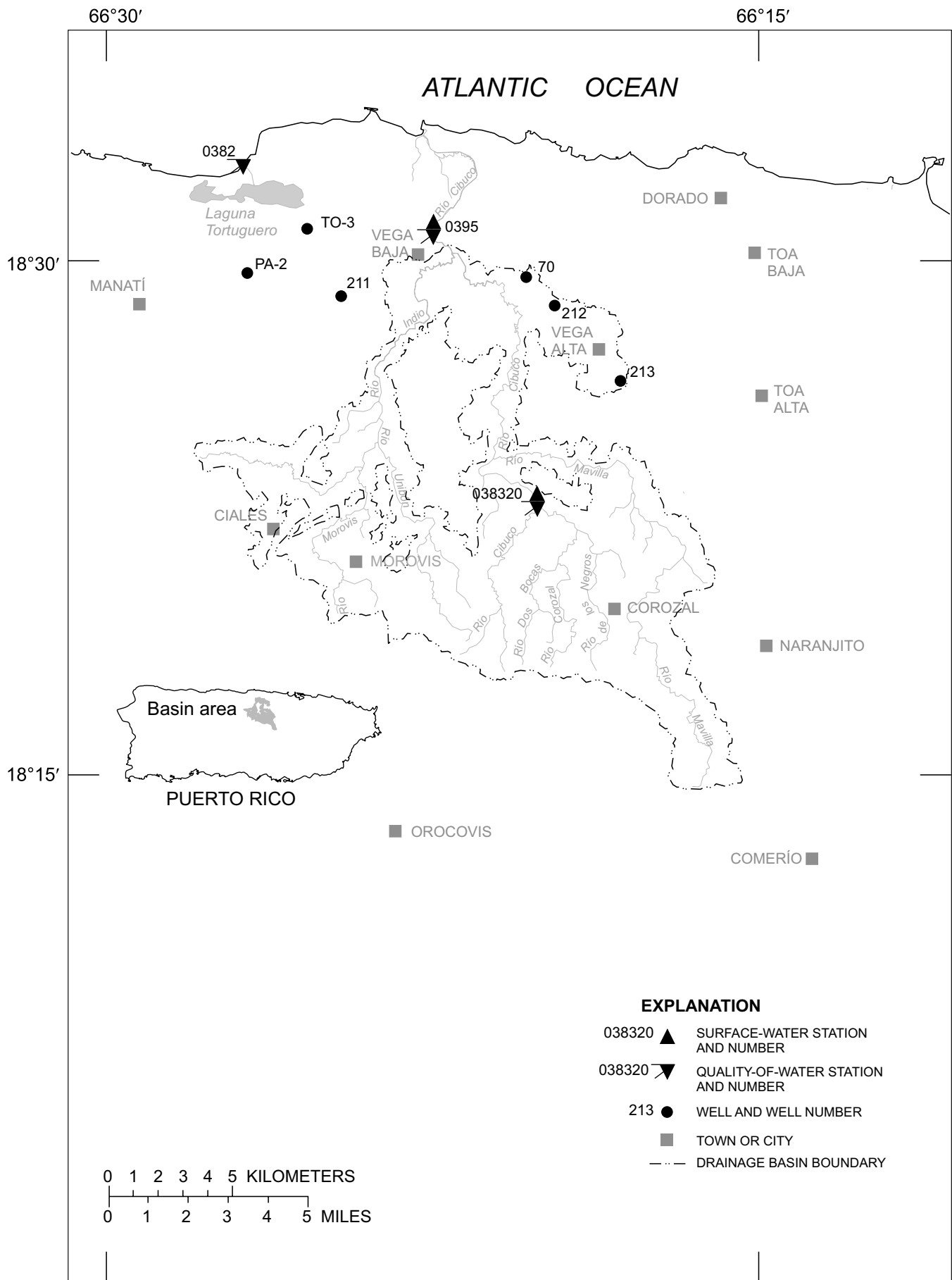


Figure 15. Río Cibuco basin.

## RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR

LOCATION.--Lat 18°21'13", long 66°20'07", Hydrologic Unit 21010001, on right bank, 150 ft (46 m) downstream from junction with Rio Corozal, and 1.4 mi (2.3 km) northwest of Corozal.

DRAINAGE AREA.--15.1 mi<sup>2</sup> (39.1 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 195 ft (59 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Daily discharge affected by sewage treatment plant about 0.6 mi (1.0 km) upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN   | FEB   | MAR   | APR   | MAY    | JUN   | JUL   | AUG   | SEP    |
|-------|-------|-------|------|-------|-------|-------|-------|--------|-------|-------|-------|--------|
| 1     | 8.8   | 5.4   | e2.2 | e3.0  | e2.6  | e3.6  | 9.5   | e5.8   | 10    | 5.3   | 7.0   | 6.7    |
| 2     | 7.5   | 4.6   | e2.1 | e3.8  | e3.2  | e3.4  | 5.2   | 11     | 22    | 7.0   | 6.1   | 9.6    |
| 3     | 6.7   | e5.0  | e2.1 | e3.2  | 3.2   | e3.5  | e3.7  | 35     | 58    | 16    | 6.0   | 8.8    |
| 4     | 9.1   | 4.9   | e2.0 | e3.7  | e168  | e3.5  | e3.0  | 10     | 23    | 13    | 6.4   | 7.9    |
| 5     | 11    | e5.8  | e2.1 | e3.5  | 424   | e3.4  | e2.6  | 6.7    | 14    | 7.9   | 6.3   | e11    |
| 6     | 7.3   | e4.8  | e2.1 | e12   | 40    | e4.9  | 2.5   | 7.4    | 12    | 12    | e8.7  | 11     |
| 7     | 13    | 4.3   | e2.1 | e44   | 16    | e4.2  | 3.3   | 7.8    | 14    | 9.9   | 35    | 8.2    |
| 8     | 22    | 3.8   | e2.1 | e12   | 27    | e3.4  | 4.8   | e11    | 10    | 6.8   | 13    | 6.4    |
| 9     | 10    | 3.5   | e1.9 | e6.0  | 36    | 2.7   | 2.9   | e9.5   | 15    | 7.4   | 21    | 5.7    |
| 10    | 8.6   | 4.6   | e1.9 | e5.8  | e16   | e3.3  | e2.2  | 7.1    | 12    | 7.7   | 9.1   | 5.2    |
| 11    | 9.6   | e35   | e1.8 | e53   | e10   | e3.2  | 2.5   | 6.5    | 9.6   | 7.7   | 7.7   | 5.0    |
| 12    | e62   | e15   | e1.9 | e11   | e9.2  | e3.4  | 34    | 4.8    | 8.9   | 5.9   | 7.8   | 5.2    |
| 13    | e29   | e5.0  | e2.3 | e108  | e7.2  | e3.1  | e42   | 3.9    | 45    | 6.8   | 8.5   | e6.1   |
| 14    | 41    | e4.1  | e1.8 | e42   | e23   | e3.4  | e7.6  | 126    | 15    | 6.2   | 7.4   | 5.3    |
| 15    | 15    | e3.8  | e1.7 | e8.1  | e18   | e3.2  | e5.5  | 141    | 11    | 9.1   | 6.2   | 4.7    |
| 16    | 15    | e3.8  | e1.6 | e5.1  | e8.3  | e3.2  | e297  | 8.9    | 8.0   | 5.7   | 6.3   | 4.4    |
| 17    | 21    | 3.3   | e1.6 | e4.3  | e6.4  | e3.0  | e105  | 85     | 26    | 7.8   | 13    | 4.3    |
| 18    | 12    | e5.5  | e1.8 | e3.7  | e5.8  | e3.5  | e39   | 28     | e16   | 13    | 8.2   | 5.4    |
| 19    | 9.3   | 11    | e2.2 | e3.7  | e5.3  | e3.1  | e16   | 319    | 9.8   | 8.4   | 9.3   | e6.8   |
| 20    | 8.4   | e4.2  | e2.1 | e3.1  | e5.2  | 7.4   | 18    | 108    | 6.9   | 31    | 10    | 5.3    |
| 21    | 7.3   | 3.5   | 1.8  | e3.1  | e4.5  | e7.8  | e13   | 43     | 28    | 13    | e27   | 150    |
| 22    | 6.8   | 2.9   | e1.8 | e3.5  | e4.4  | e3.6  | e26   | 29     | 12    | 8.1   | 9.9   | e1200  |
| 23    | 6.0   | 2.3   | e2.0 | e3.0  | e4.5  | e2.9  | 12    | 23     | 8.9   | 9.7   | 7.9   | e139   |
| 24    | 5.8   | 2.6   | e2.0 | e3.0  | e4.0  | e2.4  | 8.8   | 19     | 7.7   | 9.6   | 54    | e46    |
| 25    | 5.9   | e2.5  | e1.9 | e3.1  | e4.0  | 2.0   | 7.6   | 16     | 11    | 7.0   | 39    | 27     |
| 26    | 5.8   | 4.9   | e2.1 | e3.3  | e4.8  | e1.8  | 7.3   | 14     | 9.8   | 7.4   | 12    | 20     |
| 27    | 5.2   | e3.7  | e1.7 | e3.7  | e4.4  | 1.7   | 16    | 13     | 8.1   | 47    | 19    | 20     |
| 28    | 5.1   | e3.1  | e1.8 | e3.0  | e4.1  | e1.6  | 9.4   | 12     | 7.3   | 17    | 65    | 19     |
| 29    | 5.1   | e3.2  | e1.7 | e3.3  | ---   | e36   | 7.2   | 13     | 7.0   | 11    | 18    | 85     |
| 30    | 4.9   | e2.8  | e1.7 | e3.2  | ---   | e48   | e6.6  | 11     | 6.3   | 8.5   | 8.8   | e48    |
| 31    | 4.8   | ---   | e2.2 | e2.9  | ---   | 90    | ---   | 8.9    | ---   | 8.1   | 6.9   | ---    |
| TOTAL | 389.0 | 168.9 | 60.1 | 374.1 | 869.1 | 270.2 | 720.2 | 1144.3 | 452.3 | 341.0 | 470.5 | 1887.0 |
| MEAN  | 12.5  | 5.63  | 1.94 | 12.1  | 31.0  | 8.72  | 24.0  | 36.9   | 15.1  | 11.0  | 15.2  | 62.9   |
| MAX   | 62    | 35    | 2.3  | 108   | 424   | 90    | 297   | 319    | 58    | 47    | 65    | 1200   |
| MIN   | 4.8   | 2.3   | 1.6  | 2.9   | 2.6   | 1.6   | 2.2   | 3.9    | 6.3   | 5.3   | 6.0   | 4.3    |
| AC-FT | 772   | 335   | 119  | 742   | 1720  | 536   | 1430  | 2270   | 897   | 676   | 933   | 3740   |
| CFSM  | .83   | .37   | .13  | .80   | 2.06  | .58   | 1.59  | 2.44   | 1.00  | .73   | 1.01  | 4.17   |
| IN.   | .96   | .42   | .15  | .92   | 2.14  | .67   | 1.77  | 2.82   | 1.11  | .84   | 1.16  | 4.65   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

|      | MEAN | 40.1 | 46.3 | 34.3 | 24.9 | 21.5 | 21.0 | 32.3 | 43.9 | 14.6 | 11.8 | 16.5 | 33.6 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 135  | 155  | 169  | 69.6 | 51.3 | 65.1 | 111  | 157  | 44.4 | 34.6 | 50.8 | 191  |      |
| (WY) | 1991 | 1971 | 1971 | 1992 | 1988 | 1981 | 1973 | 1986 | 1987 | 1979 | 1979 | 1996 |      |
| MIN  | 8.05 | 5.63 | 1.94 | 6.93 | 7.75 | 4.36 | 3.32 | 3.20 | 1.63 | 2.19 | 3.44 | 3.88 |      |
| (WY) | 1979 | 1998 | 1998 | 1995 | 1994 | 1984 | 1984 | 1977 | 1994 | 1994 | 1978 | 1994 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

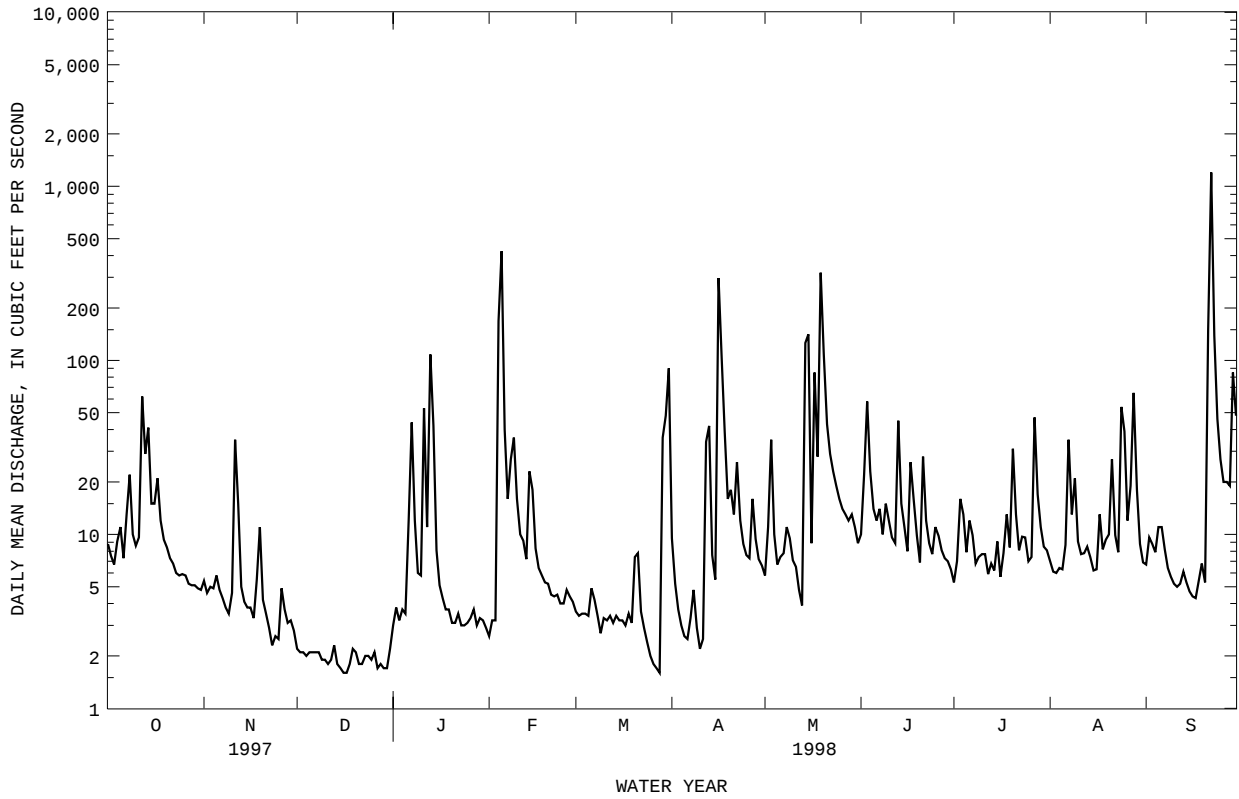
## FOR 1998 WATER YEAR

## WATER YEARS 1969 - 1998

|                          |        |        |       |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL             | 5383.8 | 7146.7 |       |
| ANNUAL MEAN              | 14.8   | 19.6   | 28.5  |
| HIGHEST ANNUAL MEAN      |        |        | 56.5  |
| LOWEST ANNUAL MEAN       |        |        | 7.47  |
| HIGHEST DAILY MEAN       | 380    | Jan 22 | 1200  |
| LOWEST DAILY MEAN        | 1.6    | Dec 16 | 1.6   |
| ANNUAL SEVEN-DAY MINIMUM | 1.8    | Dec 11 | 1.8   |
| INSTANTANEOUS PEAK FLOW  |        |        | 3910  |
| INSTANTANEOUS PEAK STAGE |        |        | 12.61 |
| ANNUAL RUNOFF (AC-FT)    | 10680  | 14180  | 20400 |
| ANNUAL RUNOFF (CFSM)     | .98    | 1.30   | 1.89  |
| ANNUAL RUNOFF (INCHES)   | 13.26  | 17.61  | 25.64 |
| 10 PERCENT EXCEEDS       | 30     | 35     | 50    |
| 50 PERCENT EXCEEDS       | 7.5    | 7.0    | 13    |
| 90 PERCENT EXCEEDS       | 2.7    | 2.3    | 5.0   |

e Estimated

RIO CIBUCO BASIN  
50038320 RIO CIBUCO BELOW COROZAL, PR--Continued



## RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-76, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 16... | 1025 | 13                                              | 439                                     | 7.6                                            | 26.0                               | 3.0                       | 6.4                               | 79                                                | <10                                                  | 30000                                               | K19000                                          |
| FEB 17... | 1150 | 7.2                                             | 447                                     | 8.1                                            | 25.5                               | 1.2                       | 6.2                               | 76                                                | <10                                                  | K60                                                 | K100                                            |
| JUN 15... | 1200 | 12                                              | 388                                     | 7.8                                            | 27.5                               | 4.1                       | 7.6                               | 97                                                | <10                                                  | K1700                                               | K1700                                           |
| AUG 18... | 1140 | 7.8                                             | 381                                     | 8.0                                            | 28.0                               | 5.1                       | 7.5                               | 97                                                | <10                                                  | 3000                                                | 800                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS SO4) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 16... | 160                                     | 41                                      | 15                                          | 20                                      | .7                                | 3.6                                        | 150                                                 | <.5                               | 20                                       | 31                                         |
| FEB 17... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 150                                                 | --                                | --                                       | --                                         |
| JUN 15... | 150                                     | 37                                      | 13                                          | 19                                      | .7                                | 3.9                                        | 130                                                 | --                                | 16                                       | 25                                         |
| AUG 18... | 140                                     | 36                                      | 12                                          | 20                                      | .7                                | 3.9                                        | 130                                                 | <1.0                              | 14                                       | 27                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 16... | .11                                       | 31                                        | 251                                                     | 9.00                                      | 5                                                      | 1.00                                         | .010                                         | 1.00                                         | .020                                         | .20                                          |
| FEB 17... | --                                        | --                                        | --                                                      | --                                        | 2                                                      | 2.03                                         | .067                                         | 2.10                                         | .100                                         | .30                                          |
| JUN 15... | .15                                       | 26                                        | 218                                                     | 7.11                                      | 4                                                      | 1.99                                         | .013                                         | 2.00                                         | .020                                         | --                                           |
| AUG 18... | .24                                       | 30                                        | 221                                                     | 4.66                                      | 10                                                     | 2.18                                         | .018                                         | 2.20                                         | .050                                         | .36                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 16... | .20                                                     | 1.1                                  | 5.0                                    | .070                                  | <1                                 | <100                                            | 30                                            | <1                                               | 4                                                  | <10                                             |
| FEB 17... | .40                                                     | 2.5                                  | 11                                     | .330                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 15... | <.20                                                    | --                                   | --                                     | .210                                  | <1                                 | <100                                            | 40                                            | <1                                               | <1                                                 | 15                                              |
| AUG 18... | .41                                                     | 2.6                                  | 12                                     | .350                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO CIBUCO BASIN

50039500 RIO CIBUCO AT VEGA BAJA, PR

LOCATION.--Lat 18°26'53", long 66°22'29", Hydrologic Unit 21010002, on left bank, at bridge on Hwy 2, 0.6 mi (1.0 km) downstream from Rio Indio, and 0.8 mi (1.3 km) east of Vega Baja.

DRAINAGE AREA.--99.1 mi<sup>2</sup> (256.7 km<sup>2</sup>), of which 25.4 mi<sup>2</sup> (65.8 km<sup>2</sup>), does not contribute directly to surface runoff.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.79 ft (2.374 m) above mean sea level.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 11, 1965 reached a stage of 26.2 ft (7.99 m), datum unknown, discharge about 28,000 ft<sup>3</sup>/s (793 m<sup>3</sup>/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

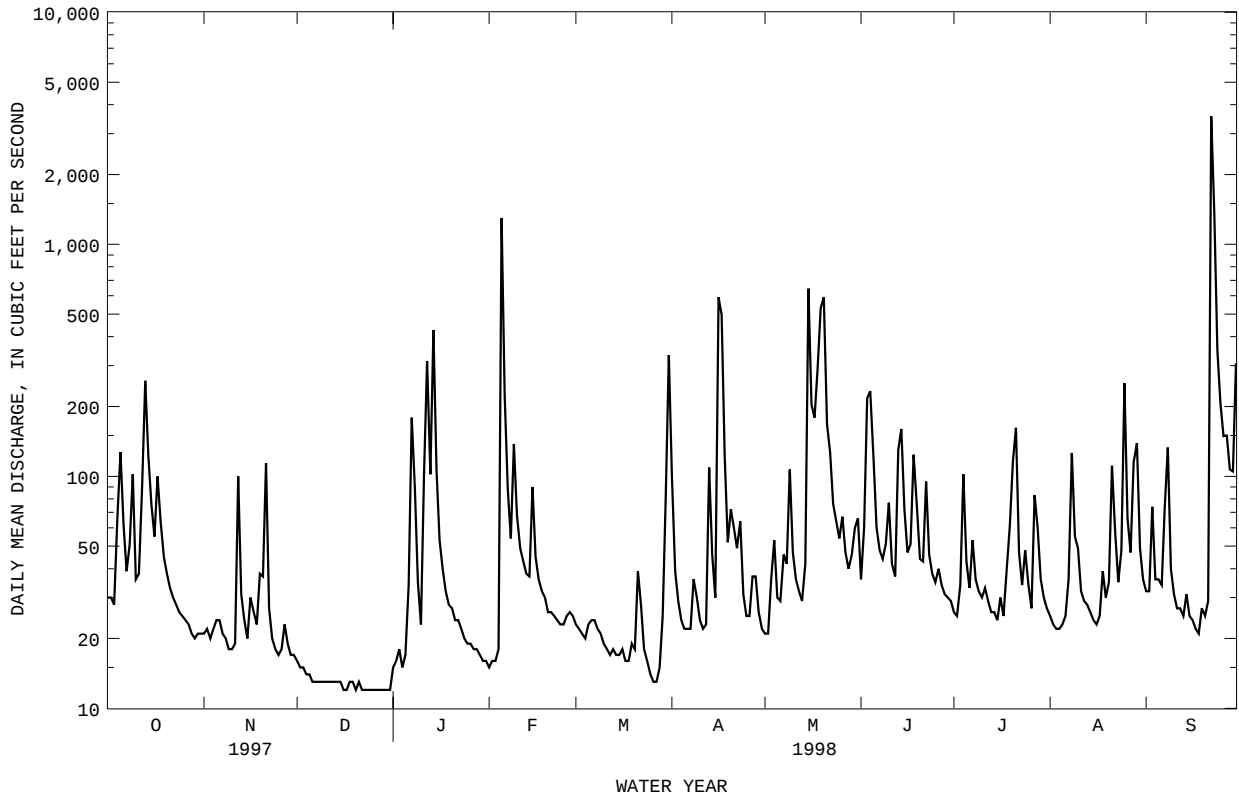
| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 1     | 30   | 21   | 16   | 15   | 15   | 23   | 101  | 21   | 36   | 26   | 25   | 32    |
| 2     | 30   | 22   | 15   | 16   | 16   | 22   | 39   | 21   | 60   | 25   | 23   | 32    |
| 3     | 28   | 20   | 15   | 18   | 16   | 21   | 29   | 36   | 217  | 34   | 22   | 74    |
| 4     | 64   | 22   | 14   | 15   | 18   | 20   | 24   | 53   | 233  | 102  | 22   | 36    |
| 5     | 127  | 24   | 14   | 17   | 1300 | 23   | 22   | 30   | 120  | 43   | 23   | 36    |
| 6     | 62   | 24   | 13   | 34   | 225  | 24   | 22   | 29   | 60   | 33   | 25   | 34    |
| 7     | 39   | 21   | 13   | 179  | 89   | 24   | 22   | 46   | 48   | 53   | 36   | 74    |
| 8     | 51   | 20   | 13   | 90   | 54   | 22   | 36   | 42   | 44   | 36   | 126  | 133   |
| 9     | 102  | 18   | 13   | 35   | 138  | 21   | 30   | 107  | 51   | 32   | 55   | 40    |
| 10    | 36   | 18   | 13   | 23   | 68   | 19   | 24   | 47   | 77   | 30   | 49   | 31    |
| 11    | 38   | 19   | 13   | 102  | 49   | 18   | 22   | 36   | 42   | 33   | 32   | 27    |
| 12    | 92   | 100  | 13   | 314  | 43   | 17   | 23   | 32   | 37   | 29   | 29   | 27    |
| 13    | 258  | 31   | 13   | 102  | 38   | 18   | 109  | 29   | 130  | 26   | 28   | 25    |
| 14    | 123  | 24   | 13   | 427  | 37   | 17   | 46   | 42   | 160  | 26   | 26   | 31    |
| 15    | 76   | 20   | 13   | 107  | 90   | 17   | 30   | 644  | 72   | 24   | 24   | 25    |
| 16    | 55   | 30   | 12   | 53   | 45   | 18   | 591  | 204  | 47   | 30   | 23   | 24    |
| 17    | 100  | 26   | 12   | 40   | 36   | 16   | 497  | 179  | 51   | 25   | 25   | 22    |
| 18    | 64   | 23   | 13   | 32   | 32   | 16   | 122  | 292  | 124  | 40   | 39   | 21    |
| 19    | 45   | 38   | 13   | 28   | 30   | 19   | 52   | 531  | 74   | 61   | 30   | 27    |
| 20    | 38   | 37   | 12   | 27   | 26   | 18   | 72   | 592  | 44   | 116  | 35   | 25    |
| 21    | 33   | 114  | 13   | 24   | 26   | 39   | 60   | 167  | 43   | 162  | 111  | 29    |
| 22    | 30   | 27   | 12   | 24   | 25   | 28   | 49   | 127  | 95   | 47   | 57   | 3560  |
| 23    | 28   | 20   | 12   | 22   | 24   | 18   | 64   | 76   | 46   | 34   | 35   | 1370  |
| 24    | 26   | 18   | 12   | 20   | 23   | 16   | 31   | 64   | 38   | 48   | 48   | 348   |
| 25    | 25   | 17   | 12   | 19   | 23   | 14   | 25   | 54   | 35   | 34   | 252  | 206   |
| 26    | 24   | 18   | 12   | 19   | 25   | 13   | 25   | 67   | 40   | 27   | 66   | 149   |
| 27    | 23   | 23   | 12   | 18   | 26   | 13   | 37   | 47   | 34   | 83   | 47   | 150   |
| 28    | 21   | 19   | 12   | 18   | 25   | 15   | 37   | 40   | 31   | 60   | 115  | 107   |
| 29    | 20   | 17   | 12   | 17   | ---  | 25   | 26   | 46   | 30   | 36   | 139  | 105   |
| 30    | 21   | 17   | 12   | 16   | ---  | 82   | 22   | 60   | 29   | 30   | 49   | 307   |
| 31    | 21   | ---  | 12   | 16   | ---  | 333  | ---  | 66   | ---  | 27   | 36   | ---   |
| TOTAL | 1730 | 848  | 399  | 1887 | 2562 | 989  | 2289 | 3827 | 2148 | 1412 | 1652 | 7107  |
| MEAN  | 55.8 | 28.3 | 12.9 | 60.9 | 91.5 | 31.9 | 76.3 | 123  | 71.6 | 45.5 | 53.3 | 237   |
| MAX   | 258  | 114  | 16   | 427  | 1300 | 333  | 591  | 644  | 233  | 162  | 252  | 3560  |
| MIN   | 20   | 17   | 12   | 15   | 15   | 13   | 22   | 21   | 29   | 24   | 22   | 21    |
| AC-FT | 3430 | 1680 | 791  | 3740 | 5080 | 1960 | 4540 | 7590 | 4260 | 2800 | 3280 | 14100 |
| CFSM  | .56  | .29  | .13  | .61  | .92  | .32  | .77  | 1.25 | .72  | .46  | .54  | 2.39  |
| IN.   | .65  | .32  | .15  | .71  | .96  | .37  | .86  | 1.44 | .81  | .53  | .62  | 2.67  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 151  | 187  | 165  | 101  | 88.9 | 81.6 | 147  | 187  | 70.4 | 51.1 | 77.7 | 144  |
| MAX  | 559  | 523  | 1316 | 339  | 190  | 339  | 667  | 655  | 239  | 162  | 461  | 690  |
| (WY) | 1986 | 1980 | 1982 | 1997 | 1988 | 1990 | 1987 | 1985 | 1987 | 1979 | 1979 | 1996 |
| MIN  | 45.9 | 28.3 | 12.9 | 30.2 | 27.3 | 20.5 | 16.2 | 24.7 | 12.5 | 14.0 | 21.2 | 26.7 |
| (WY) | 1974 | 1998 | 1998 | 1995 | 1994 | 1994 | 1984 | 1977 | 1994 | 1994 | 1978 | 1994 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1973 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 26576                  | 26850               |                         |
| ANNUAL MEAN              | 72.8                   | 73.6                | 120                     |
| HIGHEST ANNUAL MEAN      |                        |                     | 236                     |
| LOWEST ANNUAL MEAN       |                        |                     | 38.5                    |
| HIGHEST DAILY MEAN       | 2270                   | 3560                | 14600                   |
| LOWEST DAILY MEAN        | 12                     | 12                  | 7.2                     |
| ANNUAL SEVEN-DAY MINIMUM | 12                     | 12                  | 8.1                     |
| INSTANTANEOUS PEAK FLOW  |                        | 7650                | 34000                   |
| INSTANTANEOUS PEAK STAGE |                        | 16.66               | 19.10                   |
| INSTANTANEOUS LOW FLOW   |                        | 12                  | 7.2                     |
| ANNUAL RUNOFF (AC-FT)    | 52710                  | 53260               | 86610                   |
| ANNUAL RUNOFF (CFSM)     | .73                    | .74                 | 1.21                    |
| ANNUAL RUNOFF (INCHES)   | 9.98                   | 10.08               | 16.39                   |
| 10 PERCENT EXCEEDS       | 136                    | 123                 | 223                     |
| 50 PERCENT EXCEEDS       | 34                     | 30                  | 57                      |
| 90 PERCENT EXCEEDS       | 18                     | 15                  | 22                      |

RIO CIBUCO BASIN  
50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued



RIO CIBUCO BASIN  
50039500 RIO CIBUCO AT VEGA BAJA, PR  
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 14... | 1145 | 79                                              | 422                                     | 7.8                                            | 25.5                               | 20                        | 4.5                               | 55                                                | 13                                                   | 4000                                                | 2200                                            |
| FEB 18... | 0830 | 31                                              | 482                                     | 7.9                                            | 24.5                               | 5.9                       | 6.2                               | 74                                                | <10                                                  | 2000                                                | K1200                                           |
| MAY 20... | 1330 | 335                                             | 340                                     | 7.5                                            | 26.0                               | 92                        | 6.5                               | 80                                                | 24                                                   | K18000                                              | 7800                                            |
| AUG 27... | 1525 | 41                                              | 416                                     | 7.7                                            | 28.0                               | 15                        | 6.0                               | 76                                                | <10                                                  | K1600                                               | 4800                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 14... | 170                                     | 57                                      | 7.7                                         | 14                                      | .5                                | 4.3                                        | 150                                                 | <.5                               | 22                                       | 21                                         |
| FEB 18... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 180                                                 | --                                | --                                       | --                                         |
| MAY 20... | 140                                     | 43                                      | 6.7                                         | 10                                      | .4                                | 4.9                                        | 120                                                 | --                                | 19                                       | 16                                         |
| AUG 27... | 160                                     | 51                                      | 8.9                                         | 16                                      | .5                                | 4.2                                        | 160                                                 | <1.0                              | 15                                       | 22                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 14... | .15                                       | 17                                        | 233                                                     | 49.8                                      | 22                                                     | 3.00                                         | .170                                         | 3.20                                         | .730                                         | .92                                          |
| FEB 18... | --                                        | --                                        | --                                                      | --                                        | 5                                                      | 1.77                                         | .032                                         | 1.80                                         | .040                                         | .25                                          |
| MAY 20... | .13                                       | 14                                        | 187                                                     | 170                                       | 228                                                    | 2.36                                         | .040                                         | 2.40                                         | .170                                         | 1.2                                          |
| AUG 27... | .11                                       | 19                                        | 231                                                     | 25.3                                      | 18                                                     | 1.28                                         | .019                                         | 1.30                                         | .060                                         | .55                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 14... | 1.6                                                     | 4.8                                  | 21                                     | 1.00                                  | <1                                 | <100                                            | 40                                            | <1                                               | 2                                                  | <10                                             |
| FEB 18... | .29                                                     | 2.1                                  | 9.3                                    | .150                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 20... | 1.4                                                     | 3.8                                  | 17                                     | .340                                  | <1                                 | <100                                            | 20                                            | <1                                               | 16                                                 | 29                                              |
| AUG 27... | .61                                                     | 1.9                                  | 8.5                                    | .320                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



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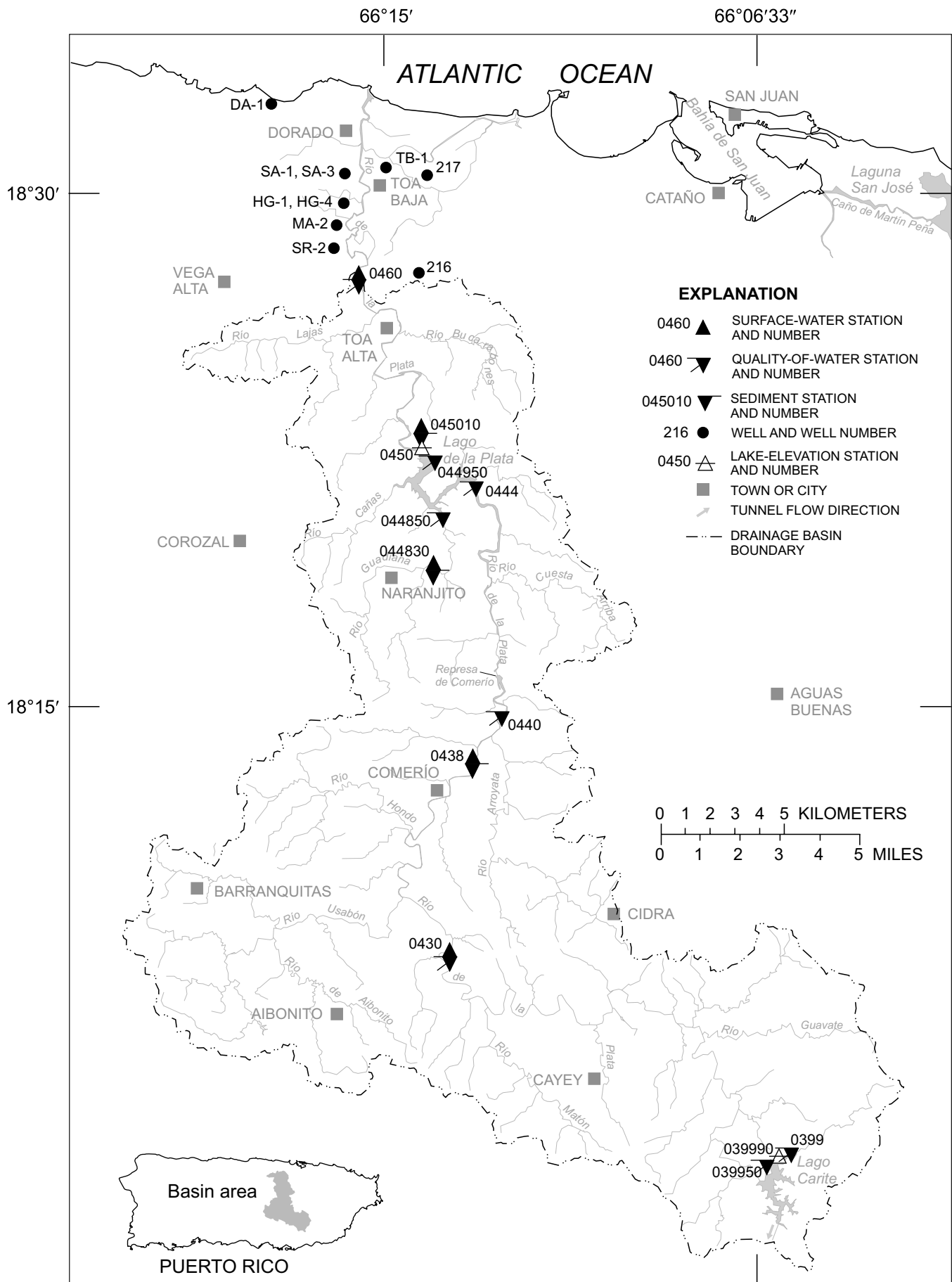


Figure 16. Río de la Plata basin.

## RIO DE LA PLATA BASIN

50039990 LAGO CARITE AT GATE TOWER NEAR CAYEY, PR

LOCATION.--Lat 18°03'46", long 66°05'58", Hydrologic Unit 21010005, on top of a concrete tower at diversion tunnel on Carite Reservoir, 0.7 mi (1.1 km) northwest from Escuela Carite Chino, 1.2 mi (1.9 km) northeast from Central Hidroeléctrica de Carite Num. 1 and 1.8 mi (2.9 km) northeast from Escuela Segunda Unidad.

DRAINAGE AREA.--8.20 mi<sup>2</sup> (21.24 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--May 1989 to current year. Prior to October 1994, published as Lago Carite at Gate Tower.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Carite Dam was completed in 1913. The operation of the reservoir is controlled by the utilization of water to meet the demands for domestic, industrial and agricultural purposes in the Guayama Area. The dam is an earthfill with crest elevation of 1,806 ft (550 m) above mean sea level, with a structural height of 104 ft (32 m) and a length of 500 ft (152 m). The dam has a capacity of approximately 11,310 acre-feet (13.9 hm<sup>3</sup>). The Dam is operated by the Puerto Rico Electric and Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,789.62 ft (545.48 m), Sep. 21, 1998; minimum elevation, 1,761.22 ft (536.81 m), May 28, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 1,789.62 ft (545.48 m), Sep. 21; minimum elevation, 1,769.39 ft (539.10 m), Oct. 1.

## Capacity Table

(based on Data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1,746              | 0                      | 1,775              | 6,194                  |
| 1,760              | 2,471                  | 1,780              | 7,704                  |
| 1,769              | 4,561                  | 1,790              | 11,048                 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     | JUN     | JUL     | AUG     | SEP     |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1   | 1769.39 | 1781.43 | 1781.27 | 1779.67 | 1781.38 | 1781.31 | 1781.59 | 1781.52 | 1781.57 | 1781.17 | 1780.01 | 1781.53 |
| 2   | 1769.48 | 1781.41 | 1781.24 | 1779.68 | 1781.35 | 1781.31 | 1781.62 | 1781.51 | 1781.52 | 1781.12 | 1779.92 | 1781.62 |
| 3   | 1769.48 | 1781.42 | 1781.16 | 1779.77 | 1781.34 | 1781.34 | 1781.59 | 1781.51 | 1781.49 | 1781.13 | 1779.84 | 1781.67 |
| 4   | 1769.50 | 1781.41 | 1781.11 | 1779.88 | 1781.39 | 1781.34 | 1781.55 | 1781.55 | 1781.47 | 1781.19 | 1779.76 | 1781.62 |
| 5   | 1769.49 | 1781.40 | 1781.07 | 1779.98 | 1782.13 | 1781.32 | 1781.54 | 1781.54 | 1781.50 | 1781.18 | 1779.67 | 1781.56 |
| 6   | 1769.48 | 1781.39 | 1781.00 | 1780.71 | 1781.79 | 1781.29 | 1781.50 | 1781.49 | 1781.45 | 1781.15 | A       | 1781.64 |
| 7   | 1769.45 | 1781.37 | 1780.95 | 1781.06 | 1781.64 | 1781.66 | 1781.64 | 1781.46 | 1781.49 | 1781.09 | 1779.53 | 1781.70 |
| 8   | 1769.50 | 1781.37 | 1780.88 | 1781.27 | 1781.64 | 1781.65 | 1781.58 | 1781.50 | 1781.47 | 1781.09 | 1779.63 | 1781.71 |
| 9   | 1769.49 | 1781.70 | 1780.83 | 1781.41 | 1781.57 | 1781.56 | 1781.52 | 1781.59 | 1781.46 | 1781.04 | 1779.66 | 1781.69 |
| 10  | 1769.47 | 1782.19 | 1780.76 | 1781.52 | 1781.48 | 1781.51 | 1781.50 | 1781.52 | 1781.47 | 1780.99 | 1779.58 | 1781.53 |
| 11  | 1769.66 | 1781.78 | 1780.71 | 1781.52 | 1781.51 | 1781.48 | 1781.70 | 1781.50 | 1781.39 | 1780.95 | 1779.50 | 1781.55 |
| 12  | 1769.70 | 1781.63 | 1780.65 | 1781.51 | 1781.51 | 1781.45 | 1781.79 | 1781.49 | 1781.42 | 1780.93 | 1779.53 | 1781.51 |
| 13  | 1774.24 | 1781.57 | 1780.59 | 1781.54 | 1781.46 | 1781.42 | 1781.67 | 1781.96 | 1781.36 | 1780.87 | 1779.48 | 1781.54 |
| 14  | 1781.23 | 1781.52 | 1780.53 | 1781.51 | 1781.61 | 1781.42 | 1781.62 | 1781.82 | 1781.34 | 1780.83 | 1779.38 | 1781.52 |
| 15  | 1782.30 | 1781.50 | 1780.47 | 1781.50 | 1781.58 | 1781.42 | 1781.58 | 1781.74 | 1781.33 | 1780.77 | 1779.34 | 1781.59 |
| 16  | 1781.99 | 1781.49 | 1780.42 | 1781.47 | 1781.53 | 1781.40 | 1781.58 | 1781.68 | 1781.38 | 1780.73 | 1779.29 | 1781.54 |
| 17  | 1781.94 | 1781.49 | 1780.40 | 1781.47 | 1781.51 | 1781.38 | 1781.57 | 1781.61 | 1781.36 | 1780.64 | 1779.28 | 1781.48 |
| 18  | 1781.79 | 1781.47 | 1780.32 | 1781.46 | 1781.48 | 1781.36 | 1781.56 | 1781.54 | 1781.28 | 1780.61 | 1779.24 | 1781.46 |
| 19  | 1781.69 | 1781.45 | 1780.24 | 1781.42 | 1781.46 | 1781.36 | 1781.55 | 1781.52 | 1781.32 | 1780.56 | 1779.23 | 1781.50 |
| 20  | 1781.64 | 1781.44 | 1780.22 | 1781.41 | 1781.45 | 1781.65 | 1781.56 | 1781.47 | 1781.31 | 1780.71 | 1779.15 | 1781.47 |
| 21  | 1781.58 | 1781.46 | 1780.18 | 1781.39 | 1781.43 | 1781.67 | 1781.56 | 1781.45 | 1781.46 | 1780.64 | 1779.23 | 1789.62 |
| 22  | 1781.56 | 1781.48 | 1780.14 | 1781.38 | 1781.42 | 1781.73 | 1781.54 | 1781.42 | 1781.48 | 1780.58 | 1780.75 | A       |
| 23  | 1781.53 | 1781.52 | 1780.09 | 1781.37 | 1781.41 | 1781.63 | 1781.51 | 1781.44 | 1781.43 | 1780.50 | 1780.84 | A       |
| 24  | 1781.50 | 1781.52 | 1780.00 | 1781.40 | 1781.39 | 1781.56 | 1781.51 | 1781.44 | 1781.38 | 1780.47 | 1784.06 | A       |
| 25  | 1781.50 | 1781.49 | 1779.95 | 1781.45 | 1781.39 | 1781.55 | 1781.50 | 1781.42 | 1781.37 | 1780.42 | 1782.60 | A       |
| 26  | 1781.48 | 1781.46 | 1779.86 | 1781.44 | 1781.38 | 1781.51 | 1781.50 | 1781.77 | 1781.34 | 1780.34 | 1782.06 | A       |
| 27  | 1781.45 | 1781.41 | 1779.81 | 1781.42 | 1781.36 | 1781.56 | 1781.54 | 1781.75 | 1781.31 | 1780.34 | 1781.81 | A       |
| 28  | 1781.45 | 1781.36 | 1779.74 | 1781.42 | 1781.34 | 1781.54 | 1781.55 | 1781.62 | 1781.26 | 1780.32 | 1781.68 | A       |
| 29  | 1781.45 | 1781.33 | 1779.67 | 1781.42 | ---     | 1781.53 | 1781.55 | 1781.57 | 1781.22 | 1780.25 | 1781.71 | A       |
| 30  | 1781.42 | 1781.32 | 1779.65 | 1781.41 | ---     | 1781.78 | 1781.53 | 1781.68 | 1781.21 | 1780.17 | 1781.63 | A       |
| 31  | 1781.42 | ---     | 1779.64 | 1781.40 | ---     | 1781.69 | ---     | 1781.63 | ---     | 1780.09 | 1781.58 | ---     |
| MAX | 1782.30 | 1782.19 | 1781.27 | 1781.54 | 1782.13 | 1781.78 | 1781.79 | 1781.96 | 1781.57 | 1781.19 | ---     | ---     |
| MIN | 1769.39 | 1781.32 | 1779.64 | 1779.67 | 1781.34 | 1781.29 | 1781.50 | 1781.42 | 1781.21 | 1780.09 | ---     | ---     |

A No gage-height record

## RIO DE LA PLATA BASIN

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 30... | 0800 | 35                                              | 427                                     | 8.0                                            | 26.0                               | 6.2                       | 7.0                               | 88                                                | <10                                                  | 320                                                 | 290                                             |
| FEB 26... | 0840 | 19                                              | 494                                     | 7.8                                            | 24.5                               | .40                       | 7.0                               | 87                                                | <10                                                  | 210                                                 | K130                                            |
| MAY 19... | 1155 | 57                                              | 309                                     | 7.4                                            | 30.0                               | 3.8                       | 7.6                               | 104                                               | <10                                                  | 3400                                                | K82                                             |
| AUG 20... | 1220 | 14                                              | 387                                     | 8.2                                            | 30.0                               | 4.1                       | 10.4                              | 143                                               | <10                                                  | K40                                                 | K20                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 30... | 150                                     | 37                                      | 15                                          | 33                                      | 1                                 | 2.9                                        | 150                                                 | <.5                               | 24                                       | 33                                         |
| FEB 26... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 170                                                 | --                                | --                                       | --                                         |
| MAY 19... | 100                                     | 25                                      | 9.3                                         | 22                                      | 1                                 | 2.3                                        | 100                                                 | --                                | 12                                       | 23                                         |
| AUG 20... | 130                                     | 27                                      | 16                                          | 12                                      | .5                                | 2.4                                        | 130                                                 | <1.0                              | 11                                       | 11                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 30... | .10                                       | 26                                        | 261                                                     | 24.6                                      | 7                                                      | 1.59                                         | .014                                         | 1.60                                         | .020                                         | .26                                          |
| FEB 26... | --                                        | --                                        | --                                                      | --                                        | 2                                                      | 1.20                                         | .010                                         | 1.20                                         | .030                                         | .26                                          |
| MAY 19... | .22                                       | 21                                        | 174                                                     | 27.0                                      | 5                                                      | 1.57                                         | .035                                         | 1.60                                         | .040                                         | .29                                          |
| AUG 20... | .10                                       | 22                                        | 179                                                     | 6.77                                      | 8                                                      | 1.38                                         | .024                                         | 1.40                                         | .070                                         | .35                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 30... | .28                                                     | 1.9                                  | 8.3                                    | .200                                  | <1                                 | <100                                            | 50                                            | <1                                               | <1                                                 | <10                                             |
| FEB 26... | .30                                                     | 1.5                                  | 6.5                                    | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 19... | .33                                                     | 1.9                                  | 8.5                                    | .170                                  | <1                                 | <100                                            | 30                                            | <1                                               | <1                                                 | <10                                             |
| AUG 20... | .42                                                     | 1.8                                  | 8.1                                    | .150                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO DE LA PLATA BASIN

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR

LOCATION.--Lat 18°13'23", long 66°13'30", Hydrologic Unit 21010005, on right bank 50 ft (15 m) upstream from bridge off Highway 167 in the Town of Comerio, 0.4 mi (0.6 km) southwest of Comerio High School, and 0.2 mi (0.3 km) northeast of Plaza de Comerio.

DRAINAGE AREA.--109 mi<sup>2</sup> (282 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 604.2 ft (184.160 m) above mean sea level.

REMARKS.--Records fair. Filtration plant more or less 1,000 feet upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

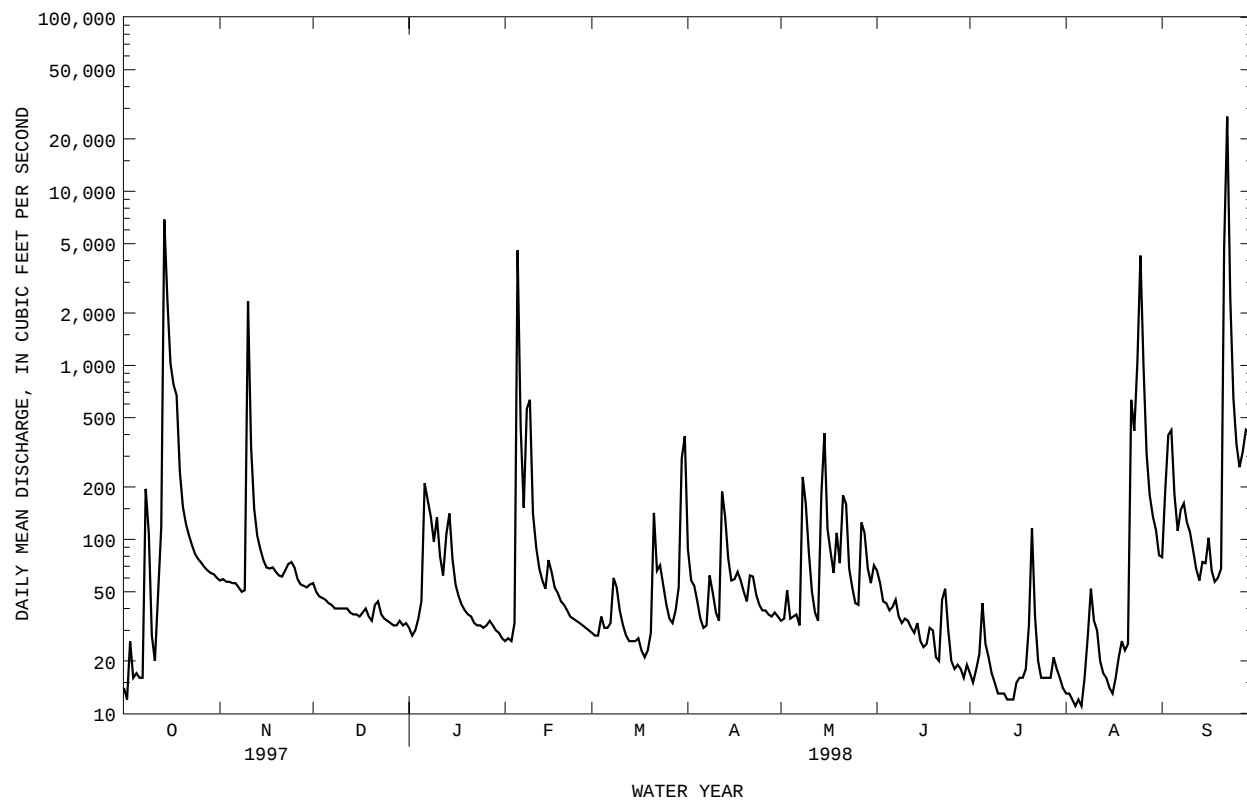
| DAY   | OCT   | NOV  | DEC  | JAN  | FEB   | MAR  | APR  | MAY  | JUN  | JUL  | AUG   | SEP   |
|-------|-------|------|------|------|-------|------|------|------|------|------|-------|-------|
| 1     | 14    | 58   | 56   | 31   | 26    | 29   | 88   | 34   | 66   | 17   | 13    | 79    |
| 2     | 12    | 59   | 50   | 28   | 27    | 28   | 58   | 35   | 56   | 15   | 13    | 190   |
| 3     | 26    | 57   | 47   | 30   | 26    | 28   | 54   | 51   | 44   | 18   | 12    | 397   |
| 4     | 16    | 57   | 46   | 35   | 33    | 36   | 44   | 35   | 43   | 22   | 11    | 424   |
| 5     | 17    | 56   | 45   | 44   | 4590  | 31   | 35   | 36   | 39   | 43   | 12    | 182   |
| 6     | 16    | 56   | 43   | 210  | 444   | 31   | 31   | 37   | 41   | 25   | 11    | 112   |
| 7     | 16    | 53   | 42   | 168  | 152   | 33   | 32   | 32   | 45   | 21   | 16    | 148   |
| 8     | 195   | 50   | 40   | 135  | 563   | 60   | 62   | 228  | 36   | 17   | 28    | 161   |
| 9     | 109   | 51   | 40   | 97   | 634   | 53   | 49   | 160  | 33   | 15   | 52    | 125   |
| 10    | 28    | 2340 | 40   | 134  | 141   | 39   | 38   | 84   | 35   | 13   | 34    | 110   |
| 11    | 20    | 339  | 40   | 80   | 90    | 32   | 34   | 50   | 34   | 13   | 30    | 87    |
| 12    | 50    | 150  | 40   | 62   | 68    | 28   | 188  | 38   | 31   | 13   | 20    | 68    |
| 13    | 117   | 105  | 38   | 107  | 58    | 26   | 135  | 34   | 29   | 12   | 17    | 58    |
| 14    | 6890  | 88   | 37   | 141  | 52    | 26   | 78   | 179  | 33   | 12   | 16    | 74    |
| 15    | 2390  | 76   | 37   | 77   | 76    | 26   | 58   | 407  | 26   | 12   | 14    | 73    |
| 16    | 1030  | 69   | 36   | 55   | 65    | 27   | 59   | 115  | 24   | 15   | 13    | 102   |
| 17    | 775   | 68   | 38   | 47   | 53    | 23   | 65   | 85   | 25   | 16   | 16    | 66    |
| 18    | 672   | 69   | 40   | 42   | 49    | 21   | 58   | 64   | 31   | 16   | 21    | 57    |
| 19    | 244   | 65   | 36   | 39   | 44    | 23   | 50   | 109  | 30   | 18   | 26    | 60    |
| 20    | 153   | 62   | 34   | 37   | 42    | 29   | 44   | 73   | 21   | 32   | 23    | 68    |
| 21    | 122   | 61   | 42   | 36   | 39    | 142  | 62   | 179  | 20   | 116  | 25    | 4830  |
| 22    | 105   | 66   | 44   | 33   | 36    | 66   | 61   | 159  | 45   | 36   | 634   | 26900 |
| 23    | 92    | 72   | 37   | 32   | 35    | 71   | 48   | 68   | 52   | 20   | 421   | 2410  |
| 24    | 82    | 74   | 35   | 32   | 34    | 55   | 42   | 53   | 30   | 16   | 1040  | 652   |
| 25    | 77    | 69   | 34   | 31   | 33    | 42   | 39   | 43   | 20   | 16   | 4270  | 353   |
| 26    | 73    | 59   | 33   | 32   | 32    | 35   | 39   | 42   | 18   | 16   | 991   | 260   |
| 27    | 69    | 55   | 32   | 34   | 31    | 33   | 37   | 125  | 19   | 16   | 312   | 319   |
| 28    | 66    | 54   | 32   | 32   | 30    | 39   | 36   | 109  | 18   | 21   | 180   | 426   |
| 29    | 64    | 53   | 34   | 30   | ---   | 53   | 38   | 68   | 16   | 18   | 135   | 411   |
| 30    | 63    | 55   | 32   | 29   | ---   | 292  | 36   | 56   | 19   | 16   | 113   | 270   |
| 31    | 60    | ---  | 33   | 27   | ---   | 392  | ---  | 71   | ---  | 14   | 81    | ---   |
| TOTAL | 13663 | 4546 | 1213 | 1947 | 7503  | 1849 | 1698 | 2859 | 979  | 670  | 8600  | 39472 |
| MEAN  | 441   | 152  | 39.1 | 62.8 | 268   | 59.6 | 56.6 | 92.2 | 32.6 | 21.6 | 277   | 1316  |
| MAX   | 6890  | 2340 | 56   | 210  | 4590  | 392  | 188  | 407  | 66   | 116  | 4270  | 26900 |
| MIN   | 12    | 50   | 32   | 27   | 26    | 21   | 31   | 32   | 16   | 12   | 11    | 57    |
| AC-FT | 27100 | 9020 | 2410 | 3860 | 14880 | 3670 | 3370 | 5670 | 1940 | 1330 | 17060 | 78290 |
| CFSM  | 4.06  | 1.40 | .36  | .58  | 2.47  | .55  | .52  | .85  | .30  | .20  | 2.56  | 12.1  |
| IN.   | 4.68  | 1.56 | .42  | .67  | 2.57  | .63  | .58  | .98  | .34  | .23  | 2.95  | 13.53 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 219  | 102  | 52.7 | 136  | 100  | 43.7 | 53.7 | 90.2 | 73.0 | 89.5 | 96.0 | 476  |
| MAX  | 866  | 166  | 112  | 732  | 268  | 75.7 | 162  | 263  | 213  | 291  | 277  | 1433 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1998 | 1989 | 1993 | 1992 | 1996 | 1993 | 1998 | 1996 |
| MIN  | 40.6 | 19.0 | 17.1 | 21.3 | 24.4 | 20.6 | 22.3 | 19.7 | 13.2 | 10.4 | 12.7 | 26.2 |
| (WY) | 1992 | 1995 | 1995 | 1995 | 1990 | 1993 | 1991 | 1994 | 1994 | 1994 | 1994 | 1997 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1989 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 32239                  | 84999               |                         |
| ANNUAL MEAN              | 88.3                   | 233                 | 126                     |
| HIGHEST ANNUAL MEAN      |                        |                     | 239                     |
| LOWEST ANNUAL MEAN       |                        |                     | 35.3                    |
| HIGHEST DAILY MEAN       | 6890                   | Oct 14              | 32400                   |
| LOWEST DAILY MEAN        | 11                     | Sep 5               | 5.8                     |
| ANNUAL SEVEN-DAY MINIMUM | 12                     | Sep 1               | 12                      |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 82600                   |
| INSTANTANEOUS PEAK STAGE |                        |                     | 24.83                   |
| ANNUAL RUNOFF (AC-FT)    | 63950                  | 168600              | 91420                   |
| ANNUAL RUNOFF (CFSM)     | .81                    | 2.15                | 1.16                    |
| ANNUAL RUNOFF (INCHES)   | 11.05                  | 29.14               | 15.80                   |
| 10 PERCENT EXCEEDS       | 89                     | 192                 | 161                     |
| 50 PERCENT EXCEEDS       | 37                     | 43                  | 36                      |
| 90 PERCENT EXCEEDS       | 15                     | 17                  | 15                      |

RIO DE LA PLATA BASIN  
50043800 RIO DE LA PLATA AT COMERIO, PR--Continued



## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to current year.

INSTRUMENTATION.-- USD-77 sediment sampler since 1989. Automatic sediment sampler since 1989.

REMARKS.--Sediment samples were collected by a local observer on a week basis. During high flow events sediment samples were collected by local observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 8,800 mg/L Jan. 05, 1992; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 950,000 tons (862,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.04 tons (0.04 tonne) November 28, 1994.

EXTREMES FOR WATER YEARS 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 6,060 mg/L September 22, 1998 ; Minimum daily mean, 2 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 583,000 tons (530,000 tonnes) September 22, 1998; Minimum daily mean, 0.07 tons (0.06tonne) August 6, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 14                         | 8                                    | .29                                 | 58                         | 10                                   | 1.5                                 | 56                         | 6                                    | .98                                 |
| 2       | 12                         | 8                                    | .27                                 | 59                         | 8                                    | 1.3                                 | 50                         | 6                                    | .86                                 |
| 3       | 26                         | 8                                    | .55                                 | 57                         | 7                                    | 1.1                                 | 47                         | 8                                    | .97                                 |
| 4       | 16                         | 8                                    | .35                                 | 57                         | 7                                    | 1.0                                 | 46                         | 9                                    | 1.2                                 |
| 5       | 17                         | 8                                    | .36                                 | 56                         | 6                                    | .95                                 | 45                         | 11                                   | 1.3                                 |
| 6       | 16                         | 8                                    | .34                                 | 56                         | 7                                    | 1.1                                 | 43                         | 10                                   | 1.2                                 |
| 7       | 16                         | 8                                    | .34                                 | 53                         | 13                                   | 1.9                                 | 42                         | 10                                   | 1.1                                 |
| 8       | 195                        | 110                                  | 211                                 | 50                         | 20                                   | 2.8                                 | 40                         | 10                                   | 1.0                                 |
| 9       | 109                        | 79                                   | 32                                  | 51                         | 20                                   | 2.8                                 | 40                         | 9                                    | .98                                 |
| 10      | 28                         | 31                                   | 2.3                                 | 2340                       | 1090                                 | 10800                               | 40                         | 9                                    | .94                                 |
| 11      | 20                         | 31                                   | 1.7                                 | 339                        | 215                                  | 210                                 | 40                         | 8                                    | .89                                 |
| 12      | 50                         | 49                                   | 8.4                                 | 150                        | 64                                   | 28                                  | 40                         | 8                                    | .83                                 |
| 13      | 117                        | 89                                   | 38                                  | 105                        | 17                                   | 4.9                                 | 38                         | 7                                    | .68                                 |
| 14      | 6890                       | 2480                                 | 83700                               | 88                         | 16                                   | 3.9                                 | 37                         | 6                                    | .57                                 |
| 15      | 2390                       | 1050                                 | 7470                                | 76                         | 17                                   | 3.4                                 | 37                         | 5                                    | .50                                 |
| 16      | 1030                       | 536                                  | 1700                                | 69                         | 16                                   | 2.9                                 | 36                         | 5                                    | .48                                 |
| 17      | 775                        | 384                                  | 1450                                | 68                         | 12                                   | 2.2                                 | 38                         | 5                                    | .51                                 |
| 18      | 672                        | 388                                  | 854                                 | 69                         | 9                                    | 1.6                                 | 40                         | 5                                    | .55                                 |
| 19      | 244                        | 148                                  | 101                                 | 65                         | 8                                    | 1.3                                 | 36                         | 6                                    | .61                                 |
| 20      | 153                        | 73                                   | 31                                  | 62                         | 9                                    | 1.6                                 | 34                         | 8                                    | .72                                 |
| 21      | 122                        | 37                                   | 12                                  | 61                         | 12                                   | 2.0                                 | 42                         | 10                                   | 1.1                                 |
| 22      | 105                        | 18                                   | 5.1                                 | 66                         | 14                                   | 2.4                                 | 44                         | 15                                   | 1.8                                 |
| 23      | 92                         | 9                                    | 2.2                                 | 72                         | 10                                   | 1.9                                 | 37                         | 23                                   | 2.3                                 |
| 24      | 82                         | 8                                    | 1.8                                 | 74                         | 7                                    | 1.4                                 | 35                         | 29                                   | 2.7                                 |
| 25      | 77                         | 8                                    | 1.7                                 | 69                         | 5                                    | 1.0                                 | 34                         | 17                                   | 1.6                                 |
| 26      | 73                         | 11                                   | 2.1                                 | 59                         | 6                                    | 1.0                                 | 33                         | 10                                   | .87                                 |
| 27      | 69                         | 15                                   | 2.7                                 | 55                         | 8                                    | 1.1                                 | 32                         | 7                                    | .62                                 |
| 28      | 66                         | 18                                   | 3.2                                 | 54                         | 9                                    | 1.3                                 | 32                         | 8                                    | .72                                 |
| 29      | 64                         | 16                                   | 2.7                                 | 53                         | 8                                    | 1.1                                 | 34                         | 9                                    | .86                                 |
| 30      | 63                         | 14                                   | 2.3                                 | 55                         | 7                                    | 1.1                                 | 32                         | 11                                   | .93                                 |
| 31      | 60                         | 12                                   | 1.9                                 | ---                        | ---                                  | ---                                 | 33                         | 11                                   | .99                                 |
| TOTAL   | 13663                      | ---                                  | 95639.60                            | 4546                       | ---                                  | 11088.55                            | 1213                       | ---                                  | 31.36                               |

## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 31                         | 8                               | .71                                 | 26                         | 13                              | .90                                 | 29                         | 4                               | .34                                 |
| 2       | 28                         | 6                               | .49                                 | 27                         | 14                              | 1.0                                 | 28                         | 6                               | .42                                 |
| 3       | 30                         | 5                               | .41                                 | 26                         | 16                              | 1.1                                 | 28                         | 7                               | .56                                 |
| 4       | 35                         | 5                               | .47                                 | 33                         | 17                              | 1.8                                 | 36                         | 8                               | .83                                 |
| 5       | 44                         | 5                               | .60                                 | 4590                       | 1610                            | 31600                               | 31                         | 7                               | .59                                 |
| 6       | 210                        | 534                             | 847                                 | 444                        | 268                             | 369                                 | 31                         | 6                               | .48                                 |
| 7       | 168                        | 578                             | 296                                 | 152                        | 104                             | 44                                  | 33                         | 5                               | .46                                 |
| 8       | 135                        | 105                             | 40                                  | 563                        | 218                             | 1180                                | 60                         | 34                              | 7.9                                 |
| 9       | 97                         | 59                              | 15                                  | 634                        | 445                             | 990                                 | 53                         | 26                              | 3.8                                 |
| 10      | 134                        | 83                              | 33                                  | 141                        | 84                              | 33                                  | 39                         | 9                               | .93                                 |
| 11      | 80                         | 62                              | 14                                  | 90                         | 35                              | 8.8                                 | 32                         | 9                               | .79                                 |
| 12      | 62                         | 44                              | 7.3                                 | 68                         | 19                              | 3.5                                 | 28                         | 10                              | .75                                 |
| 13      | 107                        | 102                             | 31                                  | 58                         | 25                              | 4.0                                 | 26                         | 11                              | .76                                 |
| 14      | 141                        | 103                             | 41                                  | 52                         | 36                              | 5.1                                 | 26                         | 11                              | .76                                 |
| 15      | 77                         | 57                              | 12                                  | 76                         | 38                              | 7.8                                 | 26                         | 10                              | .73                                 |
| 16      | 55                         | 38                              | 5.7                                 | 65                         | 20                              | 3.6                                 | 27                         | 10                              | .73                                 |
| 17      | 47                         | 37                              | 4.7                                 | 53                         | 10                              | 1.5                                 | 23                         | 10                              | .63                                 |
| 18      | 42                         | 38                              | 4.4                                 | 49                         | 6                               | .82                                 | 21                         | 10                              | .57                                 |
| 19      | 39                         | 36                              | 3.8                                 | 44                         | 6                               | .76                                 | 23                         | 10                              | .62                                 |
| 20      | 37                         | 26                              | 2.5                                 | 42                         | 7                               | .75                                 | 29                         | 10                              | .79                                 |
| 21      | 36                         | 18                              | 1.7                                 | 39                         | 7                               | .73                                 | 142                        | 80                              | 38                                  |
| 22      | 33                         | 13                              | 1.2                                 | 36                         | 7                               | .64                                 | 66                         | 45                              | 8.2                                 |
| 23      | 32                         | 12                              | 1.0                                 | 35                         | 6                               | .59                                 | 71                         | 25                              | 4.7                                 |
| 24      | 32                         | 11                              | .94                                 | 34                         | 6                               | .56                                 | 55                         | 15                              | 2.3                                 |
| 25      | 31                         | 11                              | .93                                 | 33                         | 7                               | .60                                 | 42                         | 15                              | 1.7                                 |
| 26      | 32                         | 15                              | 1.3                                 | 32                         | 7                               | .64                                 | 35                         | 15                              | 1.4                                 |
| 27      | 34                         | 21                              | 2.0                                 | 31                         | 7                               | .61                                 | 33                         | 15                              | 1.3                                 |
| 28      | 32                         | 26                              | 2.2                                 | 30                         | 5                               | .43                                 | 39                         | 15                              | 1.6                                 |
| 29      | 30                         | 19                              | 1.6                                 | ---                        | ---                             | ---                                 | 53                         | 30                              | 11                                  |
| 30      | 29                         | 14                              | 1.1                                 | ---                        | ---                             | ---                                 | 292                        | 567                             | 801                                 |
| 31      | 27                         | 12                              | .83                                 | ---                        | ---                             | ---                                 | 392                        | 697                             | 1270                                |
| TOTAL   | 1947                       | ---                             | 1374.88                             | 7503                       | ---                             | 34262.23                            | 1849                       | ---                             | 2164.64                             |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 88                         | 76                              | 18                                  | 34                         | 11                              | .95                                 | 66                         | 50                              | 8.9                                 |
| 2       | 58                         | 63                              | 9.9                                 | 35                         | 11                              | 1.1                                 | 56                         | 55                              | 8.9                                 |
| 3       | 54                         | 54                              | 7.7                                 | 51                         | 12                              | 1.7                                 | 44                         | 61                              | 7.2                                 |
| 4       | 44                         | 50                              | 6.1                                 | 35                         | 12                              | 1.2                                 | 43                         | 48                              | 5.5                                 |
| 5       | 35                         | 47                              | 4.5                                 | 36                         | 13                              | 1.2                                 | 39                         | 40                              | 4.2                                 |
| 6       | 31                         | 52                              | 4.3                                 | 37                         | 13                              | 1.3                                 | 41                         | 35                              | 3.9                                 |
| 7       | 32                         | 77                              | 6.7                                 | 32                         | 13                              | 1.1                                 | 45                         | 29                              | 3.5                                 |
| 8       | 62                         | 64                              | 11                                  | 228                        | 239                             | 565                                 | 36                         | 29                              | 2.8                                 |
| 9       | 49                         | 52                              | 6.9                                 | 160                        | 358                             | 226                                 | 33                         | 32                              | 2.9                                 |
| 10      | 38                         | 51                              | 5.2                                 | 84                         | 22                              | 5.2                                 | 35                         | 35                              | 3.3                                 |
| 11      | 34                         | 50                              | 4.7                                 | 50                         | 2                               | .31                                 | 34                         | 39                              | 3.5                                 |
| 12      | 188                        | 137                             | 85                                  | 38                         | 2                               | .21                                 | 31                         | 43                              | 3.5                                 |
| 13      | 135                        | 119                             | 44                                  | 34                         | 2                               | .18                                 | 29                         | 40                              | 3.1                                 |
| 14      | 78                         | 80                              | 17                                  | 179                        | 137                             | 193                                 | 33                         | 22                              | 2.0                                 |
| 15      | 58                         | 55                              | 8.8                                 | 407                        | 282                             | 411                                 | 26                         | 12                              | .83                                 |
| 16      | 59                         | 42                              | 6.6                                 | 115                        | 139                             | 44                                  | 24                         | 17                              | 1.1                                 |
| 17      | 65                         | 31                              | 5.5                                 | 85                         | 101                             | 23                                  | 25                         | 32                              | 2.2                                 |
| 18      | 58                         | 24                              | 3.8                                 | 64                         | 94                              | 16                                  | 31                         | 51                              | 4.2                                 |
| 19      | 50                         | 20                              | 2.6                                 | 109                        | 86                              | 26                                  | 30                         | 49                              | 4.0                                 |
| 20      | 44                         | 16                              | 1.9                                 | 73                         | 63                              | 13                                  | 21                         | 46                              | 2.6                                 |
| 21      | 62                         | 13                              | 2.3                                 | 179                        | 129                             | 73                                  | 20                         | 36                              | 1.9                                 |
| 22      | 61                         | 14                              | 2.3                                 | 159                        | 116                             | 57                                  | 45                         | 26                              | 4.0                                 |
| 23      | 48                         | 15                              | 1.9                                 | 68                         | 56                              | 10                                  | 52                         | 26                              | 3.9                                 |
| 24      | 42                         | 15                              | 1.7                                 | 53                         | 47                              | 6.8                                 | 30                         | 10                              | .79                                 |
| 25      | 39                         | 12                              | 1.3                                 | 43                         | 47                              | 5.3                                 | 20                         | 10                              | .53                                 |
| 26      | 39                         | 9                               | .95                                 | 42                         | 45                              | 5.0                                 | 18                         | 10                              | .51                                 |
| 27      | 37                         | 9                               | .89                                 | 125                        | 62                              | 24                                  | 19                         | 12                              | .60                                 |
| 28      | 36                         | 9                               | .88                                 | 109                        | 75                              | 23                                  | 18                         | 14                              | .68                                 |
| 29      | 38                         | 9                               | .93                                 | 68                         | 46                              | 8.5                                 | 16                         | 18                              | .79                                 |
| 30      | 36                         | 10                              | .94                                 | 56                         | 42                              | 6.4                                 | 19                         | 20                              | 1.0                                 |
| 31      | ---                        | ---                             | ---                                 | 71                         | 50                              | 10                                  | ---                        | ---                             | ---                                 |
| TOTAL   | 1698                       | ---                             | 274.29                              | 2859                       | ---                             | 1760.45                             | 979                        | ---                             | 92.83                               |

## RIO DE LA PLATA BASIN

50043800 Río DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 17                         | 17                              | .78                                 | 13                         | 3                               | .12                                 | 79                         | 40                              | 8.6                                 |
| 2     | 15                         | 15                              | .59                                 | 13                         | 3                               | .10                                 | 190                        | 98                              | 140                                 |
| 3     | 18                         | 17                              | .88                                 | 12                         | 3                               | .09                                 | 397                        | 225                             | 245                                 |
| 4     | 22                         | 20                              | 1.2                                 | 11                         | 3                               | .08                                 | 424                        | 230                             | 280                                 |
| 5     | 43                         | 25                              | 3.2                                 | 12                         | 2                               | .08                                 | 182                        | 83                              | 44                                  |
| 6     | 25                         | 9                               | .65                                 | 11                         | 2                               | .07                                 | 112                        | 22                              | 6.7                                 |
| 7     | 21                         | 28                              | 1.6                                 | 16                         | 2                               | .09                                 | 148                        | 20                              | 8.0                                 |
| 8     | 17                         | 26                              | 1.2                                 | 28                         | 21                              | 1.8                                 | 161                        | 20                              | 8.7                                 |
| 9     | 15                         | 23                              | .93                                 | 52                         | 42                              | 6.9                                 | 125                        | 19                              | 6.4                                 |
| 10    | 13                         | 21                              | .76                                 | 34                         | 34                              | 3.1                                 | 110                        | 14                              | 4.3                                 |
| 11    | 13                         | 19                              | .64                                 | 30                         | 27                              | 2.2                                 | 87                         | 10                              | 2.5                                 |
| 12    | 13                         | 18                              | .61                                 | 20                         | 22                              | 1.2                                 | 68                         | 8                               | 1.5                                 |
| 13    | 12                         | 20                              | .64                                 | 17                         | 18                              | .87                                 | 58                         | 8                               | 1.2                                 |
| 14    | 12                         | 22                              | .69                                 | 16                         | 17                              | .72                                 | 74                         | 7                               | 1.5                                 |
| 15    | 12                         | 23                              | .76                                 | 14                         | 16                              | .61                                 | 73                         | 12                              | 3.8                                 |
| 16    | 15                         | 21                              | .87                                 | 13                         | 15                              | .52                                 | 102                        | 48                              | 15                                  |
| 17    | 16                         | 19                              | .79                                 | 16                         | 15                              | .63                                 | 66                         | 8                               | 1.4                                 |
| 18    | 16                         | 17                              | .72                                 | 21                         | 17                              | 1.1                                 | 57                         | 5                               | .77                                 |
| 19    | 18                         | 16                              | .76                                 | 26                         | 19                              | 1.4                                 | 60                         | 5                               | .81                                 |
| 20    | 32                         | 25                              | 2.9                                 | 23                         | 10                              | .62                                 | 68                         | 5                               | .88                                 |
| 21    | 116                        | 205                             | 91                                  | 25                         | 5                               | .34                                 | 4830                       | 1400                            | 222000                              |
| 22    | 36                         | 26                              | 2.6                                 | 634                        | 510                             | 1560                                | 26900                      | 6060                            | 583000                              |
| 23    | 20                         | 9                               | .53                                 | 421                        | 329                             | 524                                 | 2410                       | 657                             | 5710                                |
| 24    | 16                         | 4                               | .18                                 | 1040                       | 388                             | 5200                                | 652                        | 234                             | 430                                 |
| 25    | 16                         | 3                               | .13                                 | 4270                       | 902                             | 13300                               | 353                        | 140                             | 134                                 |
| 26    | 16                         | 2                               | .10                                 | 991                        | 526                             | 1550                                | 260                        | 122                             | 86                                  |
| 27    | 16                         | 2                               | .09                                 | 312                        | 142                             | 129                                 | 319                        | 145                             | 246                                 |
| 28    | 21                         | 3                               | .15                                 | 180                        | 45                              | 22                                  | 426                        | 255                             | 355                                 |
| 29    | 18                         | 3                               | .16                                 | 135                        | 42                              | 15                                  | 411                        | 258                             | 434                                 |
| 30    | 16                         | 4                               | .16                                 | 113                        | 41                              | 13                                  | 270                        | 178                             | 133                                 |
| 31    | 14                         | 4                               | .14                                 | 81                         | 41                              | 8.9                                 | ---                        | ---                             | ---                                 |
| TOTAL | 670                        | ---                             | 116.41                              | 8600                       | ---                             | 22344.54                            | 39472                      | ---                             | 813309.06                           |
| YEAR  | 84999                      |                                 | 982458.84                           |                            |                                 |                                     |                            |                                 |                                     |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 0700 | 4970                                                                  | 2500                                                  | 33500                                                                     | 96                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 13... | 0930 | 125                                                                   | 173                                                   | 58                                                                        | 98                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 1215 | 6920                                                                  | 2520                                                  | 47100                                                                     | 83                                                                       |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 31... | 0630 | 461                                                                   | 792                                                   | 986                                                                       | 56                                                                       |
| APR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 03... | 0800 | 46                                                                    | 54                                                    | 6.7                                                                       | 90                                                                       |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 14... | 0745 | 106                                                                   | 378                                                   | 108                                                                       | 98                                                                       |
| JUN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 02... | 0715 | 52                                                                    | 35                                                    | 4.9                                                                       | 85                                                                       |

## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| NOV<br>10... | 0700 | 4970                                                                    | 2500                                                                    | 33500                                                                    | 48                                                                       | 60                                                                       | 73                                                                       |                                                                          |
| MAR<br>31... | 0630 | 461                                                                     | 792                                                                     | 986                                                                      | 21                                                                       | 26                                                                       | 32                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| NOV<br>10... | 85   | 93                                                                      | 96                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| MAR<br>31... | 39   | 49                                                                      | 56                                                                      | 73                                                                       | 86                                                                       | 96                                                                       | 99                                                                       |                                                                          |

## RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'33", Long 66°12'28", at bridge on Highway 156, 0.56 mi (0.9 km) upstream from dam, about 2.0 mi (3.2 km) northeast of Comerio plaza.

DRAINAGE AREA.--139 mi<sup>2</sup> (360 km<sup>2</sup>), excludes 8.2 mi<sup>2</sup> (21.1 km<sup>2</sup>) upstream from Carite Reservoir, the flow of which is diverted to Rio Guamani.

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| NOV 05... | 0845 | 47                                              | 428                                     | 8.0                                            | 25.5                               | 11                        | 7.4                               | 91                                                | <10                                                  | K780                                           | 240                                              |
| MAR 02... | 1355 | 29                                              | 447                                     | 8.5                                            | 24.5                               | 2.2                       | 7.2                               | 88                                                | <10                                                  | 240                                            | 210                                              |
| JUN 01... | 1350 | 72                                              | 363                                     | 8.2                                            | 30.0                               | 4.5                       | 8.4                               | 114                                               | <10                                                  | K840                                           | K150                                             |
| AUG 17... | 1130 | 22                                              | 382                                     | 8.2                                            | 30.0                               | 10                        | 8.4                               | 114                                               | <10                                                  | K36                                            | 490                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 05... | 160                                     | 52                                      | 6.3                                         | 18                                      | .6                                | .90                                        | 150                                                 | <.5                               | 30                                       | 10                                         |
| MAR 02... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 150                                                 | --                                | --                                       | --                                         |
| JUN 01... | 110                                     | 27                                      | 11                                          | 23                                      | 1                                 | 2.8                                        | 120                                                 | --                                | 12                                       | 25                                         |
| AUG 17... | 120                                     | 29                                      | 12                                          | 26                                      | 1                                 | 4.2                                        | 140                                                 | <1.0                              | 15                                       | 28                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SiO2) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 05... | .20                                       | 23                                        | 230                                                     | 29.2                                      | 53                                                     | --                                           | <.010                                        | .910                                         | .030                                         | .19                                          |
| MAR 02... | --                                        | --                                        | --                                                      | --                                        | 2                                                      | --                                           | <.010                                        | .370                                         | .040                                         | .17                                          |
| JUN 01... | .12                                       | 23                                        | 196                                                     | 37.8                                      | 8                                                      | .936                                         | .014                                         | .950                                         | .040                                         | .30                                          |
| AUG 17... | .15                                       | 29                                        | 228                                                     | 13.6                                      | 18                                                     | --                                           | <.010                                        | .190                                         | .030                                         | .31                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N03) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 05... | .22                                                     | 1.1                                    | 5.0                                    | .140                                  | <1                                 | <100                                            | 10                                            | <1                                               | <1                                                 | <10                                             |
| MAR 02... | .21                                                     | .58                                    | 2.6                                    | .050                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 01... | .34                                                     | 1.3                                    | 5.7                                    | .090                                  | <1                                 | <100                                            | 50                                            | <1                                               | <1                                                 | <10                                             |
| AUG 17... | .34                                                     | .53                                    | 2.3                                    | .090                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO DE LA PLATA BASIN

50044850 RIO GUADIANA NEAR NARANJITO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'39", Long 66°13'28", at steel-cross-bridge 0.8 mi (1.3 km) northwest of Highway 164, 1.2 mi (1.9 km) upstream from mouth and about 2.0 mi (3.2 km) northeast of Naranjito plaza.

DRAINAGE AREA.--4.0 mi<sup>2</sup> (10.3 km<sup>2</sup>).

PERIOD OF RECORD.--Water year 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| NOV 05... | 1200 | 3.5                                             | 441                                     | 8.1                                      | 28.5                               | 2.7                       | 7.6                               | 96                                                | <10                                                  | 230                                                 | 520                                              |
| MAR 03... | 0940 | 3.0                                             | 464                                     | 8.1                                      | 24.5                               | .34                       | 6.0                               | 72                                                | <10                                                  | 260                                                 | 200                                              |
| MAY 29... | 1015 | 6.1                                             | 406                                     | 8.1                                      | 27.5                               | .53                       | 8.3                               | 106                                               | <10                                                  | 560                                                 | 670                                              |
| AUG 18... | 1500 | 4.0                                             | 444                                     | 7.8                                      | 28.0                               | 2.9                       | 6.3                               | 81                                                | <10                                                  | K840                                                | 700                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 05... | 140                                     | 43                                      | 7.0                                         | 11                                      | .4                                | 1.3                                        | 150                                                 | <.5                               | 7.8                                      | 8.7                                        |
| MAR 03... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 150                                                 | --                                | --                                       | --                                         |
| MAY 29... | 160                                     | 36                                      | 17                                          | 20                                      | .7                                | 2.8                                        | 140                                                 | --                                | 22                                       | 26                                         |
| AUG 18... | 170                                     | 40                                      | 17                                          | 21                                      | .7                                | 3.2                                        | 150                                                 | <1.0                              | 29                                       | 28                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 05... | <.10                                      | 20                                        | 189                                                     | 2.04                                      | --                                                     | --                                           | <.010                                        | 2.00                                         | .020                                         | --                                           |
| MAR 03... | --                                        | --                                        | --                                                      | --                                        | 1                                                      | --                                           | <.010                                        | 2.20                                         | .030                                         | .24                                          |
| MAY 29... | <.10                                      | 24                                        | 232                                                     | 3.80                                      | 3                                                      | .828                                         | .012                                         | .840                                         | .020                                         | .25                                          |
| AUG 18... | .12                                       | 27                                        | 254                                                     | 2.75                                      | 1                                                      | 1.59                                         | .012                                         | 1.60                                         | .020                                         | --                                           |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 05... | <.20                                                    | --                                   | --                                     | .220                                  | 2                                  | <100                                            | 30                                            | <1                                               | <1                                                 | <10                                             |
| MAR 03... | .27                                                     | 2.5                                  | 11                                     | .130                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 29... | .27                                                     | 1.1                                  | 4.9                                    | .120                                  | 2                                  | <100                                            | 50                                            | <1                                               | <1                                                 | <10                                             |
| AUG 18... | <.20                                                    | --                                   | --                                     | .160                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO DE LA PLATA BASIN

50044850 RIO GUADIANA NEAR NARANJITO, PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO DE LA PLATA BASIN

50045000 LAGO LA PLATA AT DAMSITE NEAR TOA ALTA, PR

LOCATION.--Lat 18°20'40", long 66°14'10", Hydrologic Unit 21010005, 2.9 mi (4.7 km) at northeast of Plaza de Naranjito, 2.7 mi (4.3 km) West of Road 167, km 15.3, Buena Vista, Bayamón, 5.2 mi (8.4 km) east of Plaza de Corozal.

DRAINAGE AREA.--181 mi<sup>2</sup> (469 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--February 1989 to current year. Prior to October 1994, published as Lago La Plata at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago La Plata first construction phase was completed in 1974 and the second construction phase to provide the spillway with bascule gates was completed in October 1989. The maximum storage is 37,000 ac-ft (45.6 hm<sup>3</sup>) and its purpose is the supply of water for domestic and industrial use. La Plata Dam is a concrete gravity structure located across the Río de la Plata, the dam has an overall length of 774 ft (236 m) and a maximum height of about 131 ft (40 m). The dam spillway is provided with 6 bascule gates. The spillway crest has a total clear length of 690 ft (210 m), an elevation of 155 ft (47 m). The Dam is owned and operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 170.90 ft (52.09 m), Sept. 10, 1996; minimum elevation, 107.95 ft (32.90 m), Feb. 21, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 168.13 ft (51.24 m), Nov. 10; minimum elevation, 126.88 ft (38.67 m), Oct. 8.

## Capacity Table

(based on data from Puerto Rico Aqueduct and Sewer Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 98.43              | 2,760                  | 164.05             | 28,550                 |
| 131.24             | 11,360                 | 170.61             | 33,160                 |
| 154.60             | 22,720                 | 175.52             | 37,040                 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 128.79 | 164.67 | 164.74 | 157.62 | 155.48 | 164.95 | 164.00 | 163.34 | 165.06 | 160.09 | 152.83 | 164.96 |
| 2   | 128.38 | 164.52 | 164.57 | 157.35 | 155.18 | 164.74 | 163.99 | 163.10 | 165.28 | 159.87 | 152.48 | 164.96 |
| 3   | 127.96 | 164.36 | 164.40 | A      | 154.87 | 164.54 | 163.90 | 162.94 | 165.38 | 159.64 | 152.12 | 165.43 |
| 4   | 127.55 | 164.18 | 164.20 | 156.86 | 156.36 | 164.33 | 163.79 | 162.72 | 165.41 | 159.41 | 151.76 | 165.31 |
| 5   | 127.44 | 164.01 | 164.01 | 156.69 | 160.46 | 164.16 | 163.63 | 162.48 | 165.30 | 159.22 | 151.39 | 165.36 |
| 6   | 127.35 | 163.83 | 163.80 | 157.19 | 162.11 | 163.98 | 163.44 | 162.28 | 165.12 | 159.25 | A      | 165.50 |
| 7   | 127.06 | 163.64 | 163.59 | 158.35 | 162.54 | 163.80 | 163.32 | 162.06 | 164.96 | 159.03 | 151.30 | 165.63 |
| 8   | 127.47 | 163.43 | 163.37 | 158.69 | 164.87 | 163.68 | 163.31 | 162.52 | 164.78 | 158.76 | 151.23 | 165.13 |
| 9   | 128.51 | 163.21 | 163.16 | 158.76 | 166.85 | 163.59 | 163.22 | 162.95 | 164.70 | 158.48 | 151.18 | 165.23 |
| 10  | 128.37 | 166.39 | 162.94 | 158.93 | 167.22 | 163.42 | 163.09 | 162.94 | 164.52 | 158.23 | 151.05 | 165.25 |
| 11  | 128.11 | 166.80 | 162.54 | 158.95 | 167.31 | 163.22 | 162.89 | 162.79 | 164.32 | 157.93 | 150.83 | 165.19 |
| 12  | 128.08 | 167.11 | 162.52 | 158.83 | 167.29 | 163.00 | 163.36 | 162.57 | 164.11 | 157.62 | 150.59 | 165.08 |
| 13  | 128.63 | 166.70 | 162.28 | 159.18 | 167.22 | 162.78 | 163.70 | 162.34 | 163.92 | 157.30 | 150.28 | 164.92 |
| 14  | 166.00 | 166.69 | 162.08 | 159.66 | 167.23 | 162.65 | 163.73 | 163.49 | 163.73 | 156.95 | 149.96 | 164.79 |
| 15  | 166.62 | 166.66 | 161.83 | 159.69 | 167.25 | 162.43 | 163.70 | 165.09 | 163.50 | 156.63 | 149.64 | 164.56 |
| 16  | 166.02 | 166.58 | 161.60 | 159.56 | 167.23 | 162.21 | 165.19 | 165.32 | 163.26 | 156.30 | 149.28 | 164.45 |
| 17  | 166.48 | 166.46 | 161.37 | 159.39 | 167.13 | 161.99 | 165.28 | 165.43 | 163.13 | 156.01 | 149.04 | 164.33 |
| 18  | 165.85 | 166.40 | 161.15 | 159.20 | 167.02 | 161.75 | 165.22 | 165.38 | A      | 155.72 | 148.73 | 164.17 |
| 19  | 166.14 | 166.31 | 160.91 | 158.99 | 166.88 | 161.52 | 165.11 | 165.53 | 162.78 | 155.41 | 148.41 | 164.01 |
| 20  | 165.97 | 166.16 | 160.66 | 158.77 | 166.74 | 161.45 | 165.01 | 165.55 | 162.53 | 155.38 | 148.15 | 162.71 |
| 21  | 166.15 | 166.03 | 160.42 | 158.53 | 166.55 | 161.72 | 164.94 | 165.75 | 162.40 | 155.63 | 148.05 | 166.23 |
| 22  | 166.16 | 165.91 | 160.23 | 158.26 | 166.36 | 161.68 | 164.91 | 165.99 | 162.24 | 155.48 | 149.38 | 160.38 |
| 23  | 165.75 | 165.82 | 159.99 | 157.98 | 166.17 | 161.60 | 164.81 | 165.93 | 162.14 | 155.25 | 151.12 | 162.92 |
| 24  | 165.68 | 165.75 | 159.72 | 157.71 | 165.98 | 161.48 | 164.64 | 165.79 | 161.95 | 155.00 | A      | 164.46 |
| 25  | 165.60 | 165.68 | 159.48 | 157.43 | 165.78 | 161.34 | 164.48 | 165.60 | 161.72 | 154.68 | 163.94 | 164.95 |
| 26  | 165.49 | A      | 159.22 | 157.16 | 165.60 | 161.13 | 164.28 | 165.43 | 161.45 | 154.40 | 165.08 | 164.32 |
| 27  | 165.35 | 165.39 | 158.94 | 156.89 | 165.41 | 160.92 | 164.17 | 165.44 | 161.18 | 154.28 | 164.72 | 164.95 |
| 28  | 165.24 | 165.23 | 158.67 | 156.61 | 165.19 | 160.74 | 163.97 | 165.53 | 160.92 | 154.03 | 165.24 | 164.82 |
| 29  | 165.10 | 165.06 | A      | 156.34 | ---    | 160.92 | 163.77 | 165.45 | 160.65 | 153.77 | 165.17 | 164.25 |
| 30  | 164.97 | 164.89 | 158.12 | 156.06 | ---    | 162.37 | 163.57 | 165.30 | 160.36 | 153.47 | 165.13 | 164.18 |
| 31  | 164.81 | ---    | 157.86 | 155.78 | ---    | 163.87 | ---    | 165.15 | ---    | 153.15 | 165.06 | ---    |
| MAX | 166.62 | ---    | ---    | ---    | 167.31 | 164.95 | 165.28 | 165.99 | ---    | 160.09 | ---    | 166.23 |
| MIN | 127.06 | ---    | ---    | ---    | 154.87 | 160.74 | 162.89 | 162.06 | ---    | 153.15 | ---    | 160.38 |

A No gage-height record

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR

LOCATION.--Lat 18°20'45", long 66°14'17", Hydrologic Unit 21010005, 2.8 mi (4.5 km) west of Road 167, km 15.3, Buena Vista, Bayamón, 5.0 mi (8.0 km) east of Plaza de Corozal, 3.0 mi (4.8 km) northeast of Plaza de Naranjito.

DRAINAGE AREA.--173 m<sup>2</sup> (448 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage 164 ft (30 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT     | NOV    | DEC   | JAN   | FEB     | MAR   | APR   | MAY   | JUN  | JUL  | AUG     | SEP      |
|-------|---------|--------|-------|-------|---------|-------|-------|-------|------|------|---------|----------|
| 1     | 2.0     | 7.2    | 2.0   | .00   | .18     | .04   | 1.0   | 1.8   | 4.1  | 1.6  | 1.4     | 2.8      |
| 2     | 2.0     | 7.3    | 2.0   | .00   | .39     | .04   | 1.6   | 2.0   | 4.7  | 1.3  | 1.3     | 8.2      |
| 3     | 1.6     | 5.6    | 2.1   | .00   | .43     | .16   | 1.6   | 2.1   | 3.8  | 1.7  | 1.2     | 195      |
| 4     | 1.6     | 5.5    | 1.9   | .00   | 2.2     | .42   | 1.7   | 2.0   | 2.0  | 1.7  | .96     | 427      |
| 5     | 1.6     | 6.0    | 1.8   | .00   | 6570    | .28   | 2.4   | 1.3   | 2.4  | 1.6  | .22     | 136      |
| 6     | 2.0     | 6.0    | 1.7   | .05   | .55     | .23   | 1.6   | 1.1   | 2.5  | 2.5  | .01     | 3.0      |
| 7     | 2.2     | 5.9    | 1.1   | .12   | .09     | .24   | 2.3   | 1.1   | 2.6  | 1.8  | 1.1     | 2.9      |
| 8     | 2.2     | 5.4    | .82   | .03   | .02     | .31   | 3.2   | 1.6   | 2.5  | 1.6  | .68     | 300      |
| 9     | 2.2     | 5.0    | .73   | .01   | 170     | .32   | 2.9   | 2.0   | 2.5  | 1.6  | .03     | 3.5      |
| 10    | 2.0     | 1820   | .90   | .01   | .01     | .84   | 2.7   | 2.0   | 2.6  | 1.5  | .00     | 2.6      |
| 11    | 2.0     | 293    | 1.2   | .02   | .00     | .91   | 2.5   | 1.7   | 2.0  | 1.5  | .00     | 2.8      |
| 12    | 2.4     | 4.8    | 1.2   | .06   | .91     | 1.3   | 3.8   | 1.3   | 2.1  | 1.6  | .00     | 2.5      |
| 13    | 2.5     | 144    | 1.0   | .08   | .10     | 1.3   | 5.2   | 1.2   | 2.2  | 1.8  | .02     | 2.5      |
| 14    | 853     | 3.1    | .91   | .13   | .00     | 1.2   | 4.8   | 2.0   | 2.3  | 2.0  | .00     | 2.4      |
| 15    | e11     | 3.0    | .60   | .08   | .00     | .89   | 2.2   | 2.0   | 1.8  | 2.5  | .00     | 48       |
| 16    | e2.0    | 3.1    | .24   | .46   | .00     | .83   | 89    | 2.2   | 2.2  | 2.4  | .00     | 42       |
| 17    | e134    | 3.0    | .27   | .55   | .00     | 1.2   | 2.4   | 2.5   | 3.0  | 2.8  | .04     | 1.8      |
| 18    | e.11    | 3.6    | .58   | .55   | .00     | 1.2   | 1.8   | 2.6   | 2.1  | 2.8  | .01     | 1.9      |
| 19    | e.05    | 4.3    | .42   | .57   | .00     | 1.8   | 1.8   | 2.4   | 2.0  | 2.4  | .00     | 1.9      |
| 20    | e2.8    | 4.4    | .28   | .63   | .00     | 1.2   | 1.9   | .64   | 2.2  | 2.6  | .00     | 399      |
| 21    | e11     | 4.5    | .25   | .66   | .00     | 1.1   | 2.0   | .60   | 2.3  | 2.3  | .01     | 3930     |
| 22    | 10      | 2.8    | .18   | .66   | .00     | 1.1   | 1.9   | .72   | 1.8  | 2.3  | .00     | e75700   |
| 23    | 85      | 2.4    | .12   | .66   | .00     | 1.1   | 2.0   | .87   | 1.7  | 2.7  | .00     | e25300   |
| 24    | 8.5     | 2.0    | .13   | .66   | .00     | .97   | 2.2   | .94   | 1.6  | 2.7  | .25     | e777     |
| 25    | 7.0     | 2.2    | .25   | .66   | .02     | 1.1   | 2.1   | .97   | 1.8  | 2.1  | 2880    | e646     |
| 26    | 7.2     | 2.4    | .27   | .65   | .04     | 1.8   | 2.2   | 1.5   | 2.0  | 1.4  | 1100    | e688     |
| 27    | 7.1     | 3.2    | .27   | .60   | .23     | 1.2   | 2.0   | 1.5   | 2.0  | 2.0  | 642     | e69      |
| 28    | 7.2     | 4.2    | .29   | .72   | .04     | 1.1   | 1.4   | 2.0   | 1.7  | 1.4  | 330     | e937     |
| 29    | 6.8     | 2.2    | .02   | .81   | ---     | 1.2   | 1.4   | 2.2   | 1.5  | 1.1  | 141     | e1160    |
| 30    | 6.8     | 2.0    | .00   | .85   | ---     | 1.3   | 1.4   | 2.8   | 1.8  | 1.3  | 46      | e729     |
| 31    | 7.0     | ---    | .00   | .70   | ---     | 1.8   | ---   | 4.8   | ---  | 1.4  | 3.7     | ---      |
| TOTAL | 1192.86 | 2368.1 | 23.53 | 10.98 | 6745.21 | 28.48 | 155.0 | 54.44 | 69.8 | 60.0 | 5149.93 | 111521.8 |
| MEAN  | 38.5    | 78.9   | .76   | .35   | 241     | .92   | 5.17  | 1.76  | 2.33 | 1.94 | 166     | 3717     |
| MAX   | 853     | 1820   | 2.1   | .85   | 6570    | 1.8   | 89    | 4.8   | 4.7  | 2.8  | 2880    | 75700    |
| MIN   | .05     | 2.0    | .00   | .00   | .00     | .04   | 1.0   | .60   | 1.5  | 1.1  | .00     | 1.8      |
| AC-FT | 2370    | 4700   | 47    | 22    | 13380   | 56    | 307   | 108   | 138  | 119  | 10210   | 221200   |
| CFSM  | .22     | .46    | .00   | .00   | 1.39    | .01   | .03   | .01   | .01  | .01  | .96     | 21.5     |
| IN.   | .26     | .51    | .01   | .00   | 1.45    | .01   | .03   | .01   | .02  | .01  | 1.11    | 24.01    |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 171  | 75.2 | 35.5 | 216  | 59.6 | 15.9 | 31.4 | 109  | 38.4 | 64.9 | 43.4 | 1386 |
| MAX  | 1107 | 225  | 161  | 1581 | 241  | 83.2 | 231  | 494  | 220  | 384  | 166  | 8046 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1998 | 1990 | 1993 | 1993 | 1993 | 1993 | 1998 | 1996 |
| MIN  | .048 | .004 | .000 | .19  | .14  | .022 | .011 | .000 | .002 | .037 | .020 | .001 |
| (WY) | 1992 | 1995 | 1995 | 1990 | 1995 | 1995 | 1995 | 1994 | 1994 | 1994 | 1989 | 1991 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

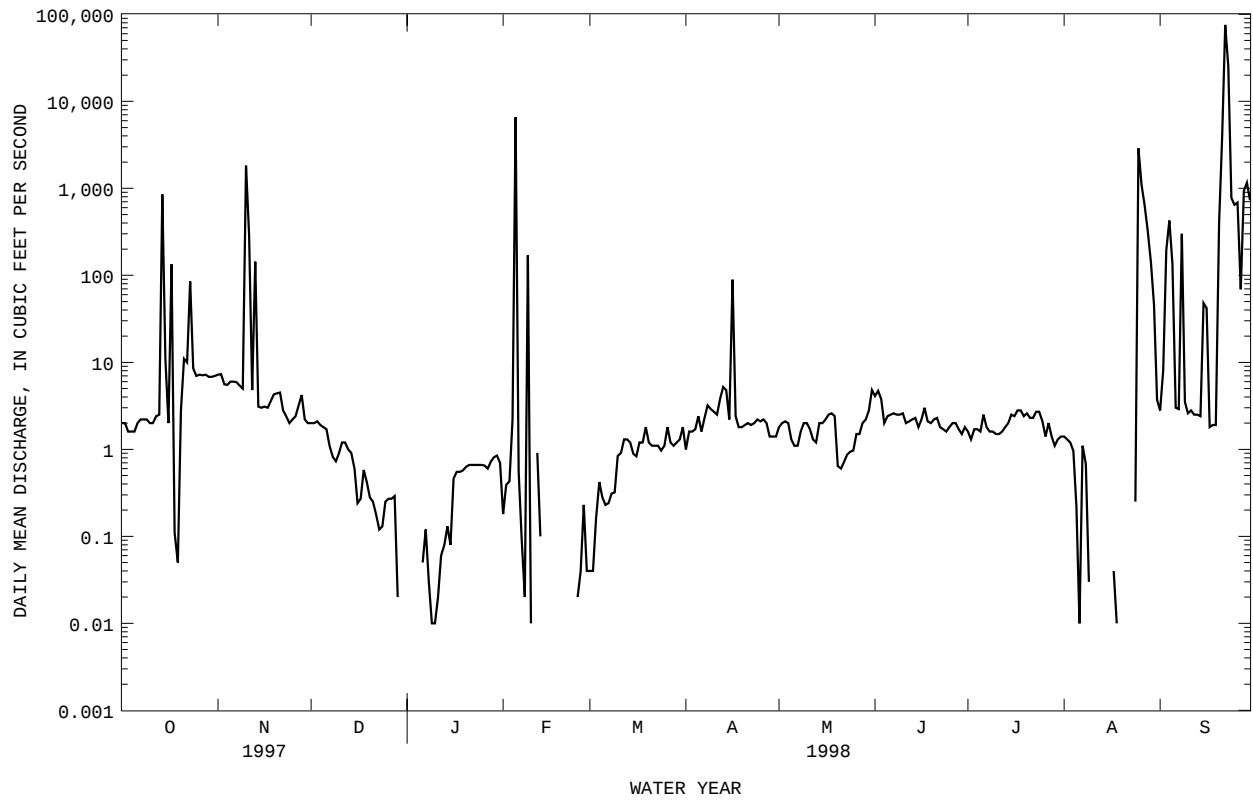
## FOR 1998 WATER YEAR

## WATER YEARS 1989 - 1998

|                          |         |           |        |
|--------------------------|---------|-----------|--------|
| ANNUAL TOTAL             | 4251.13 | 127380.13 |        |
| ANNUAL MEAN              | 11.6    | 349       | 190    |
| HIGHEST ANNUAL MEAN      |         |           | 714    |
| LOWEST ANNUAL MEAN       |         |           | 8.62   |
| HIGHEST DAILY MEAN       | 1820    | Nov 10    | 75700  |
| LOWEST DAILY MEAN        | .00     | Jun 29    | .00    |
| ANNUAL SEVEN-DAY MINIMUM | .00     | Jun 28    | .00    |
| INSTANTANEOUS PEAK FLOW  |         |           | 122000 |
| INSTANTANEOUS PEAK STAGE |         |           | 34.16  |
| ANNUAL RUNOFF (AC-FT)    | 8430    | 252700    | 137300 |
| ANNUAL RUNOFF (CFSM)     | .067    | 2.02      | 1.10   |
| ANNUAL RUNOFF (INCHES)   | .92     | 27.42     | 14.90  |
| 10 PERCENT EXCEEDS       | 5.7     | 8.3       | 152    |
| 50 PERCENT EXCEEDS       | .97     | 1.8       | 1.2    |
| 90 PERCENT EXCEEDS       | .16     | .02       | .00    |

e Estimated

RIO DE LA PLATA BASIN  
50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued



## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to current year.

INSTRUMENTATION.-- Automatic sediment sampler since 1989.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 4,390 mg/L September 10, 1996; Minimum daily mean, 0 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 1,810,000 tons (1,640,000 tonnes) September 10, 1996; Minimum daily mean, 0.0 ton several days 1999.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 524,000 tons (475,000 tonnes) September 22, 1998; Minimum daily mean, 0 ton several days.

SEDIMENT LOADS: Maximum daily mean, 2,470 mg/L September 22, 1998; Minimum daily mean, 0 mg/L several days .

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 2.0                        | 10                              | .05                                 | 7.2                        | 19                              | .37                                 | 2.0                        | 2                               | .01                                 |
| 2       | 2.0                        | 10                              | .05                                 | 7.3                        | 18                              | .35                                 | 2.0                        | 2                               | .01                                 |
| 3       | 1.6                        | 10                              | .04                                 | 5.6                        | 16                              | .25                                 | 2.1                        | 2                               | .01                                 |
| 4       | 1.6                        | 10                              | .04                                 | 5.5                        | 15                              | .23                                 | 1.9                        | 2                               | .01                                 |
| 5       | 1.6                        | 10                              | .04                                 | 6.0                        | 13                              | .21                                 | 1.8                        | 3                               | .01                                 |
| 6       | 2.0                        | 10                              | .05                                 | 6.0                        | 3                               | .05                                 | 1.7                        | 3                               | .01                                 |
| 7       | 2.2                        | 10                              | .06                                 | 5.9                        | 2                               | .03                                 | 1.1                        | 3                               | .01                                 |
| 8       | 2.2                        | 10                              | .06                                 | 5.4                        | 2                               | .03                                 | .82                        | 4                               | .01                                 |
| 9       | 2.2                        | 10                              | .06                                 | 5.0                        | 2                               | .03                                 | .73                        | 4                               | .01                                 |
| 10      | 2.0                        | 10                              | .05                                 | 1820                       | 49                              | 372                                 | .90                        | 4                               | .01                                 |
| 11      | 2.0                        | 8                               | .04                                 | 293                        | 21                              | 32                                  | 1.2                        | 3                               | .01                                 |
| 12      | 2.4                        | 6                               | .04                                 | 4.8                        | 11                              | .15                                 | 1.2                        | 3                               | .01                                 |
| 13      | 2.5                        | 6                               | .04                                 | 144                        | 16                              | 18                                  | 1.0                        | 3                               | .01                                 |
| 14      | 853                        | 31                              | 119                                 | 3.1                        | 8                               | .07                                 | .91                        | 3                               | .01                                 |
| 15      | e11                        | 12                              | e45                                 | 3.0                        | 7                               | .05                                 | .60                        | 2                               | <.01                                |
| 16      | e2.0                       | 10                              | e.05                                | 3.1                        | 5                               | .05                                 | .24                        | 2                               | <.01                                |
| 17      | e134                       | 22                              | e11                                 | 3.0                        | 5                               | .04                                 | .27                        | 2                               | <.01                                |
| 18      | e.11                       | 10                              | e.01                                | 3.6                        | 4                               | .04                                 | .58                        | 2                               | <.01                                |
| 19      | e.05                       | 10                              | e.01                                | 4.3                        | 3                               | .04                                 | .42                        | 2                               | <.01                                |
| 20      | e2.8                       | 11                              | e.08                                | 4.4                        | 3                               | .03                                 | .28                        | 2                               | <.01                                |
| 21      | e11                        | 11                              | e.32                                | 4.5                        | 2                               | .03                                 | .25                        | 2                               | <.01                                |
| 22      | 10                         | 11                              | .30                                 | 2.8                        | 2                               | .01                                 | .18                        | 1                               | <.01                                |
| 23      | 85                         | 31                              | 18                                  | 2.4                        | 1                               | .01                                 | .12                        | 1                               | <.01                                |
| 24      | 8.5                        | 3                               | .08                                 | 2.0                        | 1                               | .01                                 | .13                        | 1                               | <.01                                |
| 25      | 7.0                        | 2                               | .04                                 | 2.2                        | 1                               | .01                                 | .25                        | 1                               | <.01                                |
| 26      | 7.2                        | 2                               | .04                                 | 2.4                        | 1                               | .01                                 | .27                        | 1                               | <.01                                |
| 27      | 7.1                        | 6                               | .11                                 | 3.2                        | 1                               | .01                                 | .27                        | 1                               | <.01                                |
| 28      | 7.2                        | 18                              | .36                                 | 4.2                        | 1                               | .01                                 | .29                        | 1                               | <.01                                |
| 29      | 6.8                        | 20                              | .38                                 | 2.2                        | 1                               | .01                                 | .02                        | 1                               | <.01                                |
| 30      | 6.8                        | 20                              | .37                                 | 2.0                        | 2                               | .01                                 | .00                        | 0                               | .00                                 |
| 31      | 7.0                        | 19                              | .37                                 | ---                        | ---                             | ---                                 | .00                        | 0                               | .00                                 |
| TOTAL   | 1192.86                    | ---                             | 196.14                              | 2368.1                     | ---                             | 424.14                              | 23.53                      | ---                             | 0.29                                |

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued  
 SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | .00                        | 0                               | .00                                 | .18                        | 1                               | <.01                                | .04                        | 1                               | <.01                                |
| 2       | .00                        | 0                               | .00                                 | .39                        | 1                               | <.01                                | .04                        | 1                               | <.01                                |
| 3       | .00                        | 0                               | .00                                 | .43                        | 1                               | <.01                                | .16                        | 1                               | <.01                                |
| 4       | .00                        | 0                               | .00                                 | 2.2                        | 2                               | .07                                 | .42                        | 1                               | <.01                                |
| 5       | .00                        | 0                               | .00                                 | 6570                       | 223                             | 10100                               | .28                        | 1                               | <.01                                |
| 6       | .05                        | 1                               | <.01                                | .55                        | 3                               | <.01                                | .23                        | 1                               | <.01                                |
| 7       | .12                        | 1                               | <.01                                | .09                        | 2                               | <.01                                | .24                        | 1                               | <.01                                |
| 8       | .03                        | 2                               | <.01                                | .02                        | 1                               | <.01                                | .31                        | 1                               | <.01                                |
| 9       | .01                        | 2                               | <.01                                | 170                        | 32                              | 35                                  | .32                        | 1                               | <.01                                |
| 10      | .01                        | 2                               | <.01                                | .01                        | 1                               | <.01                                | .84                        | 1                               | <.01                                |
| 11      | .02                        | 2                               | <.01                                | .00                        | 1                               | .00                                 | .91                        | 1                               | <.01                                |
| 12      | .06                        | 2                               | <.01                                | .91                        | 1                               | <.01                                | 1.3                        | 1                               | <.01                                |
| 13      | .08                        | 2                               | <.01                                | .10                        | 1                               | <.01                                | 1.3                        | 1                               | <.01                                |
| 14      | .13                        | 2                               | <.01                                | .00                        | 1                               | .00                                 | 1.2                        | 1                               | <.01                                |
| 15      | .08                        | 2                               | <.01                                | .00                        | 0                               | .00                                 | .89                        | 1                               | <.01                                |
| 16      | .46                        | 2                               | <.01                                | .00                        | 0                               | .00                                 | .83                        | 1                               | <.01                                |
| 17      | .55                        | 2                               | <.01                                | .00                        | 0                               | .00                                 | 1.2                        | 1                               | <.01                                |
| 18      | .55                        | 2                               | <.01                                | .00                        | 0                               | .00                                 | 1.2                        | 1                               | <.01                                |
| 19      | .57                        | 2                               | <.01                                | .00                        | 0                               | .00                                 | 1.8                        | 1                               | <.01                                |
| 20      | .63                        | 2                               | <.01                                | .00                        | 0                               | .00                                 | 1.2                        | 1                               | <.01                                |
| 21      | .66                        | 2                               | <.01                                | .00                        | 0                               | .00                                 | 1.1                        | 1                               | <.01                                |
| 22      | .66                        | 1                               | <.01                                | .00                        | 1                               | .00                                 | 1.1                        | 1                               | <.01                                |
| 23      | .66                        | 1                               | <.01                                | .00                        | 0                               | .00                                 | 1.1                        | 1                               | <.01                                |
| 24      | .66                        | 1                               | <.01                                | .00                        | 1                               | .00                                 | .97                        | 1                               | <.01                                |
| 25      | .66                        | 1                               | <.01                                | .02                        | 1                               | <.01                                | 1.1                        | 1                               | <.01                                |
| 26      | .65                        | 1                               | <.01                                | .04                        | 1                               | <.01                                | 1.8                        | 1                               | <.01                                |
| 27      | .60                        | 1                               | <.01                                | .23                        | 1                               | <.01                                | 1.2                        | 1                               | <.01                                |
| 28      | .72                        | 1                               | <.01                                | .04                        | 1                               | <.01                                | 1.1                        | 1                               | <.01                                |
| 29      | .81                        | 1                               | <.01                                | ---                        | ---                             | ---                                 | 1.2                        | 1                               | <.01                                |
| 30      | .85                        | 1                               | <.01                                | ---                        | ---                             | ---                                 | 1.3                        | 1                               | <.01                                |
| 31      | .70                        | 1                               | <.01                                | ---                        | ---                             | ---                                 | 1.8                        | 1                               | <.01                                |
| TOTAL   | 10.98                      | ---                             | 0.26                                | 6745.21                    | ---                             | 10135.20                            | 28.48                      | ---                             | 0.31                                |

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1     | 1.0                        | 1                               | <.01                                | 1.8                        | 6                               | .03                                 | 4.1                        | 2                               | .03                                 |
| 2     | 1.6                        | 1                               | <.01                                | 2.0                        | 6                               | .03                                 | 4.7                        | 3                               | .03                                 |
| 3     | 1.6                        | 1                               | <.01                                | 2.1                        | 6                               | .04                                 | 3.8                        | 3                               | .03                                 |
| 4     | 1.7                        | 2                               | .01                                 | 2.0                        | 6                               | .04                                 | 2.0                        | 3                               | .01                                 |
| 5     | 2.4                        | 3                               | .02                                 | 1.3                        | 7                               | .02                                 | 2.4                        | 3                               | .02                                 |
| 6     | 1.6                        | 5                               | .02                                 | 1.1                        | 7                               | .02                                 | 2.5                        | 3                               | .02                                 |
| 7     | 2.3                        | 9                               | .06                                 | 1.1                        | 6                               | .02                                 | 2.6                        | 3                               | .02                                 |
| 8     | 3.2                        | 13                              | .12                                 | 1.6                        | 6                               | .03                                 | 2.5                        | 3                               | .02                                 |
| 9     | 2.9                        | 13                              | .10                                 | 2.0                        | 5                               | .03                                 | 2.5                        | 3                               | .02                                 |
| 10    | 2.7                        | 13                              | .09                                 | 2.0                        | 5                               | .03                                 | 2.6                        | 3                               | .02                                 |
| 11    | 2.5                        | 12                              | .08                                 | 1.7                        | 5                               | .02                                 | 2.0                        | 3                               | .02                                 |
| 12    | 3.8                        | 12                              | .12                                 | 1.3                        | 4                               | .01                                 | 2.1                        | 3                               | .02                                 |
| 13    | 5.2                        | 11                              | .16                                 | 1.2                        | 4                               | .01                                 | 2.2                        | 3                               | .02                                 |
| 14    | 4.8                        | 11                              | .14                                 | 2.0                        | 4                               | .02                                 | 2.3                        | 3                               | .02                                 |
| 15    | 2.2                        | 10                              | .06                                 | 2.0                        | 3                               | .02                                 | 1.8                        | 3                               | .01                                 |
| 16    | 89                         | 17                              | 6.2                                 | 2.2                        | 3                               | .02                                 | 2.2                        | 3                               | .02                                 |
| 17    | 2.4                        | 9                               | .06                                 | 2.5                        | 3                               | .02                                 | 3.0                        | 3                               | .02                                 |
| 18    | 1.8                        | 8                               | .04                                 | 2.6                        | 3                               | .02                                 | 2.1                        | 3                               | .01                                 |
| 19    | 1.8                        | 7                               | .03                                 | 2.4                        | 2                               | .01                                 | 2.0                        | 3                               | .01                                 |
| 20    | 1.9                        | 6                               | .03                                 | .64                        | 2                               | <.01                                | 2.2                        | 3                               | .01                                 |
| 21    | 2.0                        | 5                               | .03                                 | .60                        | 2                               | <.01                                | 2.3                        | 3                               | .02                                 |
| 22    | 1.9                        | 5                               | .02                                 | .72                        | 2                               | <.01                                | 1.8                        | 3                               | .01                                 |
| 23    | 2.0                        | 4                               | .02                                 | .87                        | 2                               | <.01                                | 1.7                        | 2                               | .01                                 |
| 24    | 2.2                        | 4                               | .02                                 | .94                        | 2                               | <.01                                | 1.6                        | 2                               | .01                                 |
| 25    | 2.1                        | 4                               | .03                                 | .97                        | 2                               | .01                                 | 1.8                        | 2                               | .01                                 |
| 26    | 2.2                        | 5                               | .03                                 | 1.5                        | 2                               | .01                                 | 2.0                        | 2                               | .01                                 |
| 27    | 2.0                        | 5                               | .03                                 | 1.5                        | 2                               | .01                                 | 2.0                        | 2                               | .01                                 |
| 28    | 1.4                        | 5                               | .02                                 | 2.0                        | 2                               | .01                                 | 1.7                        | 2                               | .01                                 |
| 29    | 1.4                        | 5                               | .02                                 | 2.2                        | 2                               | .01                                 | 1.5                        | 2                               | .01                                 |
| 30    | 1.4                        | 5                               | .02                                 | 2.8                        | 2                               | .02                                 | 1.8                        | 2                               | .01                                 |
| 31    | ---                        | ---                             | ---                                 | 4.8                        | 2                               | .03                                 | ---                        | ---                             | ---                                 |
| TOTAL | 155.0                      | ---                             | 7.61                                | 54.44                      | ---                             | 0.59                                | 69.8                       | ---                             | 0.49                                |

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued  
 SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 1.6                        | 2                                    | .01                                 | 1.4                        | 6                                    | .02                                 | 2.8                        | 9                                    | .07                                 |
| 2     | 1.3                        | 2                                    | .01                                 | 1.3                        | 6                                    | .02                                 | 8.2                        | 10                                   | .40                                 |
| 3     | 1.7                        | 2                                    | .01                                 | 1.2                        | 6                                    | .02                                 | ---                        | 22                                   | 14                                  |
| 4     | 1.7                        | 2                                    | .01                                 | .96                        | 6                                    | .01                                 | 419                        | 17                                   | 32                                  |
| 5     | 1.6                        | 2                                    | .01                                 | .22                        | 6                                    | <.01                                | 133                        | 12                                   | 4.6                                 |
| 6     | 2.5                        | 2                                    | .01                                 | .01                        | 6                                    | <.01                                | .46                        | 10                                   | .08                                 |
| 7     | 1.8                        | 2                                    | .01                                 | 1.1                        | 6                                    | .02                                 | .42                        | 9                                    | .07                                 |
| 8     | 1.6                        | 2                                    | .01                                 | .68                        | 6                                    | .01                                 | 296                        | 10                                   | 117                                 |
| 9     | 1.6                        | 2                                    | .01                                 | .03                        | 6                                    | <.01                                | .70                        | 13                                   | .12                                 |
| 10    | 1.5                        | 2                                    | .01                                 | .00                        | 0                                    | .00                                 | .29                        | 12                                   | .08                                 |
| 11    | 1.5                        | 2                                    | .01                                 | .00                        | 0                                    | .00                                 | .37                        | 11                                   | .08                                 |
| 12    | 1.6                        | 2                                    | .01                                 | .00                        | 6                                    | .00                                 | .28                        | 10                                   | .07                                 |
| 13    | 1.8                        | 2                                    | .01                                 | .02                        | 6                                    | <.01                                | .28                        | 9                                    | .06                                 |
| 14    | 2.0                        | 2                                    | .01                                 | .00                        | 0                                    | .00                                 | .24                        | 9                                    | .05                                 |
| 15    | 2.5                        | 2                                    | .01                                 | .00                        | 0                                    | .00                                 | 47                         | 14                                   | 3.2                                 |
| 16    | 2.4                        | 2                                    | .01                                 | .00                        | 0                                    | .00                                 | 40                         | 19                                   | 2.4                                 |
| 17    | 2.8                        | 2                                    | .02                                 | .04                        | 6                                    | <.01                                | .05                        | 10                                   | .05                                 |
| 18    | 2.8                        | 3                                    | .02                                 | .01                        | 6                                    | <.01                                | .06                        | 6                                    | .03                                 |
| 19    | 2.4                        | 3                                    | .02                                 | .00                        | 6                                    | .00                                 | .04                        | 5                                    | .03                                 |
| 20    | 2.6                        | 3                                    | .02                                 | .00                        | 6                                    | .00                                 | 398                        | 9                                    | 35                                  |
| 21    | 2.3                        | 4                                    | .02                                 | .01                        | 6                                    | <.01                                | 3930                       | 106                                  | 8050                                |
| 22    | 2.3                        | 4                                    | .03                                 | .00                        | 6                                    | .00                                 | e75700                     | 2470                                 | e524000                             |
| 23    | 2.7                        | 4                                    | .03                                 | .00                        | 0                                    | .00                                 | e25300                     | 749                                  | e175000                             |
| 24    | 2.7                        | 5                                    | .04                                 | .25                        | 6                                    | <.01                                | e777                       | 41                                   | e362                                |
| 25    | 2.1                        | 6                                    | .03                                 | 2880                       | 51                                   | 606                                 | e646                       | 35                                   | e301                                |
| 26    | 1.4                        | 6                                    | .02                                 | 1100                       | 11                                   | 587                                 | e688                       | 29                                   | e320                                |
| 27    | 2.0                        | 7                                    | .04                                 | 642                        | 11                                   | 291                                 | e69                        | 15                                   | e6.2                                |
| 28    | 1.4                        | 7                                    | .03                                 | 330                        | 10                                   | 133                                 | e937                       | 29                                   | e491                                |
| 29    | 1.1                        | 7                                    | .02                                 | 141                        | 10                                   | 45                                  | e1160                      | 37                                   | e587                                |
| 30    | 1.3                        | 7                                    | .02                                 | 46                         | 10                                   | 10                                  | e729                       | 32                                   | e382                                |
| 31    | 1.4                        | 6                                    | .03                                 | 3.7                        | 10                                   | .10                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 60.0                       | ---                                  | 0.55                                | 5149.93                    | ---                                  | 1672.28                             | ---                        | ---                                  | 709708.59                           |

e Estimated

&lt; Actual value is known to be less than the value shown

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 03... | 1100 | 5.5                                                                   | 80                                                    | 1.2                                                                       | 50                                                                       |
| APR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 16... | 1843 | 370                                                                   | 24                                                    | 24                                                                        | 67                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 03... | 1146 | 123                                                                   | 26                                                    | 8.6                                                                       | 78                                                                       |
| 04... | 1931 | 1180                                                                  | 32                                                    | 102                                                                       | 73                                                                       |
| 20... | 2315 | 3840                                                                  | 54                                                    | 560                                                                       | 56                                                                       |
| 21... | 0644 | 3830                                                                  | 27                                                    | 279                                                                       | 81                                                                       |
| 23... | 1315 | 24800                                                                 | 704                                                   | 47200                                                                     | 99                                                                       |

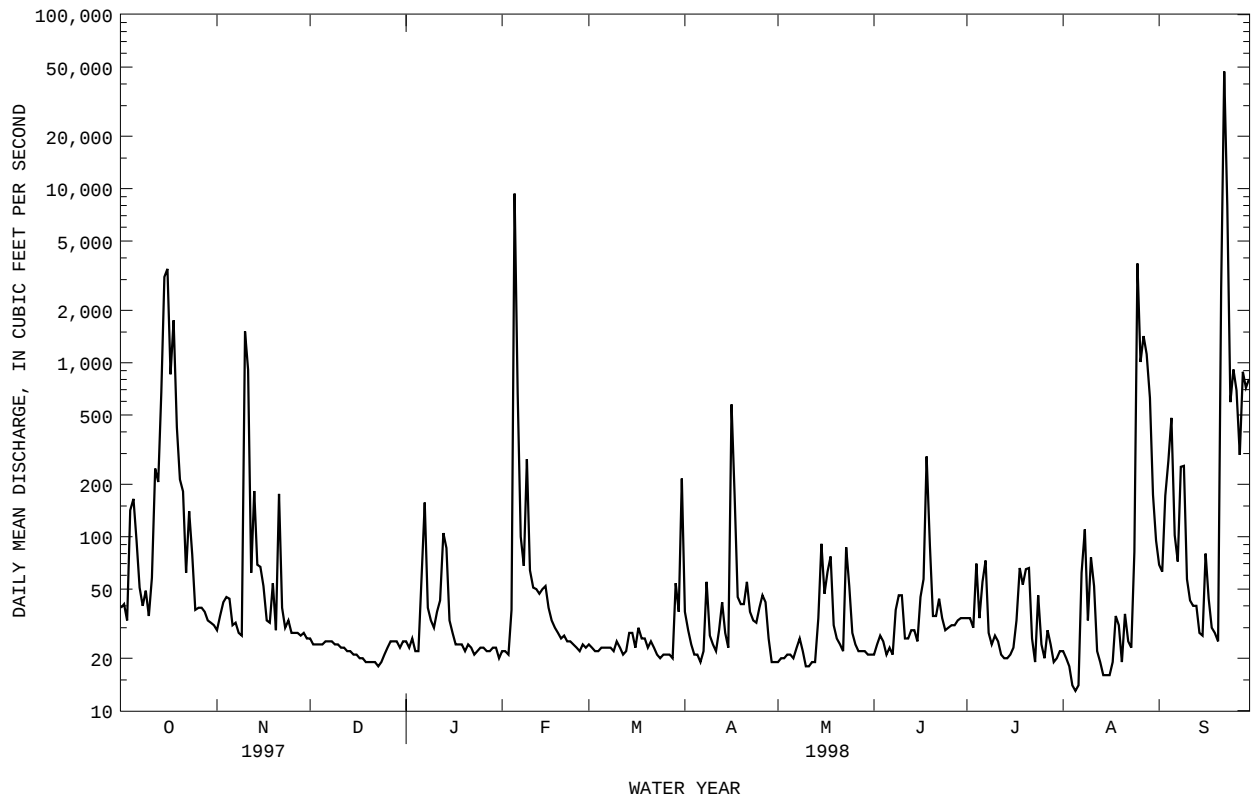


RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR--Continued

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR |        | FOR 1998 WATER YEAR |        | WATER YEARS 1960 - 1998 |             |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|-------------|
| ANNUAL TOTAL             | 37439                  |        | 108935              |        | 255                     |             |
| ANNUAL MEAN              | 103                    |        | 298                 |        | 824                     |             |
| HIGHEST ANNUAL MEAN      |                        |        |                     |        | 31.5                    |             |
| LOWEST ANNUAL MEAN       |                        |        |                     |        | 1971                    |             |
| HIGHEST DAILY MEAN       | 3460                   | Oct 16 | 47100               | Sep 22 | 68100                   | Sep 10 1996 |
| LOWEST DAILY MEAN        | 11                     | Sep 6  | 13                  | Aug 5  | 2.7                     | Apr 17 1984 |
| ANNUAL SEVEN-DAY MINIMUM | 12                     | Sep 5  | 18                  | Jul 31 | 2.9                     | Apr 15 1984 |
| INSTANTANEOUS PEAK FLOW  |                        |        | 104000              | Sep 22 | Not determined          | Sep 10 1996 |
| INSTANTANEOUS PEAK STAGE |                        |        | 26.14               | Sep 22 | 27.33                   | Sep 10 1996 |
| ANNUAL RUNOFF (AC-FT)    | 74260                  |        | 216100              |        | 185000                  |             |
| ANNUAL RUNOFF (CFSM)     | .51                    |        | 1.49                |        | 1.28                    |             |
| ANNUAL RUNOFF (INCHES)   | 6.97                   |        | 20.28               |        | 17.36                   |             |
| 10 PERCENT EXCEEDS       | 149                    |        | 192                 |        | 473                     |             |
| 50 PERCENT EXCEEDS       | 32                     |        | 29                  |        | 81                      |             |
| 90 PERCENT EXCEEDS       | 20                     |        | 20                  |        | 18                      |             |

e Estimated



## RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'41", Long 66°15'39", at Highway 2, 1.3 mi (2.1 km) downstream from Río Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi<sup>2</sup> (539 km<sup>2</sup>), exclude 8.2 mi<sup>2</sup> (21.2 km<sup>2</sup>) upstream from Lago Carite, flow from which is diverted to Río Guamaní.

PERIOD OF RECORD.--Water years 1958 to current year

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (MG/L) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|----------------------------------------------------------|------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| OCT 27... | 1340 | 37                                              | 467                                     | 7.6                                            | 29.5                               | 1.3                       | 5.4                               | 70                                                       | <10                                                  | K1500                                          | 860                                              |
| FEB 18... | 1135 | 31                                              | 514                                     | 7.7                                            | 27.0                               | 2.2                       | 10.6                              | 132                                                      | 11                                                   | 2100                                           | <10                                              |
| JUN 15... | 1500 | 25                                              | 501                                     | 7.7                                            | 31.5                               | .46                       | 7.0                               | 95                                                       | <10                                                  | K730                                           | K20                                              |
| SEP 03... | 1205 | 60                                              | 494                                     | 7.9                                            | 30.0                               | 3.8                       | 2.2                               | 29                                                       | 13                                                   | 2100                                           | 540                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 27... | 180                                     | 53                                      | 11                                          | 23                                      | .8                                | 3.2                                        | 170                                                 | <.5                               | 17                                       | 32                                         |
| FEB 18... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 190                                                 | --                                | --                                       | --                                         |
| JUN 15... | 180                                     | 56                                      | 11                                          | 26                                      | .8                                | 3.1                                        | 180                                                 | --                                | 17                                       | 40                                         |
| SEP 03... | 190                                     | 56                                      | 12                                          | 23                                      | .7                                | 3.9                                        | 190                                                 | <1.0                              | 16                                       | 34                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SiO2) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 27... | .11                                       | 19                                        | 260                                                     | 26.2                                      | 5                                                      | 1.14                                         | .062                                         | 1.20                                         | .070                                         | .49                                          |
| FEB 18... | --                                        | --                                        | --                                                      | --                                        | 2                                                      | .414                                         | .076                                         | .490                                         | .020                                         | .68                                          |
| JUN 15... | .15                                       | 16                                        | 276                                                     | 18.3                                      | 1                                                      | .592                                         | .028                                         | .620                                         | .060                                         | .69                                          |
| SEP 03... | .11                                       | 20                                        | 279                                                     | 45.0                                      | 8                                                      | .510                                         | .120                                         | .630                                         | .420                                         | .68                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N03) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 27... | .56                                                     | 1.8                                    | 7.8                                    | .100                                  | 1                                  | <100                                            | 60                                            | <1                                               | <1                                                 | <10                                             |
| FEB 18... | .70                                                     | 1.2                                    | 5.3                                    | .060                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 15... | .75                                                     | 1.4                                    | 6.1                                    | .080                                  | 1                                  | <100                                            | 40                                            | <1                                               | <1                                                 | 12                                              |
| SEP 03... | 1.1                                                     | 1.7                                    | 7.7                                    | .070                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

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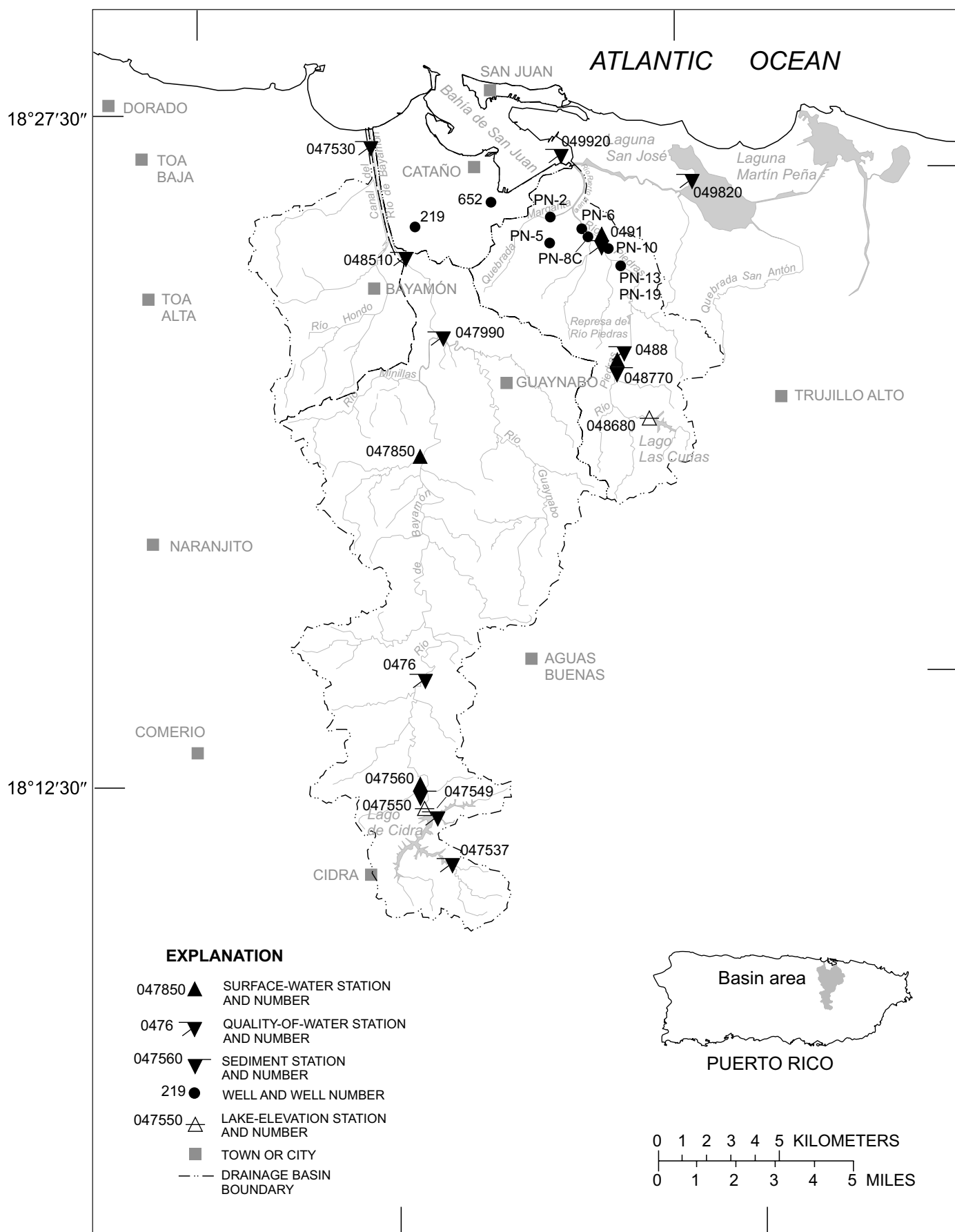


Figure 17. Río Hondo to Río Puerto Nuevo basins.

## RIO HONDO BASIN

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATANO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°26'13", Long 66°09'36", at Río Hondo Channel, 800 ft (245 m) below junction with Río Hondo, 0.9 mi (1.5 km) downstream from bridge on de Diego Expressway and 1.1 mi (1.8 km) above mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

|              |                                                               | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400)           | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010)                                  | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076)                            | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300)                   | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679)            |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| NOV<br>07... | 1000                                                          | 27000                                                        | 7.2                                                                            | 28.0                                                                             | 5.8                                                                | 3.7                                                              | 47                                                                        | 110                                                                        | 4600                                                                       | 390                                                                           |
| MAR<br>09... | 0845                                                          | 14100                                                        | 7.4                                                                            | 24.5                                                                             | 5.4                                                                | 3.0                                                              | 36                                                                        | 57                                                                         | K1700                                                                      | 820                                                                           |
| JUN<br>10... | 1215                                                          | 1530                                                         | 7.3                                                                            | 31.0                                                                             | 6.9                                                                | 3.1                                                              | 42                                                                        | <10                                                                        | 500000                                                                     | 14000                                                                         |
| SEP<br>15... | 1345                                                          | 441                                                          | 8.2                                                                            | 31.0                                                                             | 4.7                                                                | 6.0                                                              | 80                                                                        | <10                                                                        | E3000                                                                      | K11400                                                                        |
| DATE         | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CAC03)<br>(00900)    | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915)      | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925)                | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930)                          | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931)                 | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935)   | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CAC03<br>(00410)    | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745)                              | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS S04)<br>(00945)                   | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940)                |
| NOV<br>07... | 2800                                                          | 200                                                          | 570                                                                            | 4690                                                                             | 38                                                                 | 69                                                               | 160                                                                       | <.5                                                                        | 1200                                                                       | 9200                                                                          |
| MAR<br>09... | --                                                            | --                                                           | --                                                                             | --                                                                               | --                                                                 | --                                                               | 110                                                                       | --                                                                         | --                                                                         | --                                                                            |
| JUN<br>10... | 97                                                            | 27                                                           | 7.3                                                                            | 13                                                                               | .6                                                                 | 3.1                                                              | 90                                                                        | --                                                                         | 17                                                                         | 14                                                                            |
| SEP<br>15... | 130                                                           | 31                                                           | 12                                                                             | 27                                                                               | 1                                                                  | 3.2                                                              | 150                                                                       | <1.0                                                                       | 16                                                                         | 27                                                                            |
| DATE         | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955) | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>D<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620)    | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615)  | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630)           | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610)            | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605)            | NITRO-<br>GEN,AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) |
| NOV<br>07... | .45                                                           | 5.6                                                          | 16100                                                                          | 89                                                                               | .068                                                               | .042                                                             | .110                                                                      | 1.10                                                                       | .50                                                                        | 1.6                                                                           |
| MAR<br>09... | --                                                            | --                                                           | --                                                                             | 14                                                                               | .436                                                               | .064                                                             | .500                                                                      | .660                                                                       | .30                                                                        | .96                                                                           |
| JUN<br>10... | .10                                                           | 19                                                           | 156                                                                            | 7                                                                                | .223                                                               | .047                                                             | .270                                                                      | .390                                                                       | .91                                                                        | 1.3                                                                           |
| SEP<br>15... | .10                                                           | 26                                                           | 232                                                                            | 4                                                                                | --                                                                 | .014                                                             | <.020                                                                     | .060                                                                       | .78                                                                        | .84                                                                           |
| DATE         | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600)          | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887)       | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665)                          | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002)                                   | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027)        | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034)  | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042)         | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045)              |
| NOV<br>07... | 1.7                                                           | 7.6                                                          | .230                                                                           | 2                                                                                | <100                                                               | 1900                                                             | <5                                                                        | 2                                                                          | 33                                                                         | 610                                                                           |
| MAR<br>09... | 1.5                                                           | 6.5                                                          | .110                                                                           | --                                                                               | --                                                                 | --                                                               | --                                                                        | --                                                                         | --                                                                         | --                                                                            |
| JUN<br>10... | 1.6                                                           | 6.9                                                          | .260                                                                           | <1                                                                               | <100                                                               | 860                                                              | <5                                                                        | <1                                                                         | 20                                                                         | 440                                                                           |
| SEP<br>15... | --                                                            | --                                                           | .090                                                                           | --                                                                               | --                                                                 | --                                                               | --                                                                        | --                                                                         | --                                                                         | --                                                                            |



## RIO DE BAYAMON BASIN

50047535 RIO DE BAYAMON AT ARENAS, PR

LOCATION.--Lat 18°10'11", long 66°07'18", Hydrologic Unit 21010005, at left bank, 2.61 mi (4.20 km) southeast of plaza de Cidra, 0.56 mi (0.90 km) southwest from Escuela Segunda Unidad de Bayamón, and 2.70 mi (4.34 km) northeast from Central Cayey.

DRAINAGE AREA.--0.45 mi<sup>2</sup> (1.16 km<sup>2</sup>).

PERIOD OF RECORD.--July 1992 to September 1993, October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,378 ft (420 m), from topographic map.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN   | FEB   | MAR   | APR  | MAY  | JUN  | JUL  | AUG   | SEP    |
|-------|-------|------|------|-------|-------|-------|------|------|------|------|-------|--------|
| 1     | .08   | .10  | .08  | .03   | e.05  | .10   | .76  | .05  | .11  | .04  | .03   | .09    |
| 2     | .14   | .09  | .09  | .05   | e.05  | .09   | .58  | .05  | .09  | .04  | .19   | .77    |
| 3     | .10   | .09  | .08  | .05   | e.04  | .10   | .36  | .09  | .09  | .05  | .04   | .49    |
| 4     | .09   | .09  | .08  | .07   | e.55  | .09   | .28  | .09  | .09  | .22  | .03   | 4.4    |
| 5     | .08   | .09  | .07  | .08   | e49   | .09   | .24  | .06  | .09  | .06  | .02   | .41    |
| 6     | .08   | .10  | .07  | 1.8   | e1.4  | .10   | .14  | .05  | .07  | .04  | .09   | .22    |
| 7     | .15   | .09  | .06  | 2.3   | e.61  | .25   | .16  | .05  | .06  | .04  | .10   | .16    |
| 8     | .11   | .09  | .06  | .81   | e7.0  | .18   | .16  | 1.6  | .05  | .04  | .15   | .19    |
| 9     | .12   | .09  | .05  | .44   | e2.3  | .08   | .11  | .32  | .06  | .04  | .16   | .23    |
| 10    | .16   | 4.1  | .05  | .33   | e.64  | .09   | .11  | .14  | .06  | .03  | .05   | .23    |
| 11    | .12   | .57  | .04  | .21   | .51   | .11   | .15  | .08  | .05  | .03  | .05   | .11    |
| 12    | .10   | .23  | .05  | 1.1   | .46   | .12   | .29  | .06  | .28  | .03  | .05   | .08    |
| 13    | 10    | .16  | .04  | 2.8   | .37   | .14   | .22  | .06  | .18  | .03  | .04   | .12    |
| 14    | 25    | .12  | .05  | 1.3   | .56   | .27   | .12  | .07  | .07  | .03  | .03   | .13    |
| 15    | 4.0   | .10  | .04  | .35   | .52   | .23   | .11  | .08  | .06  | .04  | .02   | 2.0    |
| 16    | 1.7   | .12  | .04  | .21   | .36   | .17   | .11  | .08  | .07  | .04  | .02   | .37    |
| 17    | 8.0   | .11  | .04  | .16   | .43   | .14   | .82  | .07  | .31  | .04  | .03   | .12    |
| 18    | 1.7   | .10  | .04  | .05   | .31   | .10   | .24  | .06  | .21  | .07  | .07   | .08    |
| 19    | .43   | .11  | .04  | .04   | .20   | .09   | .20  | .17  | .08  | .07  | .04   | .09    |
| 20    | .19   | .09  | .04  | .03   | .18   | 1.9   | .28  | .06  | .05  | 1.1  | .03   | .11    |
| 21    | .14   | .36  | .05  | .03   | .17   | .90   | .11  | .06  | .10  | .29  | .23   | 81     |
| 22    | .12   | .63  | .04  | .03   | .14   | .64   | .09  | .06  | .31  | .07  | 4.1   | 97     |
| 23    | .10   | .58  | .03  | .04   | .15   | .33   | .07  | .05  | .09  | .04  | .50   | 4.0    |
| 24    | .11   | .54  | .03  | e.04  | .11   | .21   | .07  | .06  | .08  | .05  | 18    | .79    |
| 25    | .13   | .22  | .03  | e.04  | .09   | .25   | .09  | .05  | .07  | .03  | 10    | .43    |
| 26    | .11   | .14  | .03  | e.04  | .13   | .16   | .14  | .57  | .06  | .02  | 1.8   | .37    |
| 27    | .10   | .11  | .03  | e.04  | .13   | .56   | .19  | 1.3  | .06  | .10  | .56   | .33    |
| 28    | .10   | .09  | .03  | e.04  | .13   | .43   | .17  | .53  | .06  | .09  | .38   | .22    |
| 29    | .10   | .08  | .03  | e.04  | ---   | 7.7   | .08  | .29  | .06  | .04  | .24   | .18    |
| 30    | .10   | .08  | .04  | e.04  | ---   | 3.6   | .06  | .29  | .05  | .03  | .14   | .16    |
| 31    | .10   | ---  | .03  | e.04  | ---   | 1.0   | ---  | .18  | ---  | .02  | .11   | ---    |
| TOTAL | 53.56 | 9.47 | 1.48 | 12.63 | 66.59 | 20.22 | 6.51 | 6.73 | 3.07 | 2.86 | 37.30 | 194.88 |
| MEAN  | 1.73  | .32  | .048 | .41   | 2.38  | .65   | .22  | .22  | .10  | .092 | 1.20  | 6.50   |
| MAX   | 25    | 4.1  | .09  | 2.8   | .49   | 7.7   | .82  | 1.6  | .31  | 1.1  | .18   | .97    |
| MIN   | .08   | .08  | .03  | .03   | .04   | .08   | .06  | .05  | .05  | .02  | .02   | .08    |
| AC-FT | 106   | .19  | 2.9  | 25    | 132   | .40   | .13  | .13  | 6.1  | 5.7  | .74   | 387    |
| CFSM  | 3.84  | .70  | .11  | .91   | 5.28  | 1.45  | .48  | .48  | .23  | .21  | 2.67  | 14.4   |
| IN.   | 4.43  | .78  | .12  | 1.04  | 5.50  | 1.67  | .54  | .56  | .25  | .24  | 3.08  | 16.11  |

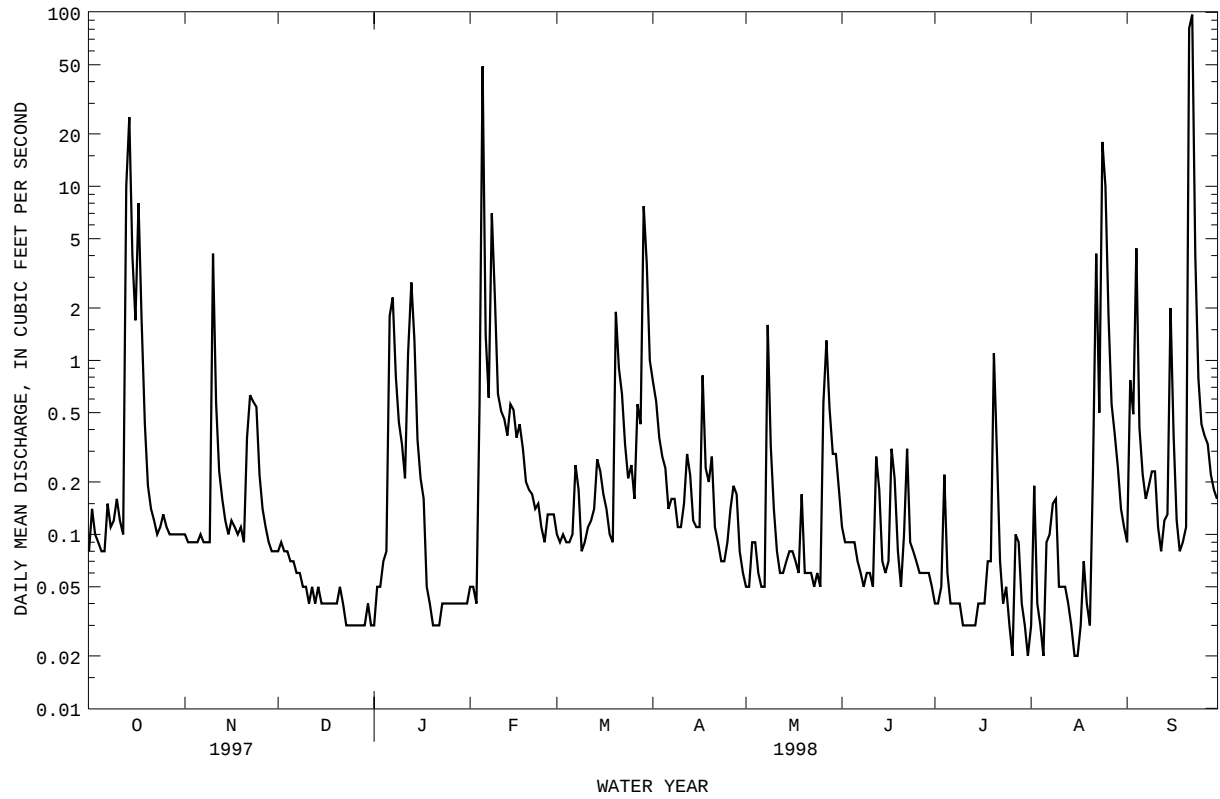
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

|      | MEAN | .67  | .66  | .29  | .55  | .81  | .27  | .22  | .62  | .75  | 1.00 | 1.01 | 3.06 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 1.73 | 1.30 | .63  | .63  | 2.38 | .65  | .45  | 2.02 | 1.79 | 2.12 | 1.87 | 6.50 |      |
| (WY) | 1998 | 1993 | 1993 | 1996 | 1998 | 1998 | 1993 | 1993 | 1996 | 1993 | 1996 | 1998 |      |
| MIN  | .30  | .32  | .048 | .41  | .16  | .097 | .095 | .10  | .10  | .092 | .46  | .20  |      |
| (WY) | 1997 | 1998 | 1998 | 1998 | 1993 | 1993 | 1997 | 1997 | 1998 | 1998 | 1992 | 1997 |      |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1992 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 147.05                 | 415.30              |                         |
| ANNUAL MEAN              | .40                    | 1.14                | .86                     |
| HIGHEST ANNUAL MEAN      |                        |                     | 1.16                    |
| LOWEST ANNUAL MEAN       |                        |                     | .31                     |
| HIGHEST DAILY MEAN       | 25                     | 97                  | 141                     |
| LOWEST DAILY MEAN        | .02                    | .02                 | .02                     |
| ANNUAL SEVEN-DAY MINIMUM | .03                    | .03                 | .03                     |
| INSTANTANEOUS PEAK FLOW  |                        | 1150                | 1150                    |
| INSTANTANEOUS PEAK STAGE |                        | 7.89                | 7.89                    |
| INSTANTANEOUS LOW FLOW   |                        | .02                 | .02                     |
| ANNUAL RUNOFF (AC-FT)    | 292                    | 824                 | 626                     |
| ANNUAL RUNOFF (CFSM)     | .90                    | 2.53                | 1.92                    |
| ANNUAL RUNOFF (INCHES)   | 12.16                  | 34.33               | 26.11                   |
| 10 PERCENT EXCEEDS       | .51                    | .78                 | 1.0                     |
| 50 PERCENT EXCEEDS       | .11                    | .10                 | .16                     |
| 90 PERCENT EXCEEDS       | .04                    | .04                 | .06                     |

e Estimated

RIO DE BAYAMON BASIN  
50047535 RIO DE BAYAMON AT ARENAS, PR--Continued



## RIO DE BAYAMON BASIN

50047540 RIO SABANA AT VISTA MONTE, PR

LOCATION.--Lat 18°10'28", long 66°08'38", Hydrologic Unit 21010005, at left bank, 1.2 mi (1.9 km) southeast of Plaza de Cidra, 1.2 mi (1.9 km) southwest from Escuela Segunda Unidad de Bayamón, and 0.4 mi (0.6 km) upstream from Lago de Cidra.

DRAINAGE AREA.--0.80 mi<sup>2</sup> (2.07 km<sup>2</sup>).

PERIOD OF RECORD.--August 1992 to September 1993, October 1995 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,345 ft (410 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC  | JAN   | FEB   | MAR   | APR   | MAY   | JUN  | JUL   | AUG   | SEP    |
|-------|--------|-------|------|-------|-------|-------|-------|-------|------|-------|-------|--------|
| 1     | .18    | .50   | .31  | e.30  | .28   | .34   | .70   | .31   | .29  | .18   | .21   | .49    |
| 2     | .20    | .50   | .31  | e.31  | .27   | .34   | .55   | .30   | .28  | .18   | .23   | 2.5    |
| 3     | .17    | .56   | .31  | e.30  | .24   | .36   | .44   | .42   | .27  | .18   | .21   | 2.0    |
| 4     | .16    | .49   | .29  | e.31  | 1.1   | .37   | .40   | .36   | .28  | .32   | .22   | 4.3    |
| 5     | .16    | .61   | .32  | e.32  | 67    | .36   | .39   | .32   | .28  | .20   | .22   | 1.2    |
| 6     | .16    | .47   | .29  | e.62  | 2.6   | .34   | .38   | .31   | .25  | .18   | .36   | .86    |
| 7     | .45    | .46   | .29  | e1.0  | 1.3   | .43   | 3.1   | .32   | .25  | .18   | .38   | .75    |
| 8     | .25    | .46   | .29  | e.39  | 9.8   | .37   | .61   | 2.4   | .24  | .16   | .33   | .76    |
| 9     | .19    | .61   | .28  | e.32  | 3.3   | .29   | .41   | 1.1   | .30  | .15   | .38   | .62    |
| 10    | .19    | 10    | .29  | e.31  | 1.3   | .31   | .37   | .62   | .24  | .14   | .28   | .60    |
| 11    | .30    | .87   | .29  | e.30  | .93   | .34   | .55   | .54   | .23  | .12   | .26   | .50    |
| 12    | .22    | .65   | .30  | e.30  | .77   | .36   | .67   | .47   | .64  | .10   | .34   | .45    |
| 13    | 13     | .56   | .32  | e.45  | .68   | .36   | .50   | .56   | .43  | .09   | .25   | .43    |
| 14    | 54     | .51   | .32  | e.44  | .87   | .43   | .45   | .61   | .29  | .09   | .24   | .41    |
| 15    | 11     | .47   | .32  | e.33  | .75   | .35   | .45   | .48   | .26  | .25   | .41   | .88    |
| 16    | 4.5    | .46   | .33  | e.30  | .67   | .34   | .59   | .43   | .26  | .17   | .24   | .45    |
| 17    | 37     | .46   | .36  | .29   | .71   | .30   | .82   | .41   | .36  | .16   | .31   | .41    |
| 18    | 6.5    | .48   | .32  | .27   | .60   | .34   | .64   | .53   | .28  | 1.2   | .85   | .40    |
| 19    | 2.2    | .45   | .31  | .26   | .56   | .29   | .58   | .46   | .28  | .24   | .35   | .41    |
| 20    | 1.5    | .46   | .33  | .26   | .53   | 2.0   | .52   | .42   | .25  | 5.5   | .47   | .48    |
| 21    | 1.1    | .54   | .36  | .26   | .52   | .59   | .42   | .38   | .47  | .84   | 1.7   | 138    |
| 22    | .94    | .86   | .34  | .26   | .48   | .43   | .41   | .37   | .43  | .37   | 9.7   | 219    |
| 23    | .83    | .97   | e.31 | .26   | .47   | .36   | .39   | .43   | .27  | .76   | 1.3   | 20     |
| 24    | .70    | .96   | e.31 | .26   | .48   | .35   | .35   | .37   | .25  | .53   | 23    | 5.4    |
| 25    | .66    | .50   | e.30 | .29   | .44   | .38   | .34   | .38   | .23  | .27   | 17    | 3.2    |
| 26    | .62    | .47   | e.30 | .26   | .42   | .32   | .49   | 1.2   | .23  | .23   | 6.5   | 3.4    |
| 27    | .55    | .39   | e.30 | .24   | .34   | .55   | .42   | 1.6   | .22  | .96   | 2.4   | 5.2    |
| 28    | .53    | .35   | e.30 | .24   | .49   | .35   | .38   | .47   | .22  | .82   | 1.9   | 3.1    |
| 29    | .51    | .33   | e.30 | .24   | ---   | 3.9   | .33   | .53   | .22  | .29   | 1.1   | 2.1    |
| 30    | .49    | .33   | e.30 | .22   | ---   | 14    | .32   | .38   | .20  | .25   | .76   | 1.7    |
| 31    | .49    | ---   | e.30 | .24   | ---   | 1.6   | ---   | .32   | ---  | .22   | .54   | ---    |
| TOTAL | 139.75 | 25.73 | 9.60 | 10.15 | 97.90 | 31.45 | 16.97 | 17.80 | 8.70 | 15.33 | 72.44 | 420.00 |
| MEAN  | 4.51   | .86   | .31  | .33   | 3.50  | 1.01  | .57   | .57   | .29  | .49   | 2.34  | 14.0   |
| MAX   | 54     | 10    | .36  | 1.0   | 67    | 14    | 3.1   | 2.4   | .64  | 5.5   | 23    | 219    |
| MIN   | .16    | .33   | .28  | .22   | .24   | .29   | .32   | .30   | .20  | .09   | .21   | .40    |
| AC-FT | 277    | 51    | 19   | 20    | 194   | 62    | 34    | 35    | 17   | 30    | 144   | 833    |
| CFSM  | 5.64   | 1.07  | .39  | .41   | 4.37  | 1.27  | .71   | .72   | .36  | .62   | 2.92  | 17.5   |
| IN.   | 6.50   | 1.20  | .45  | .47   | 4.55  | 1.46  | .79   | .83   | .40  | .71   | 3.37  | 19.53  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

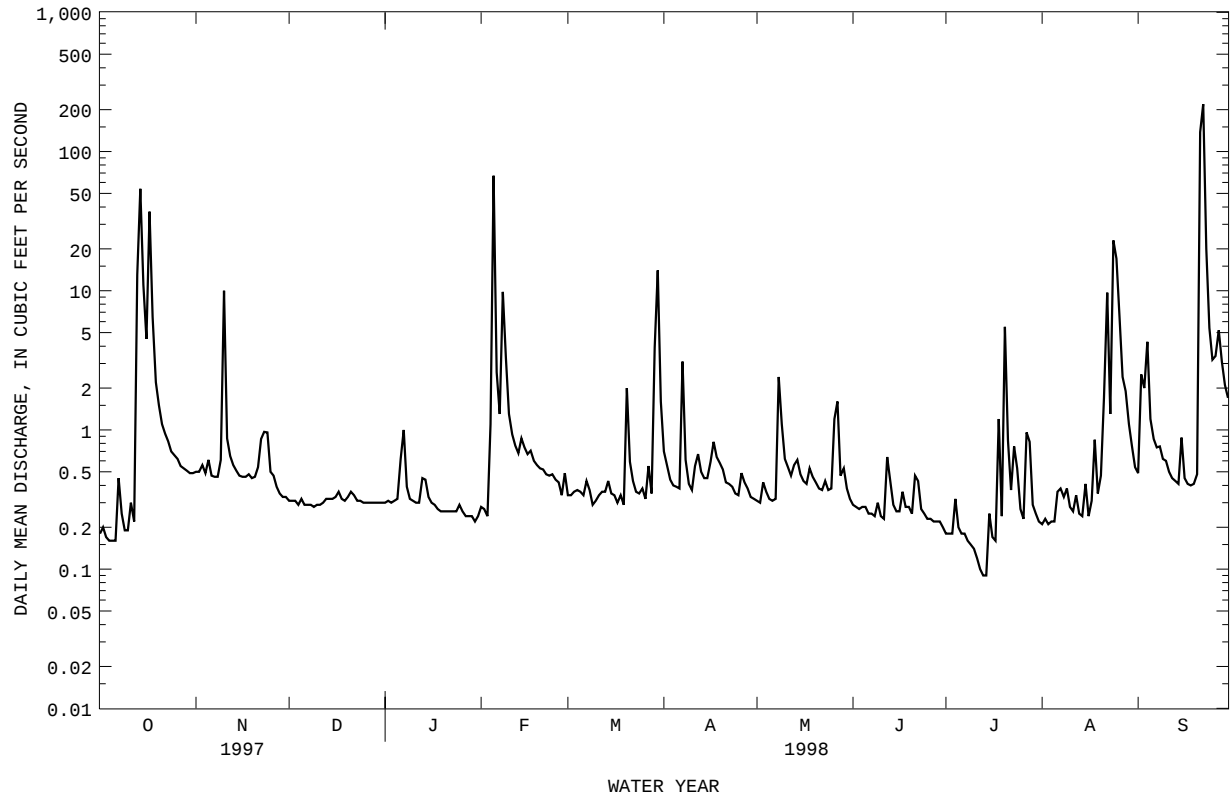
|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 1.72 | 1.13 | .69  | .73  | 1.38 | .56  | .66  | .93  | .66  | 1.49 | 1.47 | 6.63 |
| MAX  | 4.51 | 1.56 | 1.11 | 1.01 | 3.50 | 1.01 | 1.23 | 2.26 | 1.21 | 3.02 | 2.34 | 16.7 |
| (WY) | 1998 | 1993 | 1993 | 1997 | 1998 | 1998 | 1993 | 1993 | 1996 | 1993 | 1998 | 1996 |
| MIN  | .76  | .86  | .31  | .33  | .33  | .15  | .37  | .42  | .25  | .29  | .48  | .25  |
| (WY) | 1997 | 1998 | 1998 | 1998 | 1993 | 1993 | 1996 | 1997 | 1997 | 1997 | 1997 | 1997 |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1992 - 1998

|                          | ANNUAL TOTAL | 322.70 | 865.82 |        |
|--------------------------|--------------|--------|--------|--------|
| ANNUAL MEAN              | .88          |        | 2.37   | 1.61   |
| HIGHEST ANNUAL MEAN      |              |        |        | 2.37   |
| LOWEST ANNUAL MEAN       |              |        |        | .63    |
| HIGHEST DAILY MEAN       | 54           | Oct 14 | 219    | Sep 22 |
| LOWEST DAILY MEAN        | .16          | Oct 4  | .09    | Jul 13 |
| ANNUAL SEVEN-DAY MINIMUM | .17          | Sep 30 | .12    | Jul 8  |
| INSTANTANEOUS PEAK FLOW  |              |        | 2060   | Sep 21 |
| INSTANTANEOUS PEAK STAGE |              |        | 11.24  | Sep 21 |
| INSTANTANEOUS LOW FLOW   |              |        | .08    | Jul 14 |
| ANNUAL RUNOFF (AC-FT)    | 640          |        | 1720   |        |
| ANNUAL RUNOFF (CFSM)     | 1.11         |        | 2.97   | 2.01   |
| ANNUAL RUNOFF (INCHES)   | 15.01        |        | 40.26  | 27.29  |
| 10 PERCENT EXCEEDS       | 1.0          |        | 1.8    | 1.4    |
| 50 PERCENT EXCEEDS       | .43          |        | .38    | .47    |
| 90 PERCENT EXCEEDS       | .19          |        | .23    | .20    |

e Estimated

RIO DE BAYAMON BASIN  
50047540 RIO SABANA AT VISTA MONTE, PR--Continued



## RIO DE BAYAMON BASIN

50047550 LAGO CIDRA AT DAMSITE NEAR CIDRA, PR

LOCATION.--Lat 18°11'57", long 66°08'29", Hydrologic Unit 21010005, at Lago de Cidra Dam on Río de Bayamón, 1.9 mi (3.0 km) northeast of Plaza de Cidra and 1.8 mi (2.9 km) northwest of Escuela Segunda Unidad de Bayamón.

DRAINAGE AREA.--8.26 mi<sup>2</sup> (21.39 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago de Cidra was completed in 1946. The maximum storage is 5,300 ac-ft (6.53 hm<sup>3</sup>) and provides supplemental water to metropolitan San Juan. The dam is a concrete gravity and earthfill structure approximately 541 ft (165 m) long between abutments with a maximum structural height of about 78.7 ft (24.0 m). The spillway portion of the dam, length 131 ft (40 m) and crest elevation 1,322 ft (403 m), is an ungated ogee crest located 131 ft (40 m) from the right abutment. This dam is owned by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,328.09 ft (404.80 m), Sep. 10, 1996; minimum elevation 1,295.86 ft (394.98 m), April 22, 1995.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,325.07 ft (403.88 m), Sep. 22; minimum elevation, 1,304.37 ft (397.57 m), Aug. 20, 21.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1,295              | 860                    | 1,319              | 4,400                  |
| 1,305              | 1,970                  | 1,322              | 5,200                  |
| 1,309              | 2,610                  | 1,328              | 6,920                  |
| 1,312              | 3,100                  |                    |                        |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     | JUN     | JUL     | AUG     | SEP     |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1   | 1313.57 | 1320.53 | 1318.23 | 1313.50 | 1312.50 | 1316.66 | 1317.01 | 1315.86 | 1312.62 | 1306.88 | 1306.95 | 1309.12 |
| 2   | 1313.62 | 1320.45 | 1318.13 | 1313.37 | 1312.30 | 1316.56 | 1317.01 | 1315.72 | 1312.45 | 1306.75 | 1306.87 | 1309.26 |
| 3   | 1313.64 | 1320.39 | 1318.01 | A       | 1312.10 | 1316.48 | 1317.01 | 1315.61 | 1312.29 | 1306.71 | 1306.80 | 1309.13 |
| 4   | 1313.64 | A       | 1317.91 | 1313.15 | 1312.23 | 1316.44 | 1317.01 | 1315.44 | 1312.00 | 1306.73 | 1306.68 | 1309.28 |
| 5   | 1313.65 | A       | 1317.77 | 1313.01 | 1316.89 | 1316.47 | 1317.02 | 1315.31 | 1311.75 | 1306.71 | 1306.51 | 1309.06 |
| 6   | 1313.61 | A       | 1317.61 | A       | 1316.86 | 1316.38 | 1317.00 | 1315.19 | 1311.51 | 1306.71 | A       | 1308.85 |
| 7   | 1313.64 | 1320.08 | 1317.44 | 1313.88 | 1316.72 | 1316.39 | 1317.31 | 1315.11 | 1311.16 | 1306.61 | 1306.42 | 1308.64 |
| 8   | 1313.67 | 1319.98 | 1317.28 | 1313.91 | 1317.58 | 1316.33 | 1317.30 | 1315.33 | 1310.91 | 1306.60 | 1306.30 | 1308.60 |
| 9   | 1313.69 | 1319.90 | 1317.16 | 1313.96 | 1317.52 | 1316.27 | 1317.27 | 1315.29 | 1310.49 | 1306.60 | 1306.18 | 1308.58 |
| 10  | 1313.71 | 1320.46 | 1316.92 | 1313.92 | 1317.47 | 1316.17 | 1317.22 | 1315.19 | 1310.28 | 1306.48 | 1306.03 | 1308.47 |
| 11  | 1313.82 | A       | 1316.78 | 1313.90 | 1317.56 | 1316.02 | 1317.24 | 1315.08 | 1309.98 | 1306.35 | 1305.93 | 1308.33 |
| 12  | 1313.80 | A       | 1316.62 | 1313.93 | 1317.52 | 1315.95 | 1317.24 | 1315.00 | 1309.79 | 1306.20 | 1305.84 | 1308.17 |
| 13  | 1315.58 | A       | 1316.45 | 1314.01 | 1317.46 | 1315.90 | 1317.20 | 1314.89 | 1309.50 | 1306.11 | 1305.64 | 1308.05 |
| 14  | 1319.51 | A       | 1316.27 | 1313.90 | 1317.56 | 1315.84 | 1317.16 | A       | 1309.19 | 1305.90 | 1305.42 | 1307.95 |
| 15  | 1319.92 | A       | 1316.08 | 1313.78 | 1317.44 | 1315.76 | 1317.11 | A       | 1308.88 | 1305.74 | 1305.22 | 1308.12 |
| 16  | 1319.99 | A       | 1315.90 | 1313.67 | 1317.37 | 1315.67 | 1317.11 | A       | 1308.64 | 1305.66 | 1305.01 | 1307.99 |
| 17  | 1321.57 | A       | 1315.77 | 1313.55 | 1317.32 | 1315.57 | 1317.10 | A       | 1308.48 | 1305.63 | 1304.83 | 1307.80 |
| 18  | 1321.61 | A       | 1315.63 | 1313.43 | 1317.24 | 1315.45 | 1317.06 | 1314.51 | A       | 1305.82 | 1304.70 | 1307.56 |
| 19  | 1321.56 | 1319.57 | 1315.49 | 1313.31 | 1317.20 | 1315.34 | 1316.99 | A       | 1308.13 | 1305.76 | 1304.52 | 1307.31 |
| 20  | 1321.46 | 1319.46 | 1315.35 | 1313.28 | 1317.16 | 1315.72 | 1316.91 | 1314.31 | 1307.94 | 1306.59 | 1304.37 | 1306.97 |
| 21  | 1321.38 | 1319.36 | 1315.23 | 1313.26 | 1317.13 | 1315.71 | 1316.81 | 1314.19 | 1307.76 | 1306.60 | 1304.52 | 1319.66 |
| 22  | 1321.31 | 1319.28 | 1315.07 | 1313.23 | 1317.09 | 1315.66 | 1316.69 | 1314.08 | 1307.56 | 1306.64 | 1305.66 | 1323.43 |
| 23  | 1321.20 | 1319.15 | 1314.91 | 1313.20 | 1317.05 | 1315.61 | 1316.60 | 1313.98 | 1307.44 | 1306.68 | 1305.64 | 1322.65 |
| 24  | 1321.12 | 1319.08 | 1314.75 | 1313.16 | 1316.96 | 1315.53 | 1316.51 | 1313.89 | 1307.48 | 1306.71 | 1308.30 | 1322.52 |
| 25  | 1321.04 | 1318.99 | 1314.59 | 1313.15 | 1316.89 | 1315.47 | 1316.35 | 1313.65 | 1307.31 | 1306.74 | 1309.51 | 1322.49 |
| 26  | 1320.96 | 1318.90 | 1314.43 | 1313.12 | 1316.86 | 1315.40 | 1316.37 | 1313.60 | 1307.37 | 1306.76 | 1309.81 | 1322.54 |
| 27  | 1320.87 | 1318.76 | 1314.29 | 1313.05 | 1316.79 | 1315.39 | 1316.28 | 1313.53 | 1307.27 | 1306.95 | 1309.76 | 1322.47 |
| 28  | 1320.80 | 1318.63 | 1314.13 | 1312.98 | 1316.74 | 1315.33 | 1316.21 | 1313.33 | 1307.12 | 1307.03 | 1309.78 | 1322.37 |
| 29  | 1320.73 | 1318.49 | 1314.00 | 1312.89 | ---     | 1315.86 | 1316.12 | 1313.14 | 1307.05 | 1307.03 | 1309.67 | 1322.26 |
| 30  | 1320.66 | 1318.35 | 1313.80 | 1312.86 | ---     | 1316.92 | 1316.00 | 1312.94 | 1306.88 | 1307.03 | 1309.58 | 1322.07 |
| 31  | 1320.59 | ---     | 1313.65 | 1312.72 | ---     | 1316.99 | ---     | 1312.78 | ---     | 1307.00 | 1309.39 | ---     |
| MAX | 1321.61 | ---     | 1318.23 | ---     | 1317.58 | 1316.99 | 1317.31 | ---     | ---     | 1307.03 | ---     | 1323.43 |
| MIN | 1313.57 | ---     | 1313.65 | ---     | 1312.10 | 1315.33 | 1316.00 | ---     | ---     | 1305.63 | ---     | 1306.97 |

A No gage-height record

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR

LOCATION.--Lat 18°12'04", long 66°08'26", Hydrologic Unit 21010005, 0.2 mi (0.3 km) downstream of Lago Cidra Dam on right bank, 2.1 mi (3.4 km) northwest of Plaza de Cidra.

DRAINAGE AREA.--8.31 mi<sup>2</sup> (21.5 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,279 ft (390 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL   | AUG   | SEP   |
|-------|-------|-------|------|------|------|------|------|------|------|-------|-------|-------|
| 1     | 7.6   | 9.6   | 15   | 17   | e32  | 25   | 18   | e25  | 24   | 11    | 10    | 30    |
| 2     | 8.0   | 10    | 14   | 18   | e28  | 25   | 19   | 27   | 23   | 11    | 9.4   | 32    |
| 3     | 8.2   | 10    | 14   | 18   | e24  | 25   | e17  | 27   | 23   | 11    | 10    | 25    |
| 4     | 8.7   | 10    | 15   | 18   | e20  | 26   | e16  | 25   | 27   | 10    | 14    | 22    |
| 5     | 8.3   | 10    | 18   | 17   | e15  | 25   | 16   | 23   | 32   | 9.9   | 17    | 21    |
| 6     | 8.1   | 11    | 20   | 18   | e16  | 26   | e17  | 23   | 32   | e9.8  | e17   | 20    |
| 7     | 8.3   | 11    | 21   | 16   | e20  | 28   | 16   | 21   | 30   | 10    | 17    | 20    |
| 8     | 8.2   | 14    | 20   | 13   | e27  | 30   | 14   | 21   | 31   | 11    | 17    | 19    |
| 9     | 8.0   | 17    | 15   | 13   | e13  | 29   | e13  | 19   | 26   | 10    | 16    | 18    |
| 10    | 8.2   | 17    | 16   | 12   | e15  | 29   | e13  | 20   | 24   | 10    | 13    | 23    |
| 11    | 8.1   | 15    | 17   | 13   | e14  | 29   | e17  | 21   | 24   | 10    | 13    | 26    |
| 12    | 7.9   | 17    | 19   | 19   | e20  | 23   | e14  | 21   | 25   | 11    | 14    | 25    |
| 13    | 11    | 17    | 21   | 25   | e24  | 23   | e13  | 19   | 24   | 11    | 20    | 25    |
| 14    | 12    | 15    | 21   | 26   | e27  | 26   | e13  | 18   | 26   | 10    | 20    | 21    |
| 15    | 5.7   | 15    | 20   | 22   | 31   | 26   | e15  | 17   | 23   | 11    | 20    | 22    |
| 16    | 5.7   | 15    | 21   | 24   | 30   | 27   | e15  | 18   | 19   | 10    | 20    | 24    |
| 17    | 10    | 15    | 18   | 23   | 31   | 22   | e15  | 18   | 19   | 13    | 19    | 27    |
| 18    | 16    | 15    | 18   | 18   | 29   | 27   | e16  | 21   | 19   | 16    | 20    | 34    |
| 19    | 15    | 15    | 17   | 18   | 26   | 28   | e16  | 25   | 19   | 16    | 19    | 34    |
| 20    | 16    | 15    | 18   | 17   | 25   | 26   | e14  | 24   | 19   | 17    | 19    | 37    |
| 21    | 13    | 16    | 18   | 17   | 26   | 27   | e16  | 20   | 19   | 16    | 14    | 105   |
| 22    | 12    | 22    | 18   | 18   | 25   | 28   | e19  | 19   | 18   | 13    | 14    | 2050  |
| 23    | 12    | 26    | 18   | 19   | 25   | 28   | e19  | 17   | 14   | 10    | 13    | 234   |
| 24    | 12    | 20    | 18   | 19   | 25   | 28   | 19   | 23   | 11   | 10    | 16    | 35    |
| 25    | 13    | 16    | 17   | 18   | 24   | 29   | 19   | 31   | 11   | 10    | 8.9   | 20    |
| 26    | 13    | 17    | 17   | 18   | 25   | 27   | e27  | 32   | 11   | 9.7   | 6.4   | 21    |
| 27    | 11    | 18    | 17   | 17   | 24   | 26   | e23  | 33   | 11   | 11    | 14    | 28    |
| 28    | 10    | 19    | 18   | 18   | 25   | 25   | e25  | 31   | 11   | 10    | 7.5   | 26    |
| 29    | 9.8   | 20    | 17   | 22   | ---  | 28   | e24  | 29   | 11   | 10    | 16    | 32    |
| 30    | 9.3   | 19    | 17   | 16   | ---  | 26   | e23  | 26   | 11   | 10    | 24    | 33    |
| 31    | 9.8   | ---   | 18   | 24   | ---  | 19   | ---  | 25   | ---  | 10    | 25    | ---   |
| TOTAL | 313.9 | 466.6 | 551  | 571  | 666  | 816  | 521  | 719  | 617  | 348.4 | 483.2 | 3089  |
| MEAN  | 10.1  | 15.6  | 17.8 | 18.4 | 23.8 | 26.3 | 17.4 | 23.2 | 20.6 | 11.2  | 15.6  | 103   |
| MAX   | 16    | 26    | 21   | 26   | 32   | 30   | 27   | 33   | 32   | 17    | 25    | 2050  |
| MIN   | 5.7   | 9.6   | 14   | 12   | 13   | 19   | 13   | 17   | 11   | 9.7   | 6.4   | 18    |
| AC-FT | 623   | 926   | 1090 | 1130 | 1320 | 1620 | 1030 | 1430 | 1220 | 691   | 958   | 6130  |
| CFSM  | 1.22  | 1.87  | 2.14 | 2.21 | 2.86 | 3.16 | 2.09 | 2.79 | 2.47 | 1.35  | 1.87  | 12.4  |
| IN.   | 1.40  | 2.09  | 2.46 | 2.55 | 2.98 | 3.65 | 2.33 | 3.21 | 2.76 | 1.56  | 2.16  | 13.81 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 14.0 | 21.9 | 15.6 | 18.4 | 18.4 | 17.5 | 13.7 | 11.2 | 11.3 | 14.2 | 13.7 | 49.6 |
| MAX  | 22.7 | 41.2 | 30.4 | 59.6 | 36.5 | 26.3 | 24.5 | 23.2 | 20.6 | 39.6 | 29.2 | 233  |
| (WY) | 1997 | 1992 | 1992 | 1992 | 1991 | 1998 | 1996 | 1998 | 1998 | 1993 | 1996 | 1996 |
| MIN  | 3.74 | 8.85 | 4.36 | 5.45 | 7.24 | 11.4 | 5.72 | 4.13 | 3.47 | 1.56 | 1.18 | 1.64 |
| (WY) | 1995 | 1995 | 1994 | 1995 | 1994 | 1994 | 1997 | 1993 | 1994 | 1994 | 1995 | 1994 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

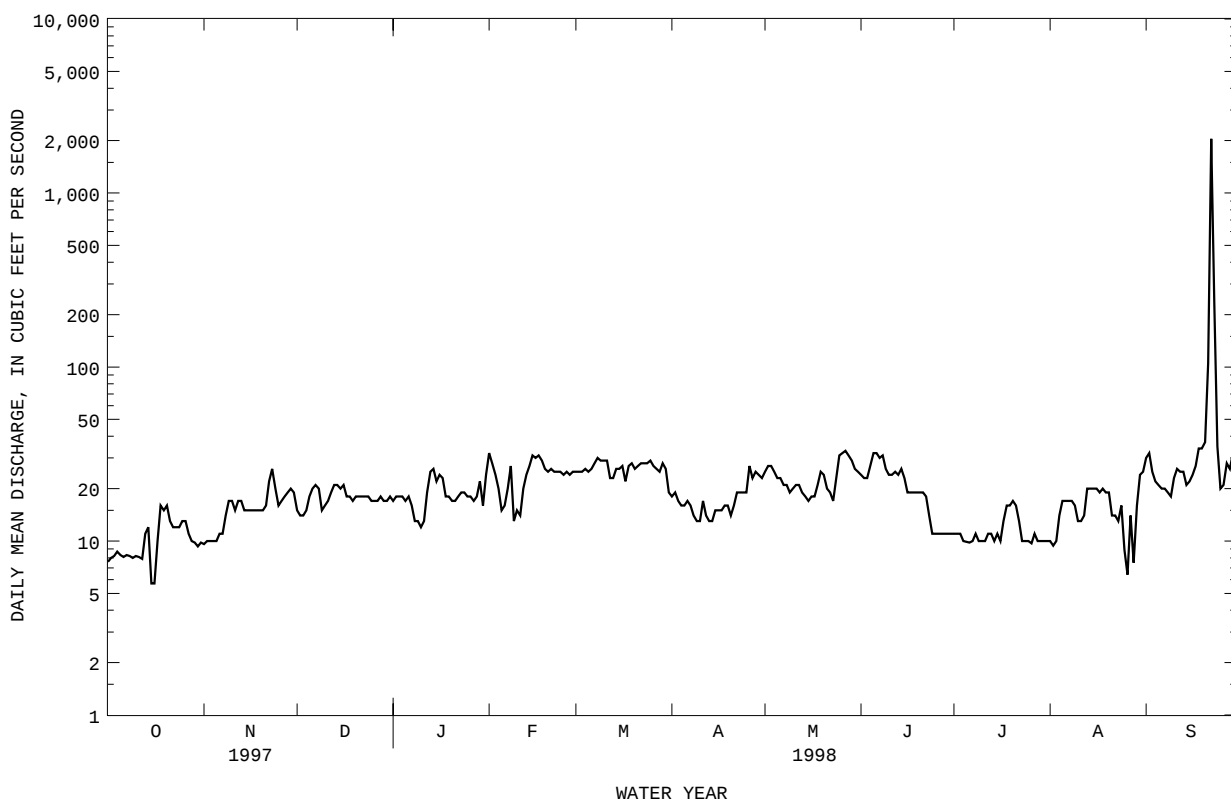
## FOR 1998 WATER YEAR

## WATER YEARS 1991 - 1998

|                          |        |        |       |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL             | 3776.3 | 9162.1 |       |
| ANNUAL MEAN              | 10.3   | 25.1   | 18.2  |
| HIGHEST ANNUAL MEAN      |        |        | 36.1  |
| LOWEST ANNUAL MEAN       |        |        | 5.93  |
| HIGHEST DAILY MEAN       | 27     | Feb 15 | 2050  |
| LOWEST DAILY MEAN        | 2.7    | May 13 | 5.7   |
| ANNUAL SEVEN-DAY MINIMUM | 3.5    | May 11 | 8.1   |
| INSTANTANEOUS PEAK FLOW  |        |        | 4210  |
| INSTANTANEOUS PEAK STAGE |        |        | 19.83 |
| ANNUAL RUNOFF (AC-FT)    | 7490   | 18170  | 13180 |
| ANNUAL RUNOFF (CFSM)     | 1.24   | 3.02   | 2.19  |
| ANNUAL RUNOFF (INCHES)   | 16.88  | 40.97  | 29.70 |
| 10 PERCENT EXCEEDS       | 18     | 28     | 27    |
| 50 PERCENT EXCEEDS       | 8.5    | 18     | 12    |
| 90 PERCENT EXCEEDS       | 4.2    | 10     | 2.8   |

e Estimated

RIO DE BAYAMON BASIN  
50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued



## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: November 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by a local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,670 mg/L Jan. 05, 1992; Minimum daily mean, 3 mg/L November 27, 1993 and June 27-28, 1997.

SEDIMENT LOADS: Maximum daily mean, 27,700 tons (25,100 tonnes) September 10, 1996; Minimum daily mean, 0.02 ton (0.02 tonne) November 21, 1993.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 801 mg/L September 21, 1998; Minimum daily mean, 4 mg/L October 3, 1997.

SEDIMENT LOADS: Maximum daily mean, 3,810 tons (3,460 tonnes) September 22, 1998; Minimum daily mean, 0.09 tons (0.08 tonne) October 3, 1997.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 7.6                        | 33                              | .67                                 | 9.6                        | 49                              | 1.3                                 | 15                         | 36                              | 1.4                                 |
| 2       | 8.0                        | 11                              | .24                                 | 10                         | 52                              | 1.4                                 | 14                         | 33                              | 1.2                                 |
| 3       | 8.2                        | 4                               | .09                                 | 10                         | 50                              | 1.4                                 | 14                         | 31                              | 1.1                                 |
| 4       | 8.7                        | 6                               | .13                                 | 10                         | 47                              | 1.3                                 | 15                         | 30                              | 1.2                                 |
| 5       | 8.3                        | 8                               | .18                                 | 10                         | 45                              | 1.2                                 | 18                         | 30                              | 1.4                                 |
| 6       | 8.1                        | 11                              | .24                                 | 11                         | 42                              | 1.3                                 | 20                         | 30                              | 1.6                                 |
| 7       | 8.3                        | 15                              | .34                                 | 11                         | 36                              | 1.0                                 | 21                         | 31                              | 1.7                                 |
| 8       | 8.2                        | 21                              | .49                                 | 14                         | 76                              | 3.2                                 | 20                         | 31                              | 1.7                                 |
| 9       | 8.0                        | 20                              | .45                                 | 17                         | 104                             | 4.7                                 | 15                         | 32                              | 1.3                                 |
| 10      | 8.2                        | 18                              | .42                                 | 17                         | 100                             | 4.5                                 | 16                         | 31                              | 1.3                                 |
| 11      | 8.1                        | 17                              | .37                                 | 15                         | 96                              | 3.8                                 | 17                         | 30                              | 1.4                                 |
| 12      | 7.9                        | 23                              | .50                                 | 17                         | 84                              | 3.9                                 | 19                         | 29                              | 1.5                                 |
| 13      | 11                         | 81                              | 2.1                                 | 17                         | 72                              | 3.4                                 | 21                         | 27                              | 1.5                                 |
| 14      | 12                         | 54                              | 2.6                                 | 15                         | 62                              | 2.6                                 | 21                         | 20                              | 1.1                                 |
| 15      | 5.7                        | 34                              | .53                                 | 15                         | 58                              | 2.4                                 | 20                         | 14                              | .79                                 |
| 16      | 5.7                        | 25                              | .38                                 | 15                         | 57                              | 2.3                                 | 21                         | 13                              | .75                                 |
| 17      | 10                         | 68                              | 2.9                                 | 15                         | 56                              | 2.2                                 | 18                         | 14                              | .65                                 |
| 18      | 16                         | 193                             | 8.4                                 | 15                         | 57                              | 2.3                                 | 18                         | 14                              | .68                                 |
| 19      | 15                         | 182                             | 7.3                                 | 15                         | 58                              | 2.3                                 | 17                         | 15                              | .73                                 |
| 20      | 16                         | 160                             | 6.7                                 | 15                         | 59                              | 2.3                                 | 18                         | 17                              | .85                                 |
| 21      | 13                         | 141                             | 4.8                                 | 16                         | 57                              | 2.5                                 | 18                         | 20                              | .95                                 |
| 22      | 12                         | 137                             | 4.3                                 | 22                         | 55                              | 3.3                                 | 18                         | 22                              | 1.1                                 |
| 23      | 12                         | 134                             | 4.5                                 | 26                         | 53                              | 3.8                                 | 18                         | 25                              | 1.2                                 |
| 24      | 12                         | 144                             | 4.7                                 | 20                         | 51                              | 2.7                                 | 18                         | 28                              | 1.3                                 |
| 25      | 13                         | 133                             | 4.6                                 | 16                         | 49                              | 2.2                                 | 17                         | 27                              | 1.2                                 |
| 26      | 13                         | 116                             | 4.2                                 | 17                         | 47                              | 2.2                                 | 17                         | 25                              | 1.1                                 |
| 27      | 11                         | 100                             | 3.0                                 | 18                         | 45                              | 2.3                                 | 17                         | 22                              | 1.0                                 |
| 28      | 10                         | 78                              | 2.2                                 | 19                         | 43                              | 2.2                                 | 18                         | 20                              | .96                                 |
| 29      | 9.8                        | 59                              | 1.6                                 | 20                         | 41                              | 2.1                                 | 17                         | 17                              | .78                                 |
| 30      | 9.3                        | 45                              | 1.1                                 | 19                         | 38                              | 1.9                                 | 17                         | 14                              | .65                                 |
| 31      | 9.8                        | 45                              | 1.2                                 | ---                        | ---                             | ---                                 | 18                         | 11                              | .53                                 |
| TOTAL   | 313.9                      | ---                             | 71.23                               | 466.6                      | ---                             | 74.0                                | 551                        | ---                             | 34.62                               |

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 17                         | 10                                   | .44                                 | e32                        | 16                                   | e2.7                                | 25                         | 15                                   | 1.0                                 |
| 2       | 18                         | 12                                   | .57                                 | e28                        | 18                                   | e2.1                                | 25                         | 17                                   | 1.1                                 |
| 3       | 18                         | 16                                   | .77                                 | e24                        | 22                                   | e1.9                                | 25                         | 18                                   | 1.2                                 |
| 4       | 18                         | 21                                   | 1.0                                 | e20                        | 35                                   | e1.3                                | 26                         | 19                                   | 1.3                                 |
| 5       | 17                         | 22                                   | .98                                 | e15                        | 61                                   | e1.3                                | 25                         | 18                                   | 1.2                                 |
| 6       | 18                         | 21                                   | 1.1                                 | e16                        | 107                                  | e1.3                                | 26                         | 16                                   | 1.2                                 |
| 7       | 16                         | 21                                   | .94                                 | e20                        | 170                                  | e1.3                                | 28                         | 15                                   | 1.1                                 |
| 8       | 13                         | 25                                   | .89                                 | e27                        | 168                                  | e2.0                                | 30                         | 15                                   | 1.2                                 |
| 9       | 13                         | 32                                   | 1.1                                 | e13                        | 157                                  | e1.1                                | 29                         | 15                                   | 1.2                                 |
| 10      | 12                         | 40                                   | 1.3                                 | e15                        | 146                                  | e1.3                                | 29                         | 15                                   | 1.2                                 |
| 11      | 13                         | 39                                   | 1.4                                 | e14                        | 128                                  | e1.2                                | 29                         | 15                                   | 1.2                                 |
| 12      | 19                         | 36                                   | 1.8                                 | e20                        | 97                                   | e1.3                                | 23                         | 14                                   | .85                                 |
| 13      | 25                         | 34                                   | 2.3                                 | e24                        | 69                                   | e1.6                                | 23                         | 13                                   | .83                                 |
| 14      | 26                         | 31                                   | 2.2                                 | e27                        | 47                                   | e2.0                                | 26                         | 16                                   | 1.1                                 |
| 15      | 22                         | 29                                   | 1.7                                 | 31                         | 46                                   | 3.9                                 | 26                         | 19                                   | 1.4                                 |
| 16      | 24                         | 26                                   | 1.7                                 | 30                         | 45                                   | 3.7                                 | 27                         | 24                                   | 1.8                                 |
| 17      | 23                         | 25                                   | 1.7                                 | 31                         | 46                                   | 3.8                                 | 22                         | 29                                   | 1.7                                 |
| 18      | 18                         | 22                                   | 1.1                                 | 29                         | 50                                   | 4.0                                 | 27                         | 36                                   | 2.6                                 |
| 19      | 18                         | 20                                   | .99                                 | 26                         | 57                                   | 3.9                                 | 28                         | 44                                   | 3.3                                 |
| 20      | 17                         | 18                                   | .78                                 | 25                         | 64                                   | 4.4                                 | 26                         | 75                                   | 5.3                                 |
| 21      | 17                         | 17                                   | .75                                 | 26                         | 70                                   | 4.9                                 | 27                         | 67                                   | 4.9                                 |
| 22      | 18                         | 18                                   | .85                                 | 25                         | 52                                   | 3.5                                 | 28                         | 40                                   | 3.0                                 |
| 23      | 19                         | 17                                   | .83                                 | 25                         | 33                                   | 2.3                                 | 28                         | 24                                   | 1.8                                 |
| 24      | 19                         | 15                                   | .78                                 | 25                         | 19                                   | 1.3                                 | 28                         | 15                                   | 1.1                                 |
| 25      | 18                         | 14                                   | .69                                 | 24                         | 11                                   | .71                                 | 29                         | 15                                   | 1.2                                 |
| 26      | 18                         | 16                                   | .80                                 | 25                         | 7                                    | .46                                 | 27                         | 19                                   | 1.4                                 |
| 27      | 17                         | 19                                   | .88                                 | 24                         | 8                                    | .54                                 | 26                         | 23                                   | 1.6                                 |
| 28      | 18                         | 22                                   | 1.1                                 | 25                         | 11                                   | .78                                 | 25                         | 34                                   | 2.4                                 |
| 29      | 22                         | 20                                   | 1.2                                 | ---                        | ---                                  | ---                                 | 28                         | 53                                   | 4.0                                 |
| 30      | 16                         | 17                                   | .72                                 | ---                        | ---                                  | ---                                 | 26                         | 120                                  | 10                                  |
| 31      | 24                         | 15                                   | .95                                 | ---                        | ---                                  | ---                                 | 19                         | 64                                   | 3.3                                 |
| TOTAL   | 571                        | ---                                  | 34.31                               | 666                        | ---                                  | 60.59                               | 816                        | ---                                  | 66.48                               |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 18                         | 51                                   | 2.4                                 | e25                        | 20                                   | e1.9                                | 24                         | 35                                   | 2.2                                 |
| 2       | 19                         | 40                                   | 2.0                                 | 27                         | 23                                   | 1.7                                 | 23                         | 43                                   | 2.7                                 |
| 3       | e17                        | 33                                   | e1.3                                | 27                         | 23                                   | 1.7                                 | 23                         | 53                                   | 3.3                                 |
| 4       | e16                        | 25                                   | e1.3                                | 25                         | 24                                   | 1.6                                 | 27                         | 62                                   | 4.5                                 |
| 5       | 16                         | 23                                   | 1.0                                 | 23                         | 23                                   | 1.4                                 | 32                         | 39                                   | 3.4                                 |
| 6       | e17                        | 33                                   | e1.3                                | 23                         | 20                                   | 1.3                                 | 32                         | 22                                   | 1.9                                 |
| 7       | 16                         | 51                                   | 2.2                                 | 21                         | 18                                   | 1.0                                 | 30                         | 25                                   | 2.0                                 |
| 8       | 14                         | 77                                   | 2.9                                 | 21                         | 16                                   | .90                                 | 31                         | 32                                   | 2.6                                 |
| 9       | e13                        | 80                                   | e1.1                                | 19                         | 16                                   | .81                                 | 26                         | 28                                   | 2.0                                 |
| 10      | e13                        | 75                                   | e1.1                                | 20                         | 15                                   | .84                                 | 24                         | 21                                   | 1.4                                 |
| 11      | e17                        | 69                                   | e1.2                                | 21                         | 15                                   | .84                                 | 24                         | 17                                   | 1.1                                 |
| 12      | e14                        | 61                                   | e1.2                                | 21                         | 15                                   | .86                                 | 25                         | 17                                   | 1.1                                 |
| 13      | e13                        | 53                                   | e.80                                | 19                         | 15                                   | .77                                 | 24                         | 18                                   | 1.2                                 |
| 14      | e13                        | 44                                   | e1.1                                | 18                         | 15                                   | .72                                 | 26                         | 18                                   | 1.2                                 |
| 15      | e15                        | 41                                   | e1.1                                | 17                         | 17                                   | .78                                 | 23                         | 17                                   | 1.1                                 |
| 16      | e15                        | 38                                   | e1.3                                | 18                         | 19                                   | .94                                 | 19                         | 17                                   | .89                                 |
| 17      | e15                        | 40                                   | e1.3                                | 18                         | 19                                   | .91                                 | 19                         | 17                                   | .90                                 |
| 18      | e16                        | 44                                   | e1.3                                | 21                         | 18                                   | 1.0                                 | 19                         | 18                                   | .91                                 |
| 19      | e16                        | 52                                   | e1.3                                | 25                         | 17                                   | 1.1                                 | 19                         | 18                                   | .92                                 |
| 20      | e14                        | 62                                   | e1.2                                | 24                         | 11                                   | .74                                 | 19                         | 19                                   | .95                                 |
| 21      | e16                        | 66                                   | e1.3                                | 20                         | 7                                    | .38                                 | 19                         | 18                                   | .92                                 |
| 22      | e19                        | 76                                   | e1.3                                | 19                         | 10                                   | .53                                 | 18                         | 17                                   | .83                                 |
| 23      | e19                        | 77                                   | e1.3                                | 17                         | 20                                   | .91                                 | 14                         | 13                                   | .51                                 |
| 24      | 19                         | 60                                   | e1.3                                | 23                         | 22                                   | 1.3                                 | 11                         | 10                                   | .30                                 |
| 25      | 19                         | 42                                   | e1.3                                | 31                         | 20                                   | 1.7                                 | 11                         | 11                                   | .33                                 |
| 26      | e27                        | 31                                   | e2.0                                | 32                         | 19                                   | 1.6                                 | 11                         | 15                                   | .45                                 |
| 27      | e23                        | 21                                   | e2.0                                | 33                         | 18                                   | 1.7                                 | 11                         | 18                                   | .56                                 |
| 28      | e25                        | 16                                   | e2.0                                | 31                         | 18                                   | 1.5                                 | 11                         | 17                                   | .49                                 |
| 29      | e24                        | 13                                   | e1.9                                | 29                         | 20                                   | 1.6                                 | 11                         | 16                                   | .44                                 |
| 30      | e23                        | 16                                   | e1.9                                | 26                         | 23                                   | 1.7                                 | 11                         | 18                                   | .51                                 |
| 31      | ---                        | ---                                  | ---                                 | 25                         | 28                                   | 1.9                                 | ---                        | ---                                  | ---                                 |
| TOTAL   | 521                        | ---                                  | 44.70                               | 719                        | ---                                  | 36.63                               | 617                        | ---                                  | 41.61                               |

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 11                         | 21                              | .62                                 | 10                         | 19                              | .50                                 | 30                         | 82                              | 6.7                                 |
| 2     | 11                         | 24                              | .72                                 | 9.4                        | 21                              | .54                                 | 32                         | 58                              | 5.0                                 |
| 3     | 11                         | 20                              | .60                                 | 10                         | 26                              | .73                                 | 25                         | 39                              | 2.6                                 |
| 4     | 10                         | 15                              | .43                                 | 14                         | 31                              | 1.2                                 | 22                         | 32                              | 1.9                                 |
| 5     | 9.9                        | 13                              | .35                                 | 17                         | 27                              | 1.2                                 | 21                         | 29                              | 1.7                                 |
| 6     | e9.8                       | 12                              | e.32                                | e17                        | 22                              | 1.0                                 | 20                         | 29                              | 1.6                                 |
| 7     | 10                         | 11                              | .31                                 | 17                         | 19                              | .88                                 | 20                         | 30                              | 1.6                                 |
| 8     | 11                         | 14                              | .42                                 | 17                         | 17                              | .77                                 | 19                         | 31                              | 1.6                                 |
| 9     | 10                         | 17                              | .47                                 | 16                         | 15                              | .66                                 | 18                         | 27                              | 1.3                                 |
| 10    | 10                         | 20                              | .53                                 | 13                         | 14                              | .49                                 | 23                         | 24                              | 1.5                                 |
| 11    | 10                         | 22                              | .62                                 | 13                         | 12                              | .43                                 | 26                         | 32                              | 2.2                                 |
| 12    | 11                         | 19                              | .58                                 | 14                         | 12                              | .44                                 | 25                         | 44                              | 3.0                                 |
| 13    | 11                         | 15                              | .44                                 | 20                         | 12                              | .65                                 | 25                         | 46                              | 3.1                                 |
| 14    | 10                         | 13                              | .37                                 | 20                         | 11                              | .59                                 | 21                         | 46                              | 2.5                                 |
| 15    | 11                         | 12                              | .35                                 | 20                         | 10                              | .56                                 | 22                         | 45                              | 2.7                                 |
| 16    | 10                         | 12                              | .34                                 | 20                         | 11                              | .61                                 | 24                         | 36                              | 2.4                                 |
| 17    | 13                         | 11                              | .38                                 | 19                         | 13                              | .68                                 | 27                         | 28                              | 2.0                                 |
| 18    | 16                         | 10                              | .43                                 | 20                         | 14                              | .76                                 | 34                         | 21                              | 1.9                                 |
| 19    | 16                         | 9                               | .40                                 | 19                         | 14                              | .71                                 | 34                         | 16                              | 1.5                                 |
| 20    | 17                         | 72                              | 3.8                                 | 19                         | 12                              | .62                                 | 37                         | 12                              | 1.2                                 |
| 21    | 16                         | 36                              | 1.5                                 | 14                         | 11                              | .42                                 | 105                        | 801                             | 1150                                |
| 22    | 13                         | 22                              | .78                                 | 14                         | 103                             | 3.8                                 | 2050                       | 787                             | 3810                                |
| 23    | 10                         | 18                              | .50                                 | 13                         | 64                              | 2.2                                 | 234                        | 344                             | 231                                 |
| 24    | 10                         | 21                              | .58                                 | 16                         | 46                              | 2.8                                 | 35                         | 241                             | 23                                  |
| 25    | 10                         | 26                              | .74                                 | 8.9                        | 49                              | 1.2                                 | 20                         | 183                             | 10                                  |
| 26    | 9.7                        | 27                              | .72                                 | 6.4                        | 72                              | 1.3                                 | 21                         | 145                             | 8.4                                 |
| 27    | 11                         | 35                              | 1.2                                 | 14                         | 109                             | 4.3                                 | 28                         | 170                             | 13                                  |
| 28    | 10                         | 28                              | .78                                 | 7.5                        | 120                             | 2.4                                 | 26                         | 229                             | 16                                  |
| 29    | 10                         | 25                              | .68                                 | 16                         | 123                             | 5.3                                 | 32                         | 304                             | 26                                  |
| 30    | 10                         | 22                              | .59                                 | 24                         | 109                             | 7.1                                 | 33                         | 340                             | 30                                  |
| 31    | 10                         | 20                              | .55                                 | 25                         | 95                              | 6.5                                 | ---                        | ---                             | ---                                 |
| TOTAL | 348.4                      | ---                             | 21.10                               | 483.2                      | ---                             | 51.34                               | 3089                       | ---                             | 5365.4                              |
| YEAR  | 9162.1                     |                                 | 5902.01                             |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 18... | 1415 | 15                                                                    | 204                                                   | 8.3                                                                       | 98                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 08... | 1515 | 16                                                                    | 108                                                   | 4.7                                                                       | 96                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 1630 | 29                                                                    | 74                                                    | 5.8                                                                       | 97                                                                       |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 30... | 1625 | 24                                                                    | 285                                                   | 18                                                                        | 28                                                                       |
| APR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 23... | 1100 | 16                                                                    | 85                                                    | 3.7                                                                       | 87                                                                       |
| JUL   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 20... | 1200 | 18                                                                    | 233                                                   | 11                                                                        | 98                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 29... | 0850 | 8.0                                                                   | 127                                                   | 2.7                                                                       | 95                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 2230 | 558                                                                   | 3080                                                  | 4640                                                                      | 97                                                                       |
| 22... | 0730 | 3150                                                                  | 667                                                   | 5670                                                                      | 97                                                                       |

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| SEP<br>22... | 0315 | 2280                                                                    | 1130                                                                    | 6960                                                                     | 39                                                                       | 56                                                                       | 71                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| SEP<br>22... | 77   | 82                                                                      | 90                                                                      | 96                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |

## RIO DE BAYAMON BASIN

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'39", Long 66°08'39", at bridge on Highway 156, and 2.9 mi (4.7 km) west of Aguas Buenas plaza.

DRAINAGE AREA.--18.5 mi<sup>2</sup> (47.9 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-65, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE,<br>INST. CUBIC<br>FEET PER<br>SECOND<br>(00061) | SPE-CIFIC<br>CON-DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076) | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) |
|-----------|------|-------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT 30... | 1000 | 13                                                          | 274                                                  | 8.1                                                                  | 24.0                                            | 1.5                                     | 7.5                                            | 91                                                                        | 11                                                                         | 200                                                                        | 780                                                                |
| FEB 26... | 1045 | 24                                                          | 244                                                  | 7.7                                                                  | 23.5                                            | 8.8                                     | 7.9                                            | 96                                                                        | <10                                                                        | 210                                                                        | 450                                                                |
| MAY 19... | 1435 | 26                                                          | 260                                                  | 7.4                                                                  | 27.5                                            | 2.5                                     | 7.6                                            | 100                                                                       | <10                                                                        | 470                                                                        | K110                                                               |
| AUG 20... | 1430 | 27                                                          | 270                                                  | 8.1                                                                  | 29.0                                            | 8.6                                     | 7.8                                            | 105                                                                       | <10                                                                        | K710                                                                       | K1700                                                              |

| DATE      | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CACO3)<br>(00900) | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915) | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925) | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930) | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931) | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935) | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CACO3<br>(00410) | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745) | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS SO4)<br>(00945) | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940) |
|-----------|------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|
| OCT 30... | 39                                                         | 8.6                                                     | 4.3                                                             | 13                                                      | .9                                                 | .90                                                            | 98                                                                     | <.5                                           | 6.6                                                      | 16                                                             |
| FEB 26... | --                                                         | --                                                      | --                                                              | --                                                      | --                                                 | --                                                             | 87                                                                     | --                                            | --                                                       | --                                                             |
| MAY 19... | 91                                                         | 22                                                      | 9.0                                                             | 16                                                      | .7                                                 | 2.7                                                            | 96                                                                     | --                                            | 7.5                                                      | 18                                                             |
| AUG 20... | 130                                                        | 32                                                      | 10                                                              | 17                                                      | .7                                                 | 4.6                                                            | 98                                                                     | <1.0                                          | 15                                                       | 25                                                             |

| DATE      | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955) | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | SOLIDS,<br>DIS-<br>SOLVED<br>(TONS<br>PER<br>DAY)<br>(70302) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDED<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605) |
|-----------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| OCT 30... | .10                                                           | 23                                                           | 131                                                                            | 4.60                                                         | 4                                                                            | --                                                              | <.010                                                           | .750                                                            | <.010                                                           | --                                                              |
| FEB 26... | --                                                            | --                                                           | --                                                                             | --                                                           | 3                                                                            | --                                                              | <.010                                                           | .680                                                            | .020                                                            | .19                                                             |
| MAY 19... | .13                                                           | 21                                                           | 153                                                                            | 10.7                                                         | 4                                                                            | .530                                                            | .010                                                            | .540                                                            | .020                                                            | .25                                                             |
| AUG 20... | .10                                                           | 22                                                           | 193                                                                            | 14.1                                                         | 9                                                                            | --                                                              | <.010                                                           | .560                                                            | .040                                                            | .26                                                             |

| DATE      | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002) | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027) | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034) | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) |
|-----------|--------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT 30... | .26                                                                            | 1.0                                                  | 4.5                                                    | .050                                                  | <1                                             | <100                                                               | 30                                                               | <1                                                                 | <1                                                                        | <10                                                                |
| FEB 26... | .21                                                                            | .89                                                  | 3.9                                                    | <.020                                                 | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |
| MAY 19... | .27                                                                            | .81                                                  | 3.6                                                    | <.020                                                 | <1                                             | <100                                                               | 20                                                               | <1                                                                 | <1                                                                        | <10                                                                |
| AUG 20... | .30                                                                            | .86                                                  | 3.8                                                    | .050                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |

### RIO DE BAYAMON BASIN

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO DE BAYAMON BASIN

50047850 RIO BAYAMON NR BAYAMON, PR

LOCATION.--Lat 18°20'08", long 66°08'13", Hydrologic Unit 21010005, on left bank, at rock quarry near Highway 174, 1.3 mi (2.1 km) south of colonia Santa Rosa and 4.7 mi (7.6 km) south of Bayamón.

**DRAINAGE AREA.** -41.8 mi<sup>2</sup> (108.3 km<sup>2</sup>).

**PERIOD OF RECORD.**--September 1964 to October 1970, June 1988 to current year.

**GAGE.--**Water-stage recorder and crest-stage gage. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Records fair. Diversion to the Guaynabo water treatment plant, for municipal supply, made upstream from station (at Represa de San Juan). Flow is regulated by storage and release of water at Lago de Cidra (capacity 5,220 acre-ft), 10.5 mi (16.9 km) upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB    | MAR   | APR   | MAY   | JUN   | JUL   | AUG    | SEP    |
|-------|--------|-------|-------|-------|--------|-------|-------|-------|-------|-------|--------|--------|
| 1     | 77     | e5.1  | e4.9  | e2.7  | e4.2   | 7.2   | 10    | 7.9   | 6.2   | 5.3   | 9.0    | 12     |
| 2     | 38     | e5.2  | e4.5  | e2.5  | e4.4   | 7.0   | 8.7   | 7.2   | 6.2   | 6.8   | 8.2    | 12     |
| 3     | 16     | e5.1  | e4.2  | e2.6  | e4.3   | 6.9   | 8.0   | 7.7   | 6.4   | 11    | 7.7    | 17     |
| 4     | 14     | e5.1  | e4.1  | e3.1  | e5.4   | 6.7   | 7.5   | 7.8   | 7.9   | 9.1   | 7.4    | 13     |
| 5     | 200    | e4.9  | e4.0  | e4.0  | e700   | 8.1   | 7.3   | 7.8   | 9.9   | 6.7   | 6.6    | 12     |
| 6     | 209    | e4.9  | e3.8  | e38   | e80    | 8.9   | 6.9   | 7.6   | 8.5   | 63    | 7.7    | 14     |
| 7     | 71     | e4.7  | e3.7  | e27   | e25    | 8.4   | 8.2   | 7.6   | 6.9   | 16    | 73     | 11     |
| 8     | 109    | e4.5  | e3.5  | e22   | e90    | 9.1   | 11    | 28    | 6.9   | 7.8   | 44     | 12     |
| 9     | 74     | e4.5  | e3.5  | e16   | e100   | 7.0   | 7.3   | 16    | 12    | 6.7   | 19     | 11     |
| 10    | 35     | e200  | e3.5  | e22   | e24    | 6.6   | 6.6   | 10    | 8.1   | 7.3   | 18     | 8.8    |
| 11    | 179    | e36   | e3.5  | e13   | e14    | 6.4   | 6.6   | 8.4   | 6.5   | 6.5   | 15     | 8.2    |
| 12    | e155   | e15   | e3.5  | e10   | e11    | 6.3   | 10    | 7.8   | 6.0   | 6.2   | 16     | 8.1    |
| 13    | e300   | e9.6  | e3.4  | e17   | e9.4   | 6.2   | 11    | 7.7   | 5.7   | 5.7   | 15     | 8.3    |
| 14    | e900   | e7.8  | e3.3  | e23   | e8.6   | 10    | 8.1   | 87    | 6.4   | 5.5   | 13     | 8.1    |
| 15    | 35     | e6.8  | e3.3  | e13   | e12    | 8.3   | 8.1   | 34    | 6.2   | 5.6   | 13     | 8.8    |
| 16    | e20    | e6.2  | e3.2  | e9.0  | e10    | 6.9   | 104   | 12    | 6.2   | 6.9   | 13     | 10     |
| 17    | e16    | e6.1  | e3.4  | e7.6  | e9.0   | 7.0   | 22    | 11    | 61    | 8.0   | 24     | 8.9    |
| 18    | e14    | e6.1  | e3.5  | e6.8  | e8.6   | 7.5   | 11    | 8.7   | 23    | 7.6   | 28     | 8.5    |
| 19    | e13    | e5.8  | e3.2  | e6.3  | 8.5    | 6.6   | 9.6   | 8.4   | 8.1   | 8.8   | 22     | 7.9    |
| 20    | e12    | e5.5  | e3.0  | e6.0  | 8.5    | 10    | 9.1   | 7.8   | 7.1   | 62    | 17     | 8.2    |
| 21    | e11    | e5.4  | e3.7  | e5.8  | 8.4    | 33    | 8.5   | 8.2   | 16    | 71    | 87     | 547    |
| 22    | e9.4   | e5.8  | e3.8  | e5.3  | 7.7    | 8.0   | 8.7   | 7.7   | 12    | 9.6   | 53     | e3640  |
| 23    | e8.2   | e6.4  | e3.3  | e5.2  | 7.6    | 6.9   | 9.5   | 7.4   | 7.9   | 31    | 38     | 603    |
| 24    | e7.4   | e6.6  | e3.1  | e5.2  | 7.5    | 6.6   | 7.5   | 7.9   | 7.8   | 29    | 369    | 183    |
| 25    | e6.8   | e6.2  | e3.0  | e5.0  | 7.4    | 7.3   | 9.7   | 8.4   | 12    | 15    | 469    | 87     |
| 26    | e6.6   | e5.2  | e2.9  | e5.2  | 7.8    | 7.2   | 8.9   | 7.1   | 6.6   | 12    | 38     | 69     |
| 27    | e6.2   | e4.8  | e2.8  | e5.3  | 8.2    | 6.8   | 8.5   | 7.4   | 6.0   | 19    | 123    | 108    |
| 28    | e5.8   | e4.7  | e2.8  | e5.2  | 8.0    | 7.8   | 8.3   | 7.2   | 5.9   | 14    | 299    | 67     |
| 29    | e5.6   | e4.7  | e3.0  | e4.9  | ---    | 94    | 7.8   | 7.1   | 5.7   | 11    | 41     | 226    |
| 30    | e5.6   | e4.8  | e2.8  | e4.7  | ---    | 154   | 7.9   | 6.8   | 5.5   | 10    | 18     | 156    |
| 31    | e5.3   | ---   | e2.9  | e4.4  | ---    | 46    | ---   | 6.4   | ---   | 10    | 13     | ---    |
| TOTAL | 2564.9 | 403.5 | 107.1 | 307.8 | 1199.5 | 528.7 | 366.3 | 382.0 | 300.6 | 494.1 | 1924.6 | 5893.8 |
| MEAN  | 82.7   | 13.4  | 3.45  | 9.93  | 42.8   | 17.1  | 12.2  | 12.3  | 10.0  | 15.9  | 62.1   | 196    |
| MAX   | 900    | 200   | 4.9   | 38    | 700    | 154   | 104   | 87    | 61    | 71    | 469    | 3640   |
| MIN   | 5.3    | 4.5   | 2.8   | 2.5   | 4.2    | 6.2   | 6.6   | 6.4   | 5.5   | 5.3   | 6.6    | 7.9    |
| AC-FT | 5090   | 800   | 212   | 611   | 2380   | 1050  | 727   | 758   | 596   | 980   | 3820   | 11690  |
| CFSM  | 1.98   | .32   | .08   | .24   | 1.02   | .41   | .29   | .29   | .24   | .38   | 1.49   | 4.70   |
| IN.   | 2.28   | .36   | .10   | .27   | 1.07   | .47   | .33   | .34   | .27   | .44   | 1.71   | 5.25   |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

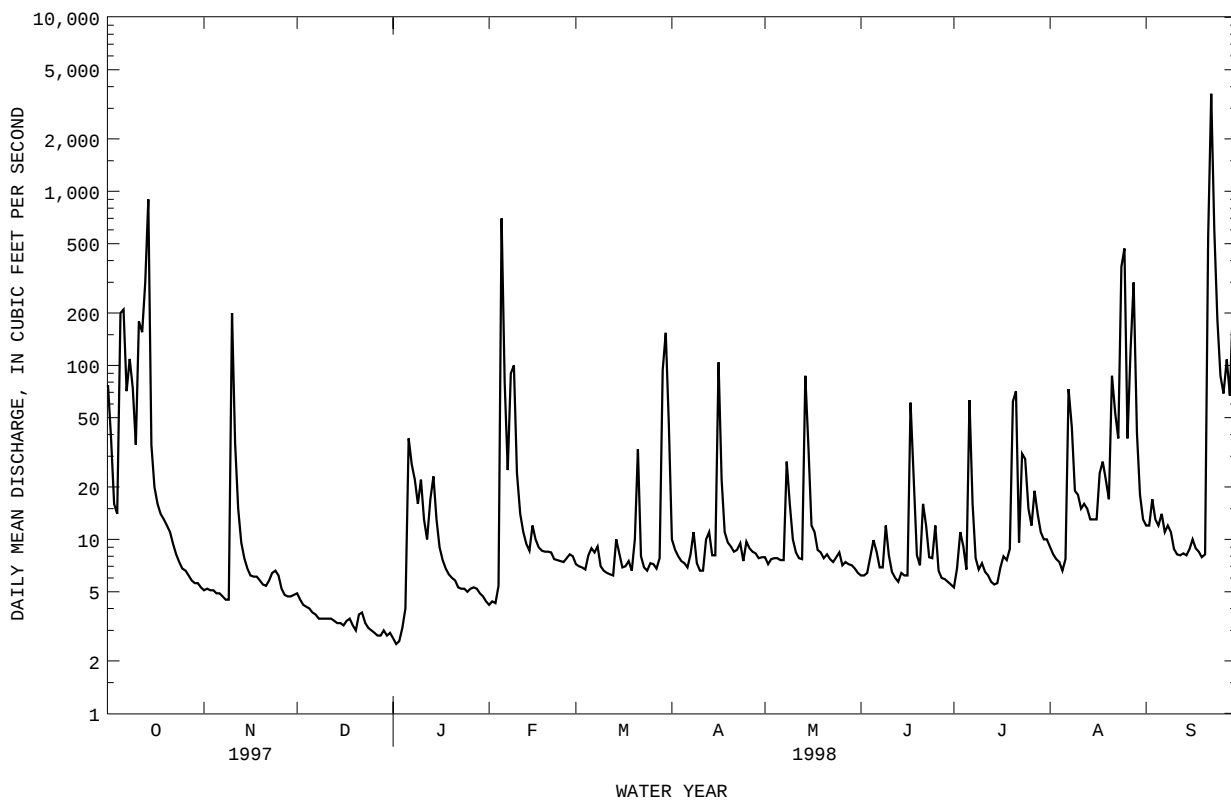
|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 33.5 | 42.0 | 38.8 | 34.7 | 23.2 | 17.7 | 20.5 | 37.9 | 18.4 | 21.1 | 41.7 | 67.9 |
| MAX  | 129  | 174  | 263  | 159  | 75.3 | 52.9 | 72.7 | 131  | 60.8 | 46.6 | 137  | 360  |
| (WY) | 1991 | 1970 | 1966 | 1969 | 1989 | 1990 | 1971 | 1966 | 1970 | 1970 | 1970 | 1996 |
| MIN  | 4.30 | 7.91 | 3.45 | 5.30 | 4.75 | 3.58 | 5.36 | 4.85 | 3.68 | 4.01 | 7.47 | 6.02 |
| (WY) | 1969 | 1965 | 1998 | 1968 | 1965 | 1965 | 1965 | 1994 | 1994 | 1994 | 1994 | 1967 |

| SUMMARY STATISTICS | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1964 - 1998 |
|--------------------|------------------------|---------------------|-------------------------|
|--------------------|------------------------|---------------------|-------------------------|

|                          |        |        |         |        |       |             |
|--------------------------|--------|--------|---------|--------|-------|-------------|
| ANNUAL TOTAL             | 8132.4 |        | 14472.9 |        |       |             |
| ANNUAL MEAN              | 22.3   |        | 39.7    |        | 33.2  |             |
| HIGHEST ANNUAL MEAN      |        |        |         |        | 59.7  | 1966        |
| LOWEST ANNUAL MEAN       |        |        |         |        | 10.9  | 1994        |
| HIGHEST DAILY MEAN       | 900    | Oct 14 | 3640    | Sep 22 | 8640  | Sep 10 1996 |
| LOWEST DAILY MEAN        | 2.8    | Dec 27 | 2.5     | Jan 2  | 2.2   | Apr 19 1965 |
| ANNUAL SEVEN-DAY MINIMUM | 2.9    | Dec 25 | 2.8     | Dec 28 | 2.4   | Apr 14 1965 |
| INSTANTANEOUS PEAK FLOW  |        |        | 17000   | Sep 22 | 65000 | Sep 10 1996 |
| INSTANTANEOUS PEAK STAGE |        |        | 19.36   | Sep 22 | 29.07 | Sep 10 1996 |
| ANNUAL RUNOFF (AC-FT)    | 16130  |        | 28710   |        | 24040 |             |
| ANNUAL RUNOFF (CFSM)     | .53    |        | .95     |        | .79   |             |
| ANNUAL RUNOFF (INCHES)   | 7.24   |        | 12.88   |        | 10.79 |             |
| 10 PERCENT EXCEEDS       | 31     |        | 65      |        | 55    |             |
| 50 PERCENT EXCEEDS       | 9.8    |        | 8.0     |        | 13    |             |
| 90 PERCENT EXCEEDS       | 4.8    |        | 4.4     |        | 4.9   |             |

e Estimated

RIO DE BAYAMON BASIN  
50047850 RIO BAYAMON NR BAYAMON, PR--Continued



## RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'32", Long 66°07'59", at bridge on Highway 833, 0.2 mi (0.3 km) upstream from Río de Bayamón, and 2.3 mi (3.7 km) southeast of Bayamón plaza.

DRAINAGE AREA.--73.2 mi<sup>2</sup> (189.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958, 1964, 1971-73, 1976, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

|              |      | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095)  | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010)                                | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076)                                          | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300)                     | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) |                                                                               |
|--------------|------|---------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------|
| OCT<br>30... | 0930 | 517                                                           | 7.1                                                                  | 27.0                                                                           | 4.0                                                                              | 4.2                                                                | 52                                                                        | <10                                                                        | 5700                                                                       | 690                                                                |                                                                               |
| FEB<br>19... | 0830 | 481                                                           | 7.3                                                                  | 25.0                                                                           | 6.5                                                                              | 3.5                                                                | 42                                                                        | <10                                                                        | 2900                                                                       | K1800                                                              |                                                                               |
| JUN<br>01... | 0800 | 471                                                           | 7.1                                                                  | 27.5                                                                           | 3.5                                                                              | 2.2                                                                | 28                                                                        | 10                                                                         | 42000                                                                      | 4600                                                               |                                                                               |
| AUG<br>24... | 0730 | 496                                                           | 6.8                                                                  | 27.5                                                                           | 4.0                                                                              | 1.8                                                                | 23                                                                        | 17                                                                         | 56000                                                                      | 51000                                                              |                                                                               |
| DATE         |      | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CAC03)<br>(00900)    | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915)              | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925)                | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930)                          | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931)                 | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935)            | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>(MG/L<br>CAC03<br>(00410)       | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745)                              | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS SO4)<br>(00945)           | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940)                |
| OCT<br>30... | 200  | 70                                                            | 5.1                                                                  | 9.7                                                                            | .3                                                                               | 3.3                                                                | 192                                                                       | <.5                                                                        | 7.7                                                                        | 16                                                                 |                                                                               |
| FEB<br>19... | --   | --                                                            | --                                                                   | --                                                                             | --                                                                               | --                                                                 | 200                                                                       | --                                                                         | --                                                                         | --                                                                 |                                                                               |
| JUN<br>01... | 170  | 46                                                            | 13                                                                   | 30                                                                             | 1                                                                                | 3.4                                                                | 180                                                                       | --                                                                         | 11                                                                         | 35                                                                 |                                                                               |
| AUG<br>24... | 160  | 42                                                            | 14                                                                   | 30                                                                             | 1                                                                                | 4.0                                                                | 210                                                                       | <1.0                                                                       | 17                                                                         | 34                                                                 |                                                                               |
| DATE         |      | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955)         | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>D<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620)    | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615)           | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630)            | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610)            | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605)    | NITRO-<br>GEN,AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) |
| OCT<br>30... | <.10 | 7.9                                                           | 232                                                                  | 4                                                                              | .802                                                                             | .098                                                               | .900                                                                      | .160                                                                       | .36                                                                        | .52                                                                |                                                                               |
| FEB<br>19... | --   | --                                                            | --                                                                   | 27                                                                             | .780                                                                             | .150                                                               | .930                                                                      | .240                                                                       | .53                                                                        | .77                                                                |                                                                               |
| JUN<br>01... | .18  | 28                                                            | 275                                                                  | 12                                                                             | .610                                                                             | .130                                                               | .740                                                                      | .200                                                                       | .31                                                                        | .51                                                                |                                                                               |
| AUG<br>24... | .16  | 28                                                            | 294                                                                  | 11                                                                             | .260                                                                             | .050                                                               | .310                                                                      | 1.20                                                                       | .60                                                                        | 1.8                                                                |                                                                               |
| DATE         |      | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600)          | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887)               | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665)                          | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002)                                   | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022)          | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027)         | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034)  | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045)              |
| OCT<br>30... | 1.4  | 6.3                                                           | .190                                                                 | 2                                                                              | <100                                                                             | 40                                                                 | <1                                                                        | <1                                                                         | <10                                                                        | 250                                                                |                                                                               |
| FEB<br>19... | 1.7  | 7.5                                                           | .230                                                                 | --                                                                             | --                                                                               | --                                                                 | --                                                                        | --                                                                         | --                                                                         | --                                                                 |                                                                               |
| JUN<br>01... | 1.3  | 5.5                                                           | .240                                                                 | 2                                                                              | <100                                                                             | 70                                                                 | <1                                                                        | <1                                                                         | <10                                                                        | 370                                                                |                                                                               |
| AUG<br>24... | 2.1  | 9.3                                                           | .330                                                                 | --                                                                             | --                                                                               | --                                                                 | --                                                                        | --                                                                         | --                                                                         | --                                                                 |                                                                               |

### RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'29", long 66°09'04", at bridge on Highway 890, 1.0 mi (1.6 km) downstream from bridge on Highway 2, and 3.2 mi (5.1 km) above mouth.

DRAINAGE AREA.--71.9 mi<sup>2</sup> (186.2 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--Prior to 1979 sampling site was 0.8 mile (1.3 km) downstream but was changed because of flood channel construction.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 30... | 1200 | 20                                              | 492                                     | 7.4                                            | 29.5                               | 3.8                       | 8.9                               | 116                                               | <10                                                  | 5100                                                | 230                                             |
| FEB 19... | 1030 | 20                                              | 462                                     | 7.2                                            | 25.0                               | 7.6                       | 7.5                               | 89                                                | <10                                                  | K18000                                              | K1800                                           |
| JUN 01... | 1130 | 23                                              | 467                                     | 7.2                                            | 29.0                               | 13                        | 7.2                               | 93                                                | <10                                                  | K6400                                               | 60                                              |
| AUG 24... | 0915 | 33                                              | 429                                     | 6.8                                            | 28.5                               | 9.6                       | 5.9                               | 75                                                | 11                                                   | 36000                                               | 4800                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 30... | 190                                     | 46                                      | 15                                          | 18                                      | .6                                | 2.3                                        | 195                                                 | <.5                               | 45                                       | 20                                         |
| FEB 19... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 190                                                 | --                                | --                                       | --                                         |
| JUN 01... | 180                                     | 46                                      | 15                                          | 27                                      | .9                                | 2.6                                        | 180                                                 | --                                | 13                                       | 31                                         |
| AUG 24... | 140                                     | 36                                      | 13                                          | 27                                      | 1                                 | 2.8                                        | 180                                                 | <1.0                              | 14                                       | 28                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 30... | <.10                                      | 20                                        | 285                                                     | 15.4                                      | 40                                                     | .260                                         | .020                                         | .280                                         | .100                                         | .28                                          |
| FEB 19... | --                                        | --                                        | --                                                      | --                                        | 6                                                      | .324                                         | .036                                         | .360                                         | .160                                         | .31                                          |
| JUN 01... | <.10                                      | 28                                        | 269                                                     | 17.0                                      | 25                                                     | .230                                         | .030                                         | .260                                         | .070                                         | .35                                          |
| AUG 24... | .18                                       | 27                                        | 255                                                     | 21.6                                      | 23                                                     | .350                                         | .100                                         | .450                                         | .410                                         | .49                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 30... | .38                                                     | .66                                  | 2.9                                    | .070                                  | 1                                  | <100                                            | 40                                            | <1                                               | <1                                                 | <10                                             |
| FEB 19... | .47                                                     | .83                                  | 3.7                                    | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 01... | .42                                                     | .68                                  | 3.0                                    | .080                                  | <1                                 | <100                                            | 40                                            | <1                                               | 1                                                  | <10                                             |
| AUG 24... | .90                                                     | 1.4                                  | 6.0                                    | .150                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

### RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO PUERTO NUEVO BASIN

50048680 LAGO LAS CURIAS AT DAMSITE NEAR RIO PIEDRAS, PR

LOCATION.--Lat 18°24'23", long 66°03'05", Hydrologic Unit 21010005 at Lago Las Curias Dam on Río Piedras, 4.15 mi (6.67 km) south of University of Puerto Rico Tower, 1.6 mi (2.57 km) northwest from Escuela José F. Díaz and 0.8 mi (1.28 km) north of Escuela Cupey Alto.

DRAINAGE AREA.--0.97 mi<sup>2</sup> (2.51 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--April 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Las Curias was completed in 1946. The reservoir has a capacity of 1,135 ac-ft (1.40 hm<sup>3</sup>) at spillway crest elevation 315.78 ft (96.25 m) for water supply. The dam is earthfill and has a crest elevation of 327.3 ft (99.75 m). Masonry parapet walls continuous from abutment on each side of the 25 ft (7.62 m) wide crest. The dam is about 82.0 ft (25.0 m) high and 984.2 ft (300.0 m) long. The morning-glory inlet conduit spillway is located along the left abutment of the dam and has an uncontrolled capacity of about 5,000 ft<sup>3</sup>/s (141.6 m<sup>3</sup>/s) at reservoir elevation 321.5 ft (98.0 m). This dam is operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 317.01 ft (96.62 m), Aug. 11, 1998; minimum elevation, 314.15 ft (95.75 m), Sept. 30, 1998.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 317.01 ft (96.62 m), Aug. 11; minimum elevation, 314.15 ft (95.75 m), Sept. 30.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 284.7              | 154                    | 314.3              | 1,078                  |
| 298.2              | 462                    | 317.5              | 1,232                  |
| 307.1              | 770                    |                    |                        |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 315.87 | 315.80 | 315.79 | 315.57 | 315.68 | 315.71 | 315.82 | 315.75 | 315.74 | 315.67 | 315.82 | 314.99 |
| 2   | 315.95 | 315.79 | 315.78 | 315.59 | 315.67 | 315.70 | 315.81 | 315.74 | 315.72 | 315.66 | 315.79 | 315.53 |
| 3   | 315.85 | 315.80 | 315.77 | 315.60 | 315.66 | 315.70 | 315.80 | 315.73 | 315.71 | 315.72 | 315.78 | 315.56 |
| 4   | 315.84 | 315.81 | 315.76 | 315.60 | A      | 315.69 | 315.78 | 315.73 | 315.69 | 315.84 | 315.77 | 315.59 |
| 5   | 315.84 | 315.81 | 315.75 | 315.60 | 319.21 | 315.71 | 315.77 | 315.70 | 315.87 | 315.81 | 315.78 | 315.61 |
| 6   | 315.85 | 315.81 | 315.75 | 315.72 | A      | 315.71 | 315.75 | 315.69 | 315.83 | 315.81 | A      | 316.04 |
| 7   | 315.85 | 315.80 | 315.74 | 315.81 | A      | 315.73 | 315.76 | 315.68 | 315.81 | 315.80 | 315.89 | 315.93 |
| 8   | 315.95 | 315.79 | 315.73 | 315.80 | A      | 315.71 | 315.75 | 315.68 | 315.80 | 315.79 | 315.86 | 315.91 |
| 9   | 315.87 | 315.78 | 315.72 | 315.79 | A      | 315.69 | 315.73 | 315.66 | 315.88 | 315.78 | 315.84 | 315.91 |
| 10  | 315.85 | 315.80 | 315.73 | 315.80 | A      | 315.68 | 315.72 | 315.65 | 315.83 | 315.79 | 315.90 | 315.90 |
| 11  | 315.85 | 315.80 | 315.73 | 315.79 | A      | 315.67 | 315.71 | 315.62 | 315.80 | 315.77 | 315.99 | 315.91 |
| 12  | 315.91 | 315.81 | 315.71 | 315.78 | A      | 315.66 | 315.86 | 315.60 | 315.80 | 315.76 | 315.90 | 315.93 |
| 13  | 316.21 | 315.80 | 315.70 | 315.90 | A      | 315.65 | 315.83 | 315.59 | 315.78 | 315.74 | 315.87 | 315.93 |
| 14  | 315.89 | 315.80 | 315.69 | 315.83 | A      | 315.72 | 315.81 | 315.74 | 315.76 | 315.75 | 315.85 | 315.91 |
| 15  | 315.87 | 315.85 | A      | 315.82 | A      | 315.71 | 315.85 | 315.74 | 315.74 | 315.76 | 315.84 | 315.92 |
| 16  | 315.86 | 315.83 | A      | 315.81 | A      | 315.70 | 315.88 | 315.73 | 315.76 | 315.92 | 315.83 | 315.92 |
| 17  | 315.86 | 315.82 | A      | 315.81 | A      | 315.69 | 315.84 | 315.73 | 315.83 | 315.89 | 315.83 | 315.96 |
| 18  | 315.86 | 315.83 | A      | 315.87 | A      | 315.68 | 315.83 | 315.73 | 315.83 | 315.88 | 315.91 | 315.82 |
| 19  | 315.85 | 315.82 | A      | 315.84 | A      | 315.67 | 315.82 | 315.74 | 315.80 | 315.86 | 315.85 | 315.52 |
| 20  | 315.85 | 315.81 | A      | 315.84 | A      | 315.66 | 315.87 | 315.74 | 315.78 | 315.92 | 315.87 | 315.23 |
| 21  | 315.84 | 315.83 | A      | 315.83 | A      | 315.65 | 315.86 | 315.75 | 315.78 | 315.86 | 315.75 | 316.60 |
| 22  | 315.84 | 315.81 | A      | 315.81 | A      | 315.63 | 315.84 | 315.75 | 315.77 | 315.85 | 315.47 | 316.09 |
| 23  | 315.82 | 315.80 | A      | 315.80 | A      | 315.62 | 315.82 | 315.80 | 315.75 | 315.86 | 315.16 | 315.82 |
| 24  | 315.82 | 315.82 | A      | 315.79 | 315.74 | 315.60 | 315.80 | 315.79 | 315.74 | 315.86 | 315.54 | 315.60 |
| 25  | 315.82 | 315.81 | A      | 315.78 | 315.74 | 315.59 | 315.82 | 315.78 | 315.75 | 315.85 | 315.67 | 315.36 |
| 26  | 315.81 | 315.81 | A      | 315.77 | 315.74 | 315.57 | 315.81 | 315.82 | 315.74 | 315.84 | 315.38 | 315.13 |
| 27  | 315.80 | 315.80 | A      | 315.76 | 315.73 | 315.56 | 315.82 | 315.80 | 315.73 | 315.84 | 315.70 | 314.87 |
| 28  | 315.80 | 315.80 | A      | 315.74 | 315.72 | 315.56 | 315.80 | 315.81 | 315.72 | 315.84 | 315.96 | 314.62 |
| 29  | 315.79 | 315.80 | 315.59 | 315.73 | ---    | 315.80 | 315.80 | 315.80 | 315.70 | 315.84 | 315.69 | 314.39 |
| 30  | 315.80 | 315.80 | 315.57 | 315.69 | ---    | 315.81 | 315.78 | 315.78 | 315.69 | 315.84 | 315.41 | 314.15 |
| 31  | 315.80 | ---    | 315.57 | 315.69 | ---    | 315.83 | ---    | 315.77 | ---    | 315.83 | 315.12 | ---    |
| MAX | 316.21 | 315.85 | ---    | 315.90 | ---    | 315.83 | 315.88 | 315.82 | 315.88 | 315.92 | ---    | 316.60 |
| MIN | 315.79 | 315.78 | ---    | 315.57 | ---    | 315.56 | 315.71 | 315.59 | 315.69 | 315.66 | ---    | 314.15 |

A No gage-height record

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR

LOCATION.--Lat 18°21'51", long 66°03'56", Hydrologic Unit 21010005, on right bank, in the Riberas of Señorial Housing area, 0.6 mi (1.0 km) west of Highway 176 and 2.7 mi (4.3 km) southwest of Río Piedras Plaza.

DRAINAGE AREA.--7.49 mi<sup>2</sup> (19.40 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORDS.--March 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 98.4 ft (30.0 m), from topographic map.

REMARKS.--Records poor. Low flow is affected by discharges from water treatment plant of PRASA and others dispersed pollution points directly to the river. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
DAILY MEAN VALUES

| DAY   | OCT    | NOV  | DEC   | JAN   | FEB  | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------|--------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| 1     | 14     | e17  | 15    | 14    | 68   | 12    | 8.0   | 6.6   | e11   | e7.3  | e7.8  | 13    |
| 2     | 13     | e12  | 14    | 25    | 23   | 13    | 10    | 6.7   | e7.1  | e6.9  | e7.4  | 16    |
| 3     | 14     | e34  | 11    | 17    | 15   | 17    | 8.4   | 15    | e6.9  | e6.9  | e7.3  | 14    |
| 4     | 9.1    | e18  | 13    | 13    | 16   | 16    | 7.9   | 7.2   | e6.9  | e6.9  | e7.3  | 13    |
| 5     | 9.1    | e75  | 10    | 16    | 15   | 23    | 7.7   | 6.7   | e6.8  | e8.0  | e6.9  | 12    |
| 6     | 13     | e22  | 11    | 12    | 12   | 13    | 7.3   | 6.5   | e6.6  | e9.7  | e6.9  | 12    |
| 7     | e43    | e11  | 10    | 11    | 13   | 14    | 7.1   | 6.7   | e6.9  | e12   | e7.1  | 11    |
| 8     | e25    | 19   | 10    | 11    | 14   | 16    | 7.2   | 6.5   | e6.9  | e19   | e16   | 11    |
| 9     | e22    | 15   | 11    | 9.7   | 26   | 13    | 6.9   | 6.6   | e7.0  | e11   | e10   | 10    |
| 10    | e49    | 18   | 13    | 9.1   | 15   | 12    | 6.9   | 6.5   | e7.1  | e9.9  | e16   | 10    |
| 11    | e27    | 14   | 17    | 23    | 17   | 11    | 6.9   | 6.4   | e13   | e12   | e10   | 9.9   |
| 12    | e17    | 30   | 12    | 10    | 29   | 13    | 7.0   | 6.6   | e7.1  | e7.3  | e15   | 11    |
| 13    | e60    | 122  | 12    | 8.7   | 20   | 12    | 6.9   | 7.5   | e6.7  | e5.3  | e32   | 26    |
| 14    | e54    | 25   | 11    | 8.9   | 15   | 11    | 6.7   | 6.5   | e6.2  | e5.1  | e44   | 33    |
| 15    | e23    | 26   | 10    | 8.6   | 13   | 11    | 6.6   | 6.4   | e6.3  | e7.2  | e18   | 16    |
| 16    | e22    | 27   | 12    | 8.6   | 14   | 11    | 6.7   | 8.5   | e6.1  | e11   | e25   | 13    |
| 17    | e18    | 37   | 10    | 8.5   | 12   | 11    | 6.9   | 6.3   | e5.9  | e5.6  | e26   | 12    |
| 18    | e17    | 31   | 9.9   | 11    | 11   | 31    | 6.9   | 6.0   | e5.9  | e12   | e22   | 12    |
| 19    | e16    | 24   | 10    | 10    | 14   | 11    | 6.6   | 5.8   | e7.6  | e11   | e17   | 11    |
| 20    | e12    | 23   | 10    | 9.4   | e13  | 9.3   | 7.1   | 75    | e5.7  | e49   | e18   | 10    |
| 21    | e27    | 22   | 15    | 70    | e21  | 10    | 7.1   | e82   | e5.8  | e15   | e68   | 12    |
| 22    | e15    | 102  | 11    | 81    | 22   | 11    | 7.0   | e17   | e5.9  | e6.6  | e130  | 13    |
| 23    | e19    | 20   | 12    | 63    | 12   | 8.4   | 6.5   | e8.8  | e9.9  | e5.0  | 28    | 24    |
| 24    | e13    | 21   | 37    | 55    | 21   | 8.6   | 6.6   | e19   | e12   | e4.6  | 55    | 22    |
| 25    | e16    | 13   | 13    | 24    | 20   | 8.7   | 6.5   | e20   | e6.8  | e7.2  | 26    | 15    |
| 26    | e70    | 10   | 108   | 16    | 19   | 10    | 6.5   | e8.7  | e6.1  | e6.9  | 18    | 37    |
| 27    | e38    | 15   | 36    | 12    | 12   | 8.3   | 7.0   | e8.8  | e6.2  | e4.6  | 18    | 18    |
| 28    | e199   | 13   | 52    | 15    | 11   | 9.2   | 6.4   | e8.1  | e6.3  | e8.2  | 15    | 17    |
| 29    | e83    | 10   | 74    | 14    | ---  | 30    | 6.5   | e7.1  | e7.9  | e4.8  | 15    | 45    |
| 30    | e33    | 36   | 50    | 12    | ---  | 9.9   | 6.5   | e6.9  | e19   | e27   | 13    | 18    |
| 31    | e35    | ---  | 19    | 15    | ---  | 8.6   | ---   | e6.9  | ---   | e12   | 23    | ---   |
| TOTAL | 1025.2 | 862  | 658.9 | 621.5 | 513  | 403.0 | 212.3 | 403.3 | 229.6 | 325.0 | 728.7 | 496.9 |
| MEAN  | 33.1   | 28.7 | 21.3  | 20.0  | 18.3 | 13.0  | 7.08  | 13.0  | 7.65  | 10.5  | 23.5  | 16.6  |
| MAX   | 199    | 122  | 108   | 81    | 68   | 31    | 10    | 82    | 19    | 49    | 130   | 45    |
| MIN   | 9.1    | 10   | 9.9   | 8.5   | 11   | 8.3   | 6.4   | 5.8   | 5.7   | 4.6   | 6.9   | 9.9   |
| AC-FT | 2030   | 1710 | 1310  | 1230  | 1020 | 799   | 421   | 800   | 455   | 645   | 1450  | 986   |
| CFSM  | 4.42   | 3.84 | 2.84  | 2.68  | 2.45 | 1.74  | .94   | 1.74  | 1.02  | 1.40  | 3.14  | 2.21  |
| IN.   | 5.09   | 4.28 | 3.27  | 3.09  | 2.55 | 2.00  | 1.05  | 2.00  | 1.14  | 1.61  | 3.62  | 2.47  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1997, BY WATER YEAR (WY)

|      | MEAN | 24.4 | 21.6 | 14.9 | 14.8 | 12.8 | 11.0 | 11.9 | 15.1 | 11.6 | 14.7 | 21.7 | 27.6 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 57.3 | 59.8 | 40.5 | 24.4 | 23.6 | 19.5 | 23.9 | 47.2 | 24.8 | 38.0 | 66.9 | 71.8 |      |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1991 | 1990 | 1993 | 1992 | 1989 | 1993 | 1992 | 1996 |      |
| MIN  | 8.48 | 5.93 | 4.32 | 6.95 | 2.70 | 1.85 | 2.83 | 3.38 | 2.66 | 4.22 | 6.60 | 6.90 |      |
| (WY) | 1992 | 1996 | 1996 | 1995 | 1996 | 1996 | 1995 | 1994 | 1994 | 1994 | 1990 | 1991 |      |

## SUMMARY STATISTICS

## FOR 1996 CALENDAR YEAR

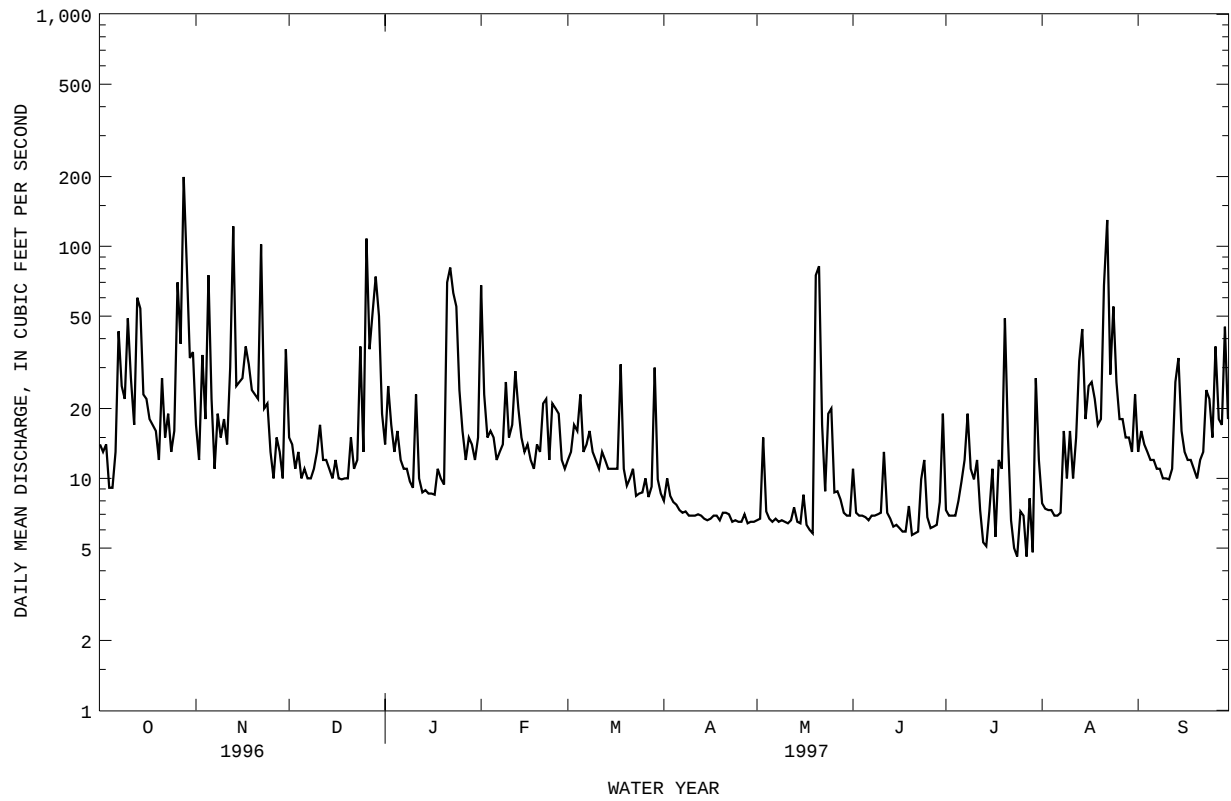
## FOR 1997 WATER YEAR

## WATER YEARS 1988 - 1997

|                          |         |        |       |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL             | 6443.02 | 6479.4 |       |
| ANNUAL MEAN              | 17.6    | 17.8   | 16.6  |
| HIGHEST ANNUAL MEAN      |         |        | 24.1  |
| LOWEST ANNUAL MEAN       |         |        | 7.76  |
| HIGHEST DAILY MEAN       | 1650    | Sep 10 | 1650  |
| LOWEST DAILY MEAN        | .92     | Jul 4  | .84   |
| ANNUAL SEVEN-DAY MINIMUM | .97     | Jun 30 | .97   |
| INSTANTANEOUS PEAK FLOW  |         |        | 5390  |
| INSTANTANEOUS PEAK STAGE |         |        | 15.46 |
| ANNUAL RUNOFF (AC-FT)    | 12780   | 12850  | 12030 |
| ANNUAL RUNOFF (CFSM)     | 2.35    | 2.37   | 2.22  |
| ANNUAL RUNOFF (INCHES)   | 32.00   | 32.18  | 30.12 |
| 10 PERCENT EXCEEDS       | 34      | 33     | 34    |
| 50 PERCENT EXCEEDS       | 3.5     | 12     | 7.5   |
| 90 PERCENT EXCEEDS       | 1.3     | 6.6    | 2.4   |

e Estimated

RIO PUERTO NUEVO BASIN  
50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued



## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1     | 46    | 11    | 11    | 7.6   | 3.0   | 4.5   | 5.2   | 4.3   | 3.5   | 3.8   | 5.1   | e8.3   |
| 2     | 56    | 9.2   | 11    | 7.4   | 3.1   | 4.5   | 4.8   | 4.1   | 3.3   | 4.4   | 4.8   | 23     |
| 3     | 23    | 9.9   | 11    | 9.8   | 3.1   | 5.1   | 4.3   | 4.4   | 3.4   | 13    | 4.8   | 7.5    |
| 4     | 17    | 9.1   | 11    | 7.9   | 58    | 4.5   | 4.3   | 4.7   | 3.4   | 20    | 4.8   | 6.6    |
| 5     | 18    | 11    | 10    | 8.5   | 72    | 18    | 4.6   | 4.3   | 24    | 4.6   | 6.2   | 7.0    |
| 6     | 22    | 9.6   | 10    | 28    | 9.4   | 4.3   | 4.4   | 4.1   | 5.3   | 4.1   | e8.0  | 201    |
| 7     | 18    | 9.9   | 10    | 33    | 7.7   | 8.9   | 5.7   | 4.2   | 4.6   | 7.8   | e39   | 30     |
| 8     | 69    | 10    | 10    | 5.8   | 29    | 4.5   | 5.9   | 5.0   | 6.1   | 3.6   | e11   | 14     |
| 9     | 24    | 11    | 10    | 5.4   | 13    | 4.0   | 4.5   | 4.2   | 28    | 4.1   | e15   | 14     |
| 10    | 18    | 12    | 10    | 5.0   | 6.4   | 3.8   | 4.3   | 3.9   | 9.3   | 9.3   | e37   | 11     |
| 11    | 28    | 11    | 9.9   | 4.5   | 6.6   | 3.7   | 4.4   | 3.9   | 4.3   | 4.1   | e84   | 10     |
| 12    | 25    | 11    | 8.7   | 4.9   | 5.8   | 3.7   | 36    | 3.8   | 7.4   | 3.6   | e31   | 11     |
| 13    | 52    | 12    | 8.9   | 30    | 5.3   | 3.7   | 9.6   | 3.7   | 3.8   | 3.6   | e10   | 16     |
| 14    | 123   | 11    | 8.7   | 13    | 18    | 36    | 4.4   | 26    | 3.5   | 11    | 8.7   | 9.9    |
| 15    | 19    | 32    | 8.5   | 5.6   | 8.9   | 5.1   | 9.5   | 7.0   | 3.6   | 8.2   | 7.4   | 12     |
| 16    | 16    | 16    | 8.1   | 4.9   | 6.4   | 4.2   | 60    | 3.7   | 9.6   | 75    | 6.3   | 14     |
| 17    | 14    | 9.7   | 8.1   | 4.6   | 5.6   | 4.2   | 12    | 6.9   | 19    | 21    | e6.0  | 20     |
| 18    | 13    | 16    | 7.6   | 17    | 5.2   | 5.8   | 6.1   | 4.4   | 11    | 22    | e60   | 22     |
| 19    | 12    | 12    | 7.2   | 6.7   | 5.6   | 4.1   | 5.5   | 6.7   | 4.9   | 6.6   | e15   | 16     |
| 20    | 11    | 11    | 7.1   | 4.9   | 5.0   | 3.8   | 12    | 6.0   | 4.4   | 22    | e10   | 16     |
| 21    | 11    | 22    | 8.0   | 4.7   | 4.8   | 3.9   | 7.7   | 6.3   | 8.4   | 10    | e28   | e714   |
| 22    | 11    | 13    | 6.7   | 4.2   | 4.7   | 3.9   | 5.4   | 4.0   | 5.4   | 7.6   | e11   | e1030  |
| 23    | 10    | 12    | 6.6   | 3.9   | 4.7   | 3.9   | 5.2   | 29    | 5.0   | 8.2   | e7.0  | e49    |
| 24    | 10    | 14    | 6.5   | 3.8   | 4.2   | 3.9   | 5.0   | 4.9   | 4.7   | 17    | e61   | 22     |
| 25    | 11    | 12    | 6.1   | 3.7   | 4.2   | 3.9   | 10    | 4.3   | 7.7   | 5.3   | e50   | 17     |
| 26    | 11    | 13    | 6.3   | 3.7   | 4.4   | 3.7   | 5.5   | 9.1   | 4.3   | 5.5   | e7.5  | 47     |
| 27    | 10    | 11    | 6.7   | 3.7   | 4.5   | 3.8   | 7.9   | 7.1   | 4.6   | 9.8   | e30   | 22     |
| 28    | 10    | 11    | 6.3   | 3.6   | 4.5   | 4.5   | 5.1   | 8.8   | 4.6   | 8.1   | e55   | 15     |
| 29    | 9.6   | 11    | 6.5   | 3.5   | ---   | 36    | 4.8   | 4.3   | 4.3   | 6.2   | e18   | 25     |
| 30    | 9.5   | 11    | 6.2   | 3.5   | ---   | 10    | 4.7   | 3.7   | 3.9   | 7.1   | e9.3  | 13     |
| 31    | 9.7   | ---   | 6.7   | 3.4   | ---   | 10    | ---   | 3.5   | ---   | 7.2   | e8.4  | ---    |
| TOTAL | 736.8 | 374.4 | 259.4 | 256.2 | 313.1 | 223.9 | 268.8 | 200.3 | 215.3 | 343.8 | 659.3 | 2423.3 |
| MEAN  | 23.8  | 12.5  | 8.37  | 8.26  | 11.2  | 7.22  | 8.96  | 6.46  | 7.18  | 11.1  | 21.3  | 80.8   |
| MAX   | 123   | 32    | 11    | 33    | 72    | 36    | 60    | 29    | 28    | 75    | 84    | 1030   |
| MIN   | 9.5   | 9.1   | 6.1   | 3.4   | 3.0   | 3.7   | 4.3   | 3.5   | 3.3   | 3.6   | 4.8   | 6.6    |
| AC-FT | 1460  | 743   | 515   | 508   | 621   | 444   | 533   | 397   | 427   | 682   | 1310  | 4810   |
| CFSM  | 3.17  | 1.67  | 1.12  | 1.10  | 1.49  | .96   | 1.20  | .86   | .96   | 1.48  | 2.84  | 10.8   |
| IN.   | 3.66  | 1.86  | 1.29  | 1.27  | 1.56  | 1.11  | 1.34  | .99   | 1.07  | 1.71  | 3.27  | 12.04  |

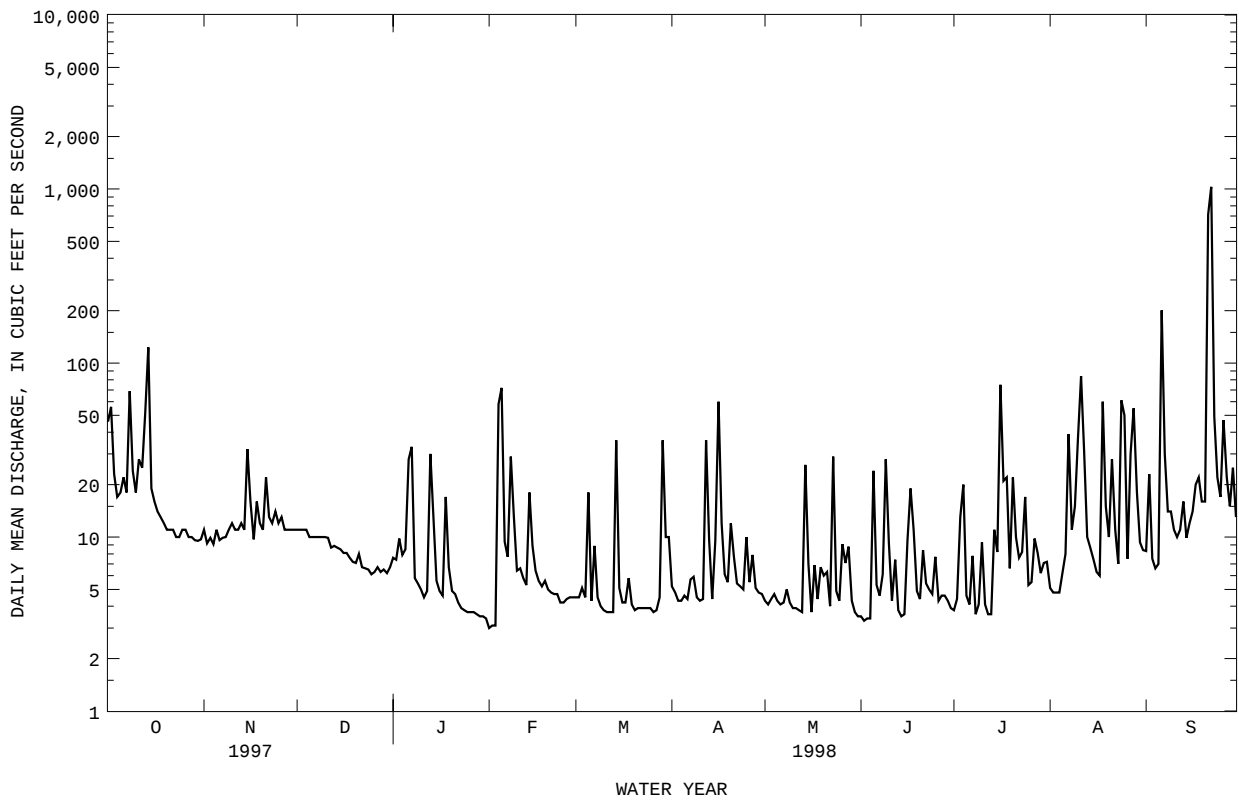
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 24.3 | 20.7 | 14.2 | 14.1 | 12.6 | 10.6 | 11.6 | 14.3 | 11.2 | 14.3 | 21.7 | 32.5 |
| MAX  | 57.3 | 59.8 | 40.5 | 24.4 | 23.6 | 19.5 | 23.9 | 47.2 | 24.8 | 38.0 | 66.9 | 80.8 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1991 | 1990 | 1993 | 1992 | 1989 | 1993 | 1992 | 1998 |
| MIN  | 8.48 | 5.93 | 4.32 | 6.95 | 2.70 | 1.85 | 2.83 | 3.38 | 2.66 | 4.22 | 6.60 | 6.90 |
| (WY) | 1992 | 1996 | 1996 | 1995 | 1996 | 1996 | 1995 | 1994 | 1994 | 1994 | 1990 | 1991 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1988 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 5303.9                 | 6274.6              |                         |
| ANNUAL MEAN              | 14.5                   | 17.2                | 16.7                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 24.1                    |
| LOWEST ANNUAL MEAN       |                        |                     | 7.76                    |
| HIGHEST DAILY MEAN       | 130                    | Aug 22              | 1030                    |
| LOWEST DAILY MEAN        | 4.6                    | Jul 24              | 3.0                     |
| ANNUAL SEVEN-DAY MINIMUM | 5.9                    | Jul 23              | 3.3                     |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 4700                    |
| INSTANTANEOUS PEAK STAGE |                        |                     | 14.75                   |
| ANNUAL RUNOFF (AC-FT)    | 10520                  | 12450               | 15.46                   |
| ANNUAL RUNOFF (CFSM)     | 1.94                   | 2.30                | 12070                   |
| ANNUAL RUNOFF (INCHES)   | 26.34                  | 31.16               | 2.22                    |
| 10 PERCENT EXCEEDS       | 24                     | 27                  | 30.23                   |
| 50 PERCENT EXCEEDS       | 11                     | 7.7                 | 33                      |
| 90 PERCENT EXCEEDS       | 6.5                    | 3.9                 | 7.5                     |
|                          |                        |                     | 2.5                     |

e Estimated

RIO PUERTO NUEVO BASIN  
50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued



## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 30, 1998.

INSTRUMENTATION.-- Automatic sediment sampler since 1988.

REMARKS.-- During high flow sediment samples were collected by automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 24,600 mg/L Sep. 18, 1989; Minimum daily mean, 2 mg/L November 18, 1988.

SEDIMENT LOADS: Maximum daily mean, e165,000tons (e150,000tonnes) September 22, 1998; Minimum daily mean, 0.02 ton (0.02 tonne) June 9, 1994.

EXTREMES FOR WATER YEARS 1997-1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,870 mg/L May 20, 1997; Minimum daily mean, 9 mg/L January 16-17, 1997.

SEDIMENT LOADS: Maximum daily mean, 2,140 tons (1,940 tonnes) November 22, 1996; Minimum daily mean, 0.21 ton (0.19 tonne) January 16-17, 1997.

SEDIMENT CONCENTRATION: Maximum daily mean, 3,420 mg/L July 16, 1998; Minimum daily mean, 6 mg/L February 3, 1998.

SEDIMENT LOADS: Maximum daily mean, 165,000 tons (150,000 tonnes) September 22, 1998; Minimum daily mean, 0.05 ton (0.04 tonne) February 3, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 14                         | 130                                  | 5.2                                 | e17                        | 38                                   | e9.4                                | 15                         | 158                                  | 9.0                                 |
| 2       | 13                         | 115                                  | 4.3                                 | e12                        | 37                                   | e4.3                                | 14                         | 124                                  | 5.0                                 |
| 3       | 14                         | 124                                  | 8.2                                 | e34                        | 36                                   | e66                                 | 11                         | 86                                   | 2.6                                 |
| 4       | 9.1                        | 480                                  | 1.7                                 | e18                        | 35                                   | e15                                 | 13                         | 114                                  | 4.5                                 |
| 5       | 9.1                        | 69                                   | 1.7                                 | e75                        | 34                                   | e187                                | 10                         | 77                                   | 2.1                                 |
| 6       | 13                         | 115                                  | 5.5                                 | e22                        | 33                                   | e18                                 | 11                         | 79                                   | 2.3                                 |
| 7       | e43                        | 75                                   | e72                                 | e11                        | 32                                   | e4.0                                | 10                         | 81                                   | 2.3                                 |
| 8       | e25                        | 73                                   | e26                                 | 19                         | 30                                   | 1.5                                 | 10                         | 83                                   | 2.3                                 |
| 9       | e22                        | 71                                   | e18                                 | 15                         | 27                                   | 1.1                                 | 11                         | 85                                   | 2.5                                 |
| 10      | e49                        | 500                                  | e91                                 | 18                         | 179                                  | 24                                  | 13                         | 126                                  | 7.6                                 |
| 11      | e27                        | 67                                   | e32                                 | 14                         | 141                                  | 6.1                                 | 17                         | 181                                  | 9.8                                 |
| 12      | e17                        | 66                                   | e6.1                                | 30                         | 513                                  | 93                                  | 12                         | 109                                  | 3.7                                 |
| 13      | e60                        | 900                                  | e176                                | 122                        | 1090                                 | 1710                                | 12                         | 91                                   | 2.8                                 |
| 14      | e54                        | 569                                  | e146                                | 25                         | 291                                  | 20                                  | 11                         | 82                                   | 2.4                                 |
| 15      | e23                        | 60                                   | e20                                 | 26                         | 318                                  | 27                                  | 10                         | 73                                   | 2.0                                 |
| 16      | e22                        | 59                                   | e18                                 | 27                         | 423                                  | 48                                  | 12                         | 54                                   | 2.1                                 |
| 17      | e18                        | 57                                   | e15                                 | 37                         | 516                                  | 69                                  | 10                         | 17                                   | .46                                 |
| 18      | e17                        | 56                                   | e9.4                                | 31                         | 415                                  | 37                                  | 9.9                        | 16                                   | .43                                 |
| 19      | e16                        | 54                                   | e5.2                                | 24                         | 134                                  | 8.5                                 | 10                         | 15                                   | .41                                 |
| 20      | e12                        | 53                                   | e4.3                                | 23                         | 42                                   | 2.6                                 | 10                         | 14                                   | .41                                 |
| 21      | e27                        | 51                                   | e27                                 | 22                         | 36                                   | 2.2                                 | 15                         | 100                                  | 4.8                                 |
| 22      | e15                        | 50                                   | e5.8                                | 102                        | 912                                  | 2140                                | 11                         | 75                                   | 2.2                                 |
| 23      | e19                        | 49                                   | e15                                 | 20                         | 203                                  | 12                                  | 12                         | 107                                  | 3.8                                 |
| 24      | e13                        | 47                                   | e4.8                                | 21                         | 237                                  | 15                                  | 37                         | 485                                  | 101                                 |
| 25      | e16                        | 46                                   | e5.2                                | 13                         | 113                                  | 4.2                                 | 13                         | 127                                  | 4.4                                 |
| 26      | e70                        | 750                                  | e197                                | 10                         | 72                                   | 2.0                                 | 108                        | 1090                                 | 1480                                |
| 27      | e38                        | 460                                  | e69                                 | 15                         | 141                                  | 8.9                                 | 36                         | 445                                  | 64                                  |
| 28      | e199                       | 985                                  | e1760                               | 13                         | 108                                  | 4.4                                 | 52                         | 569                                  | 146                                 |
| 29      | e83                        | 41                                   | e197                                | 10                         | 63                                   | 1.7                                 | 74                         | 753                                  | 187                                 |
| 30      | e33                        | 40                                   | e64                                 | 36                         | 466                                  | 75                                  | 50                         | 730                                  | 208                                 |
| 31      | e35                        | 39                                   | e69                                 | ---                        | ---                                  | ---                                 | 19                         | 168                                  | 8.6                                 |
| TOTAL   | 1025.2                     | ---                                  | 3079.4                              | 862                        | ---                                  | 4616.9                              | 658.9                      | ---                                  | 2274.51                             |

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

## WATER-QUALITY RECORDS

| DAY     | SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), |                           |                               | WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997 |                           |                               |                      |                           |                               |
|---------|-------------------------------------------|---------------------------|-------------------------------|-------------------------------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|
|         | MEAN DISCHARGE (CFS)                      | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS)                      | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| JANUARY |                                           |                           | FEBRUARY                      |                                           |                           | MARCH                         |                      |                           |                               |
| 1       | 14                                        | 118                       | 4.6                           | 68                                        | 899                       | 529                           | 12                   | 20                        | .63                           |
| 2       | 25                                        | 300                       | 24                            | 23                                        | 284                       | 20                            | 13                   | 54                        | 2.2                           |
| 3       | 17                                        | 198                       | 11                            | 15                                        | 137                       | 5.5                           | 17                   | 121                       | 6.8                           |
| 4       | 13                                        | 107                       | 3.7                           | 16                                        | 172                       | 9.9                           | 16                   | 118                       | 5.9                           |
| 5       | 16                                        | 170                       | 10                            | 15                                        | 139                       | 6.0                           | 23                   | 235                       | 19                            |
| 6       | 12                                        | 96                        | 3.0                           | 12                                        | 99                        | 3.2                           | 13                   | 23                        | .77                           |
| 7       | 11                                        | 84                        | 2.6                           | 13                                        | 113                       | 4.2                           | 14                   | 87                        | 4.1                           |
| 8       | 11                                        | 79                        | 2.2                           | 14                                        | 138                       | 6.5                           | 16                   | 125                       | 7.1                           |
| 9       | 9.7                                       | 74                        | 2.0                           | 26                                        | 339                       | 45                            | 13                   | 54                        | 2.0                           |
| 10      | 9.1                                       | 70                        | 1.7                           | 15                                        | 121                       | 4.8                           | 12                   | 24                        | .74                           |
| 11      | 23                                        | 298                       | 72                            | 17                                        | 194                       | 13                            | 11                   | 19                        | .57                           |
| 12      | 10                                        | 89                        | 2.5                           | 29                                        | 358                       | 44                            | 13                   | 16                        | .52                           |
| 13      | 8.7                                       | 49                        | 1.2                           | 20                                        | 116                       | 7.1                           | 12                   | 13                        | .43                           |
| 14      | 8.9                                       | 27                        | .65                           | 15                                        | 69                        | 3.2                           | 11                   | 13                        | .36                           |
| 15      | 8.6                                       | 15                        | .35                           | 13                                        | 12                        | .41                           | 11                   | 12                        | .35                           |
| 16      | 8.6                                       | 9                         | .22                           | 14                                        | 25                        | 1.7                           | 11                   | 12                        | .33                           |
| 17      | 8.5                                       | 9                         | .21                           | 12                                        | 10                        | .34                           | 11                   | 11                        | .34                           |
| 18      | 11                                        | 63                        | 4.4                           | 11                                        | 10                        | .29                           | 31                   | 319                       | 119                           |
| 19      | 10                                        | 98                        | 2.8                           | 14                                        | 10                        | .38                           | 11                   | 12                        | .35                           |
| 20      | 9.4                                       | 66                        | 1.7                           | e13                                       | 11                        | e.39                          | 9.3                  | 11                        | .27                           |
| 21      | 70                                        | 1030                      | 276                           | e21                                       | 168                       | e13                           | 10                   | 10                        | .31                           |
| 22      | 81                                        | 826                       | 198                           | 22                                        | 248                       | 19                            | 11                   | 12                        | .34                           |
| 23      | 63                                        | 911                       | 201                           | 12                                        | 35                        | 1.2                           | 8.4                  | 17                        | .38                           |
| 24      | 55                                        | 666                       | 104                           | 21                                        | 232                       | 16                            | 8.6                  | 27                        | .63                           |
| 25      | 24                                        | 257                       | 18                            | 20                                        | 176                       | 12                            | 8.7                  | 44                        | 1.0                           |
| 26      | 16                                        | 136                       | 5.8                           | 19                                        | 146                       | 11                            | 10                   | 89                        | 2.6                           |
| 27      | 12                                        | 110                       | 3.7                           | 12                                        | 23                        | .76                           | 8.3                  | 67                        | 1.5                           |
| 28      | 15                                        | 131                       | 5.6                           | 11                                        | 20                        | .62                           | 9.2                  | 111                       | 3.2                           |
| 29      | 14                                        | 138                       | 5.8                           | ---                                       | ---                       | ---                           | 30                   | 997                       | 302                           |
| 30      | 12                                        | 105                       | 3.5                           | ---                                       | ---                       | ---                           | 9.9                  | 106                       | 2.9                           |
| 31      | 15                                        | 153                       | 8.6                           | ---                                       | ---                       | ---                           | 8.6                  | 87                        | 2.0                           |
| TOTAL   | 621.5                                     | ---                       | 980.83                        | 513                                       | ---                       | 778.49                        | 403.0                | ---                       | 488.62                        |
| DAY     | APRIL                                     |                           |                               | MAY                                       |                           |                               | JUNE                 |                           |                               |
|         | MEAN DISCHARGE (CFS)                      | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS)                      | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| 1       | 8.0                                       | 71                        | 1.5                           | 6.6                                       | 21                        | .38                           | e11                  | 14                        | e7.0                          |
| 2       | 10                                        | 140                       | 7.0                           | 6.7                                       | 21                        | .38                           | e7.1                 | 15                        | e.99                          |
| 3       | 8.4                                       | 133                       | 3.1                           | 15                                        | 185                       | 25                            | e6.9                 | 15                        | e.99                          |
| 4       | 7.9                                       | 57                        | 1.2                           | 7.2                                       | 27                        | .51                           | e6.9                 | 15                        | e.99                          |
| 5       | 7.7                                       | 54                        | 1.1                           | 6.7                                       | 26                        | .47                           | e6.8                 | 15                        | e.99                          |
| 6       | 7.3                                       | 53                        | 1.0                           | 6.5                                       | 25                        | .45                           | e6.6                 | 16                        | e.99                          |
| 7       | 7.1                                       | 51                        | .99                           | 6.7                                       | 25                        | .44                           | e6.9                 | 17                        | e.99                          |
| 8       | 7.2                                       | 50                        | .96                           | 6.5                                       | 24                        | .42                           | e6.9                 | 18                        | e.99                          |
| 9       | 6.9                                       | 46                        | .86                           | 6.6                                       | 23                        | .42                           | e7.0                 | 19                        | e.99                          |
| 10      | 6.9                                       | 41                        | .77                           | 6.5                                       | 23                        | .40                           | e7.1                 | 20                        | e.99                          |
| 11      | 6.9                                       | 37                        | .68                           | 6.4                                       | 22                        | .38                           | e13                  | 21                        | e2.0                          |
| 12      | 7.0                                       | 33                        | .63                           | 6.6                                       | 22                        | .38                           | e7.1                 | 23                        | e.99                          |
| 13      | 6.9                                       | 29                        | .55                           | 7.5                                       | 35                        | .97                           | e6.7                 | 24                        | e.99                          |
| 14      | 6.7                                       | 26                        | .48                           | 6.5                                       | 28                        | .49                           | e6.2                 | 24                        | e.99                          |
| 15      | 6.6                                       | 23                        | .42                           | 6.4                                       | 24                        | .41                           | e6.3                 | 24                        | e.99                          |
| 16      | 6.7                                       | 21                        | .38                           | 8.5                                       | 92                        | 3.6                           | e6.1                 | 24                        | e.99                          |
| 17      | 6.9                                       | 21                        | .39                           | 6.3                                       | 24                        | .41                           | e5.9                 | 24                        | e.37                          |
| 18      | 6.9                                       | 21                        | .39                           | 6.0                                       | 23                        | .37                           | e5.9                 | 24                        | e.37                          |
| 19      | 6.6                                       | 21                        | .38                           | 5.8                                       | 21                        | .33                           | e7.6                 | 25                        | e1.1                          |
| 20      | 7.1                                       | 21                        | .40                           | 75                                        | 1870                      | 1530                          | e5.7                 | 29                        | e.37                          |
| 21      | 7.1                                       | 21                        | .41                           | e82                                       | 2580                      | e197                          | e5.8                 | 35                        | e.37                          |
| 22      | 7.0                                       | 21                        | .39                           | e17                                       | 171                       | e25                           | e5.9                 | 41                        | e.37                          |
| 23      | 6.5                                       | 21                        | .37                           | e8.8                                      | 35                        | e2.0                          | e9.9                 | 49                        | e2.9                          |
| 24      | 6.6                                       | 21                        | .38                           | e19                                       | 340                       | e11                           | e12                  | 58                        | e2.0                          |
| 25      | 6.5                                       | 21                        | .37                           | e20                                       | 335                       | e12                           | e6.8                 | 69                        | e.86                          |
| 26      | 6.5                                       | 21                        | .37                           | e8.7                                      | 81                        | e2.0                          | e6.1                 | 82                        | e.86                          |
| 27      | 7.0                                       | 21                        | .40                           | e8.8                                      | 78                        | e2.0                          | e6.2                 | 88                        | e.86                          |
| 28      | 6.4                                       | 21                        | .36                           | e8.1                                      | 78                        | e3.1                          | e6.3                 | 86                        | e.86                          |
| 29      | 6.5                                       | 21                        | .37                           | e7.1                                      | 40                        | e.99                          | e7.9                 | 36                        | e.97                          |
| 30      | 6.5                                       | 21                        | .37                           | e6.9                                      | 15                        | e.99                          | e19                  | 200                       | e25                           |
| 31      | ---                                       | ---                       | ---                           | e6.9                                      | 14                        | e.99                          | ---                  | ---                       | ---                           |
| TOTAL   | 212.3                                     | ---                       | 26.97                         | 403.3                                     | ---                       | 1823.28                       | 229.6                | ---                       | 60.12                         |

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

## WATER-QUALITY RECORDS

| SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997 |                            |                                 |                                     |                            |                                 |                                     |                            |                                 |                                     |
|-------------------------------------------------------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| DAY                                                                                 | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| JULY                                                                                |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1                                                                                   | e7.3                       | 51                              | e.99                                | e7.8                       | 50                              | e.99                                | 13                         | 45                              | 1.6                                 |
| 2                                                                                   | e6.9                       | 46                              | e.99                                | e7.4                       | 48                              | e.99                                | 16                         | 164                             | 11                                  |
| 3                                                                                   | e6.9                       | 43                              | e.99                                | e7.3                       | 51                              | e.99                                | 14                         | 47                              | 1.7                                 |
| 4                                                                                   | e6.9                       | 44                              | e.99                                | e7.3                       | 47                              | e.99                                | 13                         | 39                              | 1.4                                 |
| 5                                                                                   | e8.0                       | 45                              | e3.1                                | e6.9                       | 43                              | e.99                                | 12                         | 47                              | 1.5                                 |
| 6                                                                                   | e9.7                       | 46                              | e.27                                | e6.9                       | 49                              | e.99                                | 12                         | 57                              | 1.8                                 |
| 7                                                                                   | e12                        | 55                              | e7.0                                | e7.1                       | 50                              | e.99                                | 11                         | 69                              | 2.1                                 |
| 8                                                                                   | e19                        | 59                              | e25                                 | e16                        | 160                             | e11                                 | 11                         | 84                              | 2.6                                 |
| 9                                                                                   | e11                        | 60                              | e7.0                                | e10                        | 70                              | e2.1                                | 10                         | 75                              | 2.1                                 |
| 10                                                                                  | e9.9                       | 32                              | e7.0                                | e16                        | 150                             | e11                                 | 10                         | 74                              | 2.0                                 |
| 11                                                                                  | e12                        | 58                              | e7.0                                | e10                        | 65                              | e2.1                                | 9.9                        | 73                              | 2.0                                 |
| 12                                                                                  | e7.3                       | 51                              | e.97                                | e15                        | 130                             | e2.0                                | 11                         | 109                             | 3.7                                 |
| 13                                                                                  | e5.3                       | 35                              | e.37                                | e32                        | 750                             | e56                                 | 26                         | 318                             | 40                                  |
| 14                                                                                  | e5.1                       | 30                              | e.37                                | e44                        | 900                             | e380                                | 33                         | 423                             | 56                                  |
| 15                                                                                  | e7.2                       | 27                              | e.97                                | e18                        | 181                             | e2.9                                | 16                         | 135                             | 5.9                                 |
| 16                                                                                  | e11                        | 60                              | e7.0                                | e25                        | 351                             | e28                                 | 13                         | 85                              | 2.9                                 |
| 17                                                                                  | e5.6                       | 40                              | e.37                                | e26                        | 348                             | e28                                 | 12                         | 58                              | 1.9                                 |
| 18                                                                                  | e12                        | 41                              | e7.0                                | e22                        | 351                             | e28                                 | 12                         | 41                              | 1.3                                 |
| 19                                                                                  | e11                        | 57                              | e7.0                                | e17                        | 150                             | e11                                 | 11                         | 36                              | 1.0                                 |
| 20                                                                                  | e49                        | 44                              | e380                                | e18                        | 145                             | e11                                 | 10                         | 32                              | .89                                 |
| 21                                                                                  | e15                        | 33                              | e2.0                                | e68                        | 925                             | e201                                | 12                         | 122                             | 4.4                                 |
| 22                                                                                  | e6.6                       | 25                              | e.97                                | e130                       | 1000                            | e1700                               | 13                         | 128                             | 5.4                                 |
| 23                                                                                  | e5.0                       | 19                              | e.97                                | 28                         | 308                             | 23                                  | 24                         | 1150                            | 344                                 |
| 24                                                                                  | e4.6                       | 16                              | e.97                                | 55                         | 1530                            | 524                                 | 22                         | 351                             | 34                                  |
| 25                                                                                  | e7.2                       | 19                              | e.99                                | 26                         | 149                             | 12                                  | 15                         | 131                             | 5.2                                 |
| 26                                                                                  | e6.9                       | 24                              | e.99                                | 18                         | 59                              | 2.9                                 | 37                         | 842                             | 341                                 |
| 27                                                                                  | e4.6                       | 30                              | e.37                                | 18                         | 134                             | 7.8                                 | 18                         | 181                             | 8.6                                 |
| 28                                                                                  | e8.2                       | 38                              | e3.1                                | 15                         | 49                              | 2.0                                 | 17                         | 171                             | 8.1                                 |
| 29                                                                                  | e4.8                       | 48                              | e.37                                | 15                         | 49                              | 2.0                                 | 45                         | 900                             | 382                                 |
| 30                                                                                  | e27                        | 200                             | e23                                 | 13                         | 49                              | 1.8                                 | 18                         | 194                             | 9.6                                 |
| 31                                                                                  | e12                        | 125                             | e1.8                                | 23                         | 194                             | 23                                  | ---                        | ---                             | ---                                 |
| TOTAL                                                                               | 325.0                      | ---                             | 499.91                              | 728.7                      | ---                             | 3079.53                             | 496.9                      | ---                             | 1285.69                             |
| YEAR                                                                                | 6479.4                     |                                 | 18994.25                            |                            |                                 |                                     |                            |                                 |                                     |
| e Estimated                                                                         |                            |                                 |                                     |                            |                                 |                                     |                            |                                 |                                     |

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 13... | 0400 | 167                                                                   | 1800                                                  | 812                                                                       | 92                                                                       |
| 22... | 1420 | 365                                                                   | 10100                                                 | 9950                                                                      | 55                                                                       |
| DEC   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 26... | 1945 | 304                                                                   | 5500                                                  | 4510                                                                      | 84                                                                       |
| 29... | 1315 | 188                                                                   | 1040                                                  | 528                                                                       | 83                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 24... | 1129 | 44                                                                    | 299                                                   | 36                                                                        | 99                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 01... | 1145 | 170                                                                   | 6590                                                  | 3030                                                                      | 68                                                                       |
| 01... | 1248 | 446                                                                   | 6180                                                  | 7440                                                                      | 83                                                                       |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 29... | 1240 | 259                                                                   | 11100                                                 | 7760                                                                      | 96                                                                       |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 20... | 1831 | 211                                                                   | 6390                                                  | 3640                                                                      | 92                                                                       |
| JUN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 27... | 1157 | 6.1                                                                   | 56                                                    | .92                                                                       | 97                                                                       |
| JUL   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 30... | 2141 | 70                                                                    | 3870                                                  | 731                                                                       | 91                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 14... | 1516 | 130                                                                   | 6350                                                  | 2230                                                                      | 95                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 26... | 1016 | 178                                                                   | 6090                                                  | 2930                                                                      | 93                                                                       |
| 29... | 1400 | 100                                                                   | 8120                                                  | 2190                                                                      | 94                                                                       |

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

## WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

## PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328) |
|-------|------|-----------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                      |                                                                          |                                                                         |                                                                         |                                                                         |
| 12... | 1155 | 125                                                                   | 5830                                                 | 1970                                                                     | 39                                                                      | 46                                                                      | 55                                                                      |
| 22... | 1500 | 1380                                                                  | 11600                                                | 43100                                                                    | 25                                                                      | 30                                                                      | 33                                                                      |
| DEC   |      |                                                                       |                                                      |                                                                          |                                                                         |                                                                         |                                                                         |
| 26... | 2030 | 996                                                                   | 10100                                                | 27200                                                                    | 18                                                                      | 25                                                                      | 34                                                                      |
| MAR   |      |                                                                       |                                                      |                                                                          |                                                                         |                                                                         |                                                                         |
| 18... | 1423 | 168                                                                   | 5560                                                 | 2520                                                                     | 30                                                                      | 38                                                                      | 43                                                                      |
| MAY   |      |                                                                       |                                                      |                                                                          |                                                                         |                                                                         |                                                                         |
| 20... | 1516 | 274                                                                   | 9470                                                 | 7000                                                                     | 22                                                                      | 39                                                                      | 49                                                                      |
| JUN   |      |                                                                       |                                                      |                                                                          |                                                                         |                                                                         |                                                                         |
| 30... | 1415 | 205                                                                   | 5310                                                 | 2940                                                                     | 23                                                                      | 31                                                                      | 49                                                                      |
| JUL   |      |                                                                       |                                                      |                                                                          |                                                                         |                                                                         |                                                                         |
| 30... | 1713 | 79                                                                    | 5250                                                 | 1120                                                                     | 35                                                                      | 45                                                                      | 58                                                                      |
| SEP   |      |                                                                       |                                                      |                                                                          |                                                                         |                                                                         |                                                                         |
| 23... | 1811 | 186                                                                   | 43100                                                | 21700                                                                    | 6                                                                       | 9                                                                       | 12                                                                      |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

| DATE  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|-------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 12... | 67                                                                      | 78                                                                      | 97                                                                       | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |
| 22... | 41                                                                      | 48                                                                      | 59                                                                       | 72                                                                       | 85                                                                       | 96                                                                       | 99                                                                       |
| DEC   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 26... | 45                                                                      | 57                                                                      | 72                                                                       | 83                                                                       | 90                                                                       | 95                                                                       | 98                                                                       |
| MAR   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 18... | 60                                                                      | 75                                                                      | 86                                                                       | 94                                                                       | 98                                                                       | 99                                                                       | 100                                                                      |
| MAY   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 20... | 65                                                                      | 78                                                                      | 91                                                                       | 97                                                                       | 99                                                                       | 99                                                                       | 100                                                                      |
| JUN   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 30... | 65                                                                      | 79                                                                      | 94                                                                       | 96                                                                       | 98                                                                       | 100                                                                      | 100                                                                      |
| JUL   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 30... | 72                                                                      | 83                                                                      | 97                                                                       | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |
| SEP   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 23... | 19                                                                      | 29                                                                      | 58                                                                       | 75                                                                       | 91                                                                       | 98                                                                       | 100                                                                      |

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

| SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998 |                            |                                 |                                     |                            |                                 |                                     |                            |                                 |                                     |
|-------------------------------------------------------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| DAY                                                                                 | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| OCTOBER                                                                             |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1                                                                                   | 46                         | 2050                            | 1580                                | 11                         | 57                              | 3.7                                 | 11                         | 28                              | .81                                 |
| 2                                                                                   | 56                         | 992                             | 445                                 | 9.2                        | 10                              | .24                                 | 11                         | 27                              | .77                                 |
| 3                                                                                   | 23                         | 434                             | 28                                  | 9.9                        | 26                              | .88                                 | 11                         | 26                              | .74                                 |
| 4                                                                                   | 17                         | 242                             | 11                                  | 9.1                        | 10                              | .23                                 | 11                         | 25                              | .71                                 |
| 5                                                                                   | 18                         | 265                             | 15                                  | 11                         | 51                              | 2.0                                 | 10                         | 24                              | .67                                 |
| 6                                                                                   | 22                         | 379                             | 31                                  | 9.6                        | 10                              | .26                                 | 10                         | 23                              | .62                                 |
| 7                                                                                   | 18                         | 273                             | 14                                  | 9.9                        | 10                              | .27                                 | 10                         | 22                              | .60                                 |
| 8                                                                                   | 69                         | 1400                            | 1350                                | 10                         | 10                              | .27                                 | 10                         | 21                              | .57                                 |
| 9                                                                                   | 24                         | 495                             | 33                                  | 11                         | 10                              | .29                                 | 10                         | 20                              | .55                                 |
| 10                                                                                  | 18                         | 259                             | 12                                  | 12                         | 97                              | 3.5                                 | 10                         | 20                              | .55                                 |
| 11                                                                                  | 28                         | 534                             | 109                                 | 11                         | 24                              | .70                                 | 9.9                        | 47                              | 1.5                                 |
| 12                                                                                  | 25                         | 451                             | 46                                  | 11                         | 20                              | .61                                 | 8.7                        | 18                              | .42                                 |
| 13                                                                                  | 52                         | 706                             | 923                                 | 12                         | 20                              | .61                                 | 8.9                        | 17                              | .40                                 |
| 14                                                                                  | 123                        | 874                             | 856                                 | 11                         | 19                              | .56                                 | 8.7                        | 15                              | .36                                 |
| 15                                                                                  | 19                         | 52                              | 2.8                                 | 32                         | 717                             | 305                                 | 8.5                        | 15                              | .33                                 |
| 16                                                                                  | 16                         | 19                              | .85                                 | 16                         | 166                             | 12                                  | 8.1                        | 14                              | .30                                 |
| 17                                                                                  | 14                         | 18                              | .71                                 | 9.7                        | 20                              | .51                                 | 8.1                        | 13                              | .28                                 |
| 18                                                                                  | 13                         | 18                              | .60                                 | 16                         | 114                             | 14                                  | 7.6                        | 12                              | .25                                 |
| 19                                                                                  | 12                         | 17                              | .52                                 | 12                         | 23                              | .71                                 | 7.2                        | 12                              | .23                                 |
| 20                                                                                  | 11                         | 16                              | .47                                 | 11                         | 20                              | .59                                 | 7.1                        | 12                              | .23                                 |
| 21                                                                                  | 11                         | 15                              | .44                                 | 22                         | 271                             | 31                                  | 8.0                        | 12                              | .26                                 |
| 22                                                                                  | 11                         | 14                              | .41                                 | 13                         | 34                              | 1.2                                 | 6.7                        | 12                              | .22                                 |
| 23                                                                                  | 10                         | 14                              | .38                                 | 12                         | 34                              | 1.1                                 | 6.6                        | 12                              | .21                                 |
| 24                                                                                  | 10                         | 13                              | .36                                 | 14                         | 112                             | 5.7                                 | 6.5                        | 12                              | .21                                 |
| 25                                                                                  | 11                         | 12                              | .35                                 | 12                         | 34                              | 1.1                                 | 6.1                        | 12                              | .20                                 |
| 26                                                                                  | 11                         | 12                              | .33                                 | 13                         | 61                              | 2.5                                 | 6.3                        | 12                              | .20                                 |
| 27                                                                                  | 10                         | 11                              | .31                                 | 11                         | 33                              | 1.0                                 | 6.7                        | 12                              | .22                                 |
| 28                                                                                  | 10                         | 11                              | .29                                 | 11                         | 32                              | .93                                 | 6.3                        | 12                              | .20                                 |
| 29                                                                                  | 9.6                        | 11                              | .28                                 | 11                         | 31                              | .91                                 | 6.5                        | 12                              | .21                                 |
| 30                                                                                  | 9.5                        | 10                              | .27                                 | 11                         | 29                              | .85                                 | 6.2                        | 12                              | .20                                 |
| 31                                                                                  | 9.7                        | 10                              | .27                                 | ---                        | ---                             | ---                                 | 6.7                        | 12                              | .22                                 |
| TOTAL                                                                               | 736.8                      | ---                             | 5462.64                             | 374.4                      | ---                             | 393.22                              | 259.4                      | ---                             | 13.24                               |

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 7.6                        | 12                              | .25                                 | 3.0                        | 7                               | .06                                 | 4.5                        | 43                              | .52                                 |
| 2       | 7.4                        | 12                              | .24                                 | 3.1                        | 7                               | .06                                 | 4.5                        | 40                              | .49                                 |
| 3       | 9.8                        | 70                              | 2.5                                 | 3.1                        | 6                               | .05                                 | 5.1                        | 37                              | .51                                 |
| 4       | 7.9                        | 56                              | 1.7                                 | 58                         | 1770                            | 3250                                | 4.5                        | 32                              | .39                                 |
| 5       | 8.5                        | 70                              | 2.4                                 | 72                         | 1970                            | 1350                                | 18                         | 244                             | 85                                  |
| 6       | 28                         | 583                             | 114                                 | 9.4                        | 108                             | 2.8                                 | 4.3                        | 39                              | .46                                 |
| 7       | 33                         | 759                             | 151                                 | 7.7                        | 83                              | 1.7                                 | 8.9                        | 130                             | 8.6                                 |
| 8       | 5.8                        | 37                              | .61                                 | 29                         | 948                             | 382                                 | 4.5                        | 48                              | .60                                 |
| 9       | 5.4                        | 24                              | .35                                 | 13                         | 176                             | 7.4                                 | 4.0                        | 23                              | .25                                 |
| 10      | 5.0                        | 23                              | .31                                 | 6.4                        | 42                              | .74                                 | 3.8                        | 23                              | .24                                 |
| 11      | 4.5                        | 22                              | .27                                 | 6.6                        | 39                              | .69                                 | 3.7                        | 23                              | .23                                 |
| 12      | 4.9                        | 27                              | .39                                 | 5.8                        | 41                              | .64                                 | 3.7                        | 23                              | .23                                 |
| 13      | 30                         | 607                             | 121                                 | 5.3                        | 43                              | .61                                 | 3.7                        | 23                              | .23                                 |
| 14      | 13                         | 158                             | 7.4                                 | 18                         | 302                             | 26                                  | 36                         | 880                             | 458                                 |
| 15      | 5.6                        | 15                              | .23                                 | 8.9                        | 130                             | 3.4                                 | 5.1                        | 63                              | .90                                 |
| 16      | 4.9                        | 11                              | .15                                 | 6.4                        | 103                             | 1.8                                 | 4.2                        | 36                              | .41                                 |
| 17      | 4.6                        | 11                              | .13                                 | 5.6                        | 96                              | 1.5                                 | 4.2                        | 35                              | .39                                 |
| 18      | 17                         | 328                             | 83                                  | 5.2                        | 90                              | 1.3                                 | 5.8                        | 71                              | 2.3                                 |
| 19      | 6.7                        | 48                              | .98                                 | 5.6                        | 84                              | 1.3                                 | 4.1                        | 48                              | .64                                 |
| 20      | 4.9                        | 12                              | .16                                 | 5.0                        | 79                              | 1.1                                 | 3.8                        | 22                              | .23                                 |
| 21      | 4.7                        | 11                              | .14                                 | 4.8                        | 74                              | .96                                 | 3.9                        | 17                              | .18                                 |
| 22      | 4.2                        | 11                              | .12                                 | 4.7                        | 69                              | .87                                 | 3.9                        | 12                              | .13                                 |
| 23      | 3.9                        | 10                              | .11                                 | 4.7                        | 64                              | .81                                 | 3.9                        | 9                               | .09                                 |
| 24      | 3.8                        | 10                              | .10                                 | 4.2                        | 60                              | .68                                 | 3.9                        | 7                               | .08                                 |
| 25      | 3.7                        | 9                               | .09                                 | 4.2                        | 56                              | .63                                 | 3.9                        | 7                               | .08                                 |
| 26      | 3.7                        | 9                               | .09                                 | 4.4                        | 53                              | .62                                 | 3.7                        | 7                               | .08                                 |
| 27      | 3.7                        | 9                               | .09                                 | 4.5                        | 49                              | .59                                 | 3.8                        | 8                               | .08                                 |
| 28      | 3.6                        | 8                               | .08                                 | 4.5                        | 46                              | .56                                 | 4.5                        | 8                               | .09                                 |
| 29      | 3.5                        | 8                               | .08                                 | ---                        | ---                             | ---                                 | 36                         | 1230                            | 618                                 |
| 30      | 3.5                        | 8                               | .07                                 | ---                        | ---                             | ---                                 | 10                         | 138                             | 9.7                                 |
| 31      | 3.4                        | 7                               | .07                                 | ---                        | ---                             | ---                                 | 10                         | 144                             | 4.9                                 |
| TOTAL   | 256.2                      | ---                             | 488.11                              | 313.1                      | ---                             | 5038.87                             | 223.9                      | ---                             | 1194.03                             |

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

| SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998 |                            |                                 |                                     |                            |                                 |                                     |                            |                                 |                                     |
|-------------------------------------------------------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| DAY                                                                                 | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL                                                                               |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1                                                                                   | 5.2                        | 70                              | .99                                 | 4.3                        | 28                              | .33                                 | 3.5                        | 39                              | .37                                 |
| 2                                                                                   | 4.8                        | 61                              | .80                                 | 4.1                        | 23                              | .26                                 | 3.3                        | 37                              | .34                                 |
| 3                                                                                   | 4.3                        | 56                              | .64                                 | 4.4                        | 19                              | .22                                 | 3.4                        | 36                              | .33                                 |
| 4                                                                                   | 4.3                        | 51                              | .58                                 | 4.7                        | 15                              | .19                                 | 3.4                        | 34                              | .32                                 |
| 5                                                                                   | 4.6                        | 46                              | .56                                 | 4.3                        | 12                              | .14                                 | 24                         | 499                             | 181                                 |
| 6                                                                                   | 4.4                        | 42                              | .50                                 | 4.1                        | 10                              | .12                                 | 5.3                        | 59                              | .90                                 |
| 7                                                                                   | 5.7                        | 62                              | 1.4                                 | 4.2                        | 10                              | .11                                 | 4.6                        | 38                              | .47                                 |
| 8                                                                                   | 5.9                        | 91                              | 1.5                                 | 5.0                        | 10                              | .13                                 | 6.1                        | 65                              | 1.8                                 |
| 9                                                                                   | 4.5                        | 79                              | .97                                 | 4.2                        | 10                              | .11                                 | 28                         | 551                             | 212                                 |
| 10                                                                                  | 4.3                        | 76                              | .89                                 | 3.9                        | 9                               | .10                                 | 9.3                        | 137                             | 4.9                                 |
| 11                                                                                  | 4.4                        | 73                              | .87                                 | 3.9                        | 9                               | .10                                 | 4.3                        | 40                              | .47                                 |
| 12                                                                                  | 36                         | 545                             | 273                                 | 3.8                        | 9                               | .09                                 | 7.4                        | 98                              | 3.7                                 |
| 13                                                                                  | 9.6                        | 117                             | 4.7                                 | 3.7                        | 9                               | .09                                 | 3.8                        | 35                              | .36                                 |
| 14                                                                                  | 4.4                        | 41                              | .48                                 | 26                         | 509                             | 165                                 | 3.5                        | 33                              | .31                                 |
| 15                                                                                  | 9.5                        | 117                             | 35                                  | 7.0                        | 74                              | 1.9                                 | 3.6                        | 33                              | .32                                 |
| 16                                                                                  | 60                         | 1280                            | 533                                 | 3.7                        | 32                              | .32                                 | 9.6                        | 156                             | 16                                  |
| 17                                                                                  | 12                         | 150                             | 5.6                                 | 6.9                        | 84                              | 5.5                                 | 19                         | 376                             | 106                                 |
| 18                                                                                  | 6.1                        | 65                              | 1.1                                 | 4.4                        | 43                              | .72                                 | 11                         | 138                             | 5.1                                 |
| 19                                                                                  | 5.5                        | 59                              | .87                                 | 6.7                        | 82                              | 2.9                                 | 4.9                        | 47                              | .63                                 |
| 20                                                                                  | 12                         | 159                             | 15                                  | 6.0                        | 68                              | 2.4                                 | 4.4                        | 43                              | .51                                 |
| 21                                                                                  | 7.7                        | 86                              | 2.9                                 | 6.3                        | 71                              | 3.3                                 | 8.4                        | 102                             | 3.9                                 |
| 22                                                                                  | 5.4                        | 53                              | .77                                 | 4.0                        | 33                              | .37                                 | 5.4                        | 56                              | .82                                 |
| 23                                                                                  | 5.2                        | 49                              | .69                                 | 29                         | 492                             | 140                                 | 5.0                        | 50                              | .67                                 |
| 24                                                                                  | 5.0                        | 46                              | .63                                 | 4.9                        | 58                              | .77                                 | 4.7                        | 45                              | .56                                 |
| 25                                                                                  | 10                         | 133                             | 7.4                                 | 4.3                        | 49                              | .58                                 | 7.7                        | 141                             | 5.9                                 |
| 26                                                                                  | 5.5                        | 56                              | .83                                 | 9.1                        | 124                             | 9.9                                 | 4.3                        | 44                              | .52                                 |
| 27                                                                                  | 7.9                        | 97                              | 2.9                                 | 7.1                        | 84                              | 3.3                                 | 4.6                        | 36                              | .45                                 |
| 28                                                                                  | 5.1                        | 53                              | .73                                 | 8.8                        | 132                             | 14                                  | 4.6                        | 35                              | .43                                 |
| 29                                                                                  | 4.8                        | 43                              | .56                                 | 4.3                        | 44                              | .51                                 | 4.3                        | 34                              | .40                                 |
| 30                                                                                  | 4.7                        | 35                              | .45                                 | 3.7                        | 42                              | .42                                 | 3.9                        | 33                              | .36                                 |
| 31                                                                                  | ---                        | ---                             | ---                                 | 3.5                        | 41                              | .39                                 | ---                        | ---                             | ---                                 |
| TOTAL                                                                               | 268.8                      | ---                             | 896.31                              | 200.3                      | ---                             | 354.27                              | 215.3                      | ---                             | 549.84                              |

| SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998 |                            |                                 |                                     |                            |                                 |                                     |                            |                                 |                                     |
|-------------------------------------------------------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| DAY                                                                                 | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| JULY                                                                                |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1                                                                                   | 3.8                        | 33                              | .34                                 | 5.1                        | 48                              | .66                                 | e8.3                       | 14                              | e7.4                                |
| 2                                                                                   | 4.4                        | 32                              | .38                                 | 4.8                        | 46                              | .59                                 | 23                         | 13                              | 145                                 |
| 3                                                                                   | 13                         | 248                             | 57                                  | 4.8                        | 44                              | .57                                 | 7.5                        | 15                              | 1.5                                 |
| 4                                                                                   | 20                         | 440                             | 153                                 | 4.8                        | 42                              | .55                                 | 6.6                        | 16                              | 1.0                                 |
| 5                                                                                   | 4.6                        | 137                             | 1.7                                 | 6.2                        | 69                              | 1.7                                 | 7.0                        | 18                              | 1.1                                 |
| 6                                                                                   | 4.1                        | 91                              | 1.0                                 | e8.0                       | 62                              | e2.7                                | 201                        | 20                              | 5230                                |
| 7                                                                                   | 7.8                        | 96                              | 4.1                                 | e39                        | 65                              | e273                                | 30                         | 22                              | 53                                  |
| 8                                                                                   | 3.6                        | 39                              | .38                                 | e11                        | 68                              | e27                                 | 14                         | 24                              | 7.6                                 |
| 9                                                                                   | 4.1                        | 35                              | .39                                 | e15                        | 71                              | e57                                 | 14                         | 27                              | 9.4                                 |
| 10                                                                                  | 9.3                        | 122                             | 8.5                                 | e37                        | 74                              | e273                                | 11                         | 30                              | 3.6                                 |
| 11                                                                                  | 4.1                        | 45                              | .52                                 | e84                        | 3400                            | e4220                               | 10                         | 33                              | 3.2                                 |
| 12                                                                                  | 3.6                        | 34                              | .34                                 | e31                        | 80                              | e212                                | 11                         | 37                              | 4.8                                 |
| 13                                                                                  | 3.6                        | 34                              | .33                                 | e10                        | 83                              | e57                                 | 16                         | 40                              | 14                                  |
| 14                                                                                  | 11                         | 199                             | 27                                  | 8.7                        | 77                              | 1.8                                 | 9.9                        | 45                              | 2.8                                 |
| 15                                                                                  | 8.2                        | 106                             | 7.4                                 | 7.4                        | 70                              | 1.4                                 | 12                         | 50                              | 4.8                                 |
| 16                                                                                  | 75                         | 3420                            | 4220                                | 6.3                        | 64                              | 1.1                                 | 14                         | 55                              | 12                                  |
| 17                                                                                  | 21                         | 387                             | 34                                  | e6.0                       | 58                              | e1.6                                | 20                         | 61                              | 32                                  |
| 18                                                                                  | 22                         | 479                             | 100                                 | e60                        | 1900                            | e1350                               | 22                         | 69                              | 29                                  |
| 19                                                                                  | 6.6                        | 78                              | 1.4                                 | e15                        | 48                              | e57                                 | 16                         | 92                              | 9.2                                 |
| 20                                                                                  | 22                         | 348                             | 34                                  | e10                        | 44                              | e5.1                                | 16                         | 126                             | 9.6                                 |
| 21                                                                                  | 10                         | 146                             | 4.1                                 | e28                        | 40                              | e212                                | e714                       | 171                             | e162000                             |
| 22                                                                                  | 7.6                        | 83                              | 1.7                                 | e11                        | 36                              | e5.1                                | e1030                      | 233                             | e165000                             |
| 23                                                                                  | 8.2                        | 107                             | 3.2                                 | e7.0                       | 33                              | e1.7                                | e49                        | 318                             | 167                                 |
| 24                                                                                  | 17                         | 259                             | 26                                  | e61                        | 1900                            | e1350                               | 22                         | 339                             | 20                                  |
| 25                                                                                  | 5.3                        | 52                              | .75                                 | e50                        | 1200                            | e533                                | 17                         | 282                             | 13                                  |
| 26                                                                                  | 5.5                        | 64                              | 1.1                                 | e7.5                       | 25                              | e2.0                                | 47                         | 916                             | 421                                 |
| 27                                                                                  | 9.8                        | 166                             | 7.8                                 | e30                        | 23                              | e212                                | 22                         | 343                             | 22                                  |
| 28                                                                                  | 8.1                        | 99                              | 2.7                                 | e55                        | 1200                            | e533                                | 15                         | 205                             | 8.2                                 |
| 29                                                                                  | 6.2                        | 67                              | 1.6                                 | e18                        | 19                              | e106                                | 25                         | 433                             | 74                                  |
| 30                                                                                  | 7.1                        | 74                              | 1.7                                 | e9.3                       | 17                              | e8.5                                | 13                         | 205                             | 2.6                                 |
| 31                                                                                  | 7.2                        | 85                              | 2.0                                 | e8.4                       | 15                              | e8.5                                | ---                        | ---                             | ---                                 |
| TOTAL                                                                               | 343.8                      | ---                             | 4704.43                             | 659.3                      | ---                             | 9515.57                             | 2423.3                     | ---                             | 333308.8                            |
| YEAR                                                                                | 6274.6                     | ---                             | 361919.33                           |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

## WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                      |                                                                          |                                                                          |
| 02... | 1728 | 390                                                                   | 7250                                                 | 7630                                                                     | 72                                                                       |
| 02... | 1828 | 165                                                                   | 3110                                                 | 1390                                                                     | 82                                                                       |
| 08... | 1811 | 205                                                                   | 4930                                                 | 2730                                                                     | 53                                                                       |
| 14... | 0501 | 149                                                                   | 886                                                  | 356                                                                      | 81                                                                       |
| NOV   |      |                                                                       |                                                      |                                                                          |                                                                          |
| 15... | 1638 | 144                                                                   | 8330                                                 | 3240                                                                     | 94                                                                       |
| MAR   |      |                                                                       |                                                      |                                                                          |                                                                          |
| 29... | 1834 | 162                                                                   | 10800                                                | 4720                                                                     | 97                                                                       |
| MAY   |      |                                                                       |                                                      |                                                                          |                                                                          |
| 14... | 2014 | 173                                                                   | 7590                                                 | 3550                                                                     | 99                                                                       |
| JUL   |      |                                                                       |                                                      |                                                                          |                                                                          |
| 16... | 1425 | 306                                                                   | 18000                                                | 1490                                                                     | 93                                                                       |
| SEP   |      |                                                                       |                                                      |                                                                          |                                                                          |
| 18... | 1123 | 12                                                                    | 67                                                   | 2.2                                                                      | 97                                                                       |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|-------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|       |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 01... | 1636 | 228                                                                     | 14900                                                                   | 9170                                                                     | 19                                                                       | 24                                                                       | 32                                                                       |                                                                          |
| NOV   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 15... | 1553 | 382                                                                     | 11800                                                                   | 12200                                                                    | 16                                                                       | 22                                                                       | 30                                                                       |                                                                          |
| JAN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 18... | 1600 | 188                                                                     | 5730                                                                    | 2910                                                                     | 28                                                                       | 38                                                                       | 50                                                                       |                                                                          |
| FEB   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 08... | 1841 | 170                                                                     | 4900                                                                    | 2250                                                                     | 21                                                                       | 31                                                                       | 43                                                                       |                                                                          |
| MAR   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 14... | 1200 | 240                                                                     | 3840                                                                    | 2490                                                                     | 35                                                                       | 45                                                                       | 60                                                                       |                                                                          |
| JUN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 09... | 1651 | 251                                                                     | 3670                                                                    | 2490                                                                     | 30                                                                       | 45                                                                       | 63                                                                       |                                                                          |
| JUL   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 16... | 1554 | 414                                                                     | 40100                                                                   | 44800                                                                    | 13                                                                       | 17                                                                       | 23                                                                       |                                                                          |
|       |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| DATE  |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
| OCT   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 01... | 42   | 55                                                                      | 62                                                                      | 79                                                                       | 94                                                                       | 99                                                                       | 100                                                                      |                                                                          |
| NOV   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 15... | 36   | 39                                                                      | 43                                                                      | 48                                                                       | 95                                                                       | 99                                                                       | 100                                                                      |                                                                          |
| JAN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 18... | 67   | 84                                                                      | 91                                                                      | 96                                                                       | 98                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| FEB   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 08... | 56   | 66                                                                      | 71                                                                      | 80                                                                       | 95                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| MAR   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 14... | 74   | 80                                                                      | 83                                                                      | 92                                                                       | 97                                                                       | 99                                                                       | 100                                                                      |                                                                          |
| JUN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 09... | 79   | 92                                                                      | 95                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| JUL   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 16... | 32   | 45                                                                      | 51                                                                      | 65                                                                       | 82                                                                       | 96                                                                       | 99                                                                       |                                                                          |

## RIO PUERTO NUEVO BASIN

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'15", long 66°03'40", at bridge on Winston Churchill Avenue in the El Señorial Housing area, 0.5 mi (0.8 km) west of Highway 176, and 2.5 mi (4.0 km) southwest of Río Piedras plaza.

DRAINAGE AREA.--8.17 mi<sup>2</sup> (20.9 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1972 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| NOV 05... | 1240 | 8.0                                             | 409                                     | 7.4                                      | 28.0                               | 7.1                       | 5.6                               | 72                                                | <10                                                  | K62000                                              | 22000                                           |
| MAR 02... | 1130 | 4.8                                             | 475                                     | 7.4                                      | 25.5                               | 2.4                       | 5.4                               | 66                                                | 13                                                   | K660000                                             | 45000                                           |
| JUN 08... | 0815 | 3.9                                             | 444                                     | 7.2                                      | 26.0                               | 8.0                       | 6.1                               | 75                                                | <10                                                  | 22000                                               | 5400                                            |
| SEP 03... | 1215 | 13                                              | 413                                     | 6.9                                      | 29.5                               | 6.6                       | 6.6                               | 86                                                | 11                                                   | K100000                                             | 30000                                           |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 05... | 150                                     | 57                                      | 6.4                                         | 12                                      | .6                                | 3.5                                        | 156                                                 | <.5                               | 12                                       | 12                                         |
| MAR 02... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 190                                                 | --                                | --                                       | --                                         |
| JUN 08... | 150                                     | 40                                      | 13                                          | 28                                      | 1                                 | 2.8                                        | 180                                                 | --                                | 13                                       | 35                                         |
| SEP 03... | 150                                     | 38                                      | 13                                          | 24                                      | .9                                | 3.1                                        | 140                                                 | <1.0                              | 20                                       | 30                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 05... | .10                                       | 25                                        | 218                                                     | 4.71                                      | 15                                                     | .640                                         | .110                                         | .750                                         | .420                                         | .52                                          |
| MAR 02... | --                                        | --                                        | --                                                      | --                                        | 2                                                      | .510                                         | .220                                         | .730                                         | 1.70                                         | .20                                          |
| JUN 08... | .15                                       | 30                                        | 270                                                     | 2.86                                      | 16                                                     | .590                                         | .100                                         | .690                                         | .350                                         | .25                                          |
| SEP 03... | .14                                       | 26                                        | 239                                                     | 8.27                                      | 18                                                     | .881                                         | .039                                         | .920                                         | .350                                         | .63                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 05... | .94                                                     | 1.7                                  | 7.5                                    | .180                                  | 1                                  | <100                                            | 40                                            | <1                                               | <1                                                 | 20                                              |
| MAR 02... | 1.9                                                     | 2.6                                  | 12                                     | .310                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 08... | .60                                                     | 1.3                                  | 5.7                                    | .140                                  | <5                                 | <100                                            | 60                                            | <1                                               | <1                                                 | <10                                             |
| SEP 03... | .98                                                     | 1.9                                  | 8.4                                    | .140                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO PUERTO NUEVO BASIN

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR

LOCATION.--Lat 18°24'34", long 66°04'10", Hydrologic Unit 21010005, at bridge on Avenida Piñero near Expreso Las Américas (Luis A. Ferré), and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi<sup>2</sup> (39.9 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to December 1987 (discharge measurements only), 1972 to December 1982 (maximum discharge only), January 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 16 ft (5 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Mean daily discharge affected by sewage discharges (approximately 2.0 ft<sup>3</sup>/s (0.06 m<sup>3</sup>/s)), 20 ft (6 m) upstream from gaging station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV  | DEC  | JAN   | FEB    | MAR  | APR   | MAY    | JUN   | JUL  | AUG  | SEP   |
|-------|--------|------|------|-------|--------|------|-------|--------|-------|------|------|-------|
| 1     | 95     | e40  | e27  | e10   | 6.9    | e12  | e11   | e7.0   | 11    | e14  | e16  | e30   |
| 2     | 295    | e30  | e27  | e21   | 6.9    | e10  | e8.7  | e9.3   | 10    | e18  | e15  | e173  |
| 3     | 81     | e34  | e27  | e21   | 6.6    | 28   | e6.7  | e11    | 9.3   | e49  | e15  | e23   |
| 4     | 39     | e31  | e27  | 11    | 206    | 21   | e7.0  | e13    | 8.9   | e62  | e15  | e35   |
| 5     | 18     | e75  | e29  | 49    | 609    | 109  | e8.0  | e10    | 123   | e20  | e13  | 82    |
| 6     | 18     | 34   | 27   | 147   | 75     | 46   | e8.0  | e8.5   | e28   | e18  | e18  | 543   |
| 7     | 9.3    | 27   | 24   | 307   | 53     | 78   | e12   | e9.5   | 11    | e35  | e30  | 156   |
| 8     | e311   | 26   | 21   | 33    | 149    | 25   | e13   | e16    | 53    | e17  | e21  | 140   |
| 9     | 35     | 26   | 20   | 33    | 75     | 20   | e8.0  | e9.5   | 148   | e42  | e11  | 86    |
| 10    | 13     | 67   | 21   | 24    | 38     | 16   | e7.2  | e7.0   | 52    | e41  | e57  | 70    |
| 11    | 212    | 22   | 22   | 23    | 45     | 14   | e7.1  | e7.0   | 20    | e20  | e255 | 65    |
| 12    | 50     | 22   | 21   | 20    | 37     | 14   | e204  | e6.1   | 56    | e17  | e129 | 71    |
| 13    | 101    | 22   | 21   | 91    | 28     | 15   | e28   | e5.6   | 19    | e16  | e38  | 98    |
| 14    | 513    | 19   | 20   | 25    | e73    | 105  | e7.7  | e195   | 17    | e223 | e23  | 114   |
| 15    | 27     | 153  | 20   | 12    | e43    | 55   | e26   | 90     | 16    | e220 | e18  | 104   |
| 16    | 25     | 77   | 19   | 11    | 31     | 11   | e219  | 36     | 33    | e202 | e15  | 93    |
| 17    | 29     | 26   | 26   | 10    | 29     | 11   | e37   | 119    | 40    | e78  | e13  | 112   |
| 18    | e30    | 82   | 20   | 28    | 25     | 15   | e15   | 12     | 45    | e97  | e96  | 442   |
| 19    | e28    | 41   | 17   | 13    | 23     | 24   | e12   | e21    | 19    | e15  | e47  | 191   |
| 20    | e25    | 21   | 17   | 10    | 27     | 16   | e34   | e39    | 15    | e126 | e16  | 190   |
| 21    | e23    | 293  | 19   | 10    | e20    | 12   | e20   | e12    | e28   | e33  | e53  | 926   |
| 22    | e24    | 35   | 20   | 9.8   | 16     | 11   | e11   | e8.5   | e18   | e19  | e36  | 2140  |
| 23    | e25    | 22   | 30   | 9.1   | 12     | 12   | e10   | e52    | e15   | e25  | e28  | 322   |
| 24    | e26    | 26   | 18   | 9.1   | 9.8    | 12   | e9.3  | e12    | e15   | e51  | e203 | e213  |
| 25    | e33    | 21   | 17   | 9.7   | e8.0   | 17   | e35   | e34    | e27   | e17  | e255 | e186  |
| 26    | e29    | 25   | 18   | 8.6   | e14    | 16   | e27   | e103   | e14   | e17  | e28  | e286  |
| 27    | e27    | e17  | 17   | 8.3   | e16    | 17   | e46   | e31    | e16   | e29  | e73  | e208  |
| 28    | e28    | e17  | e16  | 8.9   | e15    | 17   | e9.8  | 63     | e16   | e25  | e166 | e180  |
| 29    | e33    | e39  | e15  | 9.5   | ---    | 210  | e12   | e14    | e16   | e19  | e29  | e247  |
| 30    | e37    | e31  | e19  | 7.9   | ---    | e29  | e7.9  | e12    | e14   | e21  | e17  | e205  |
| 31    | e37    | ---  | e20  | 7.2   | ---    | e29  | ---   | 43     | ---   | e22  | e14  | ---   |
| TOTAL | 2276.3 | 1401 | 662  | 997.1 | 1697.2 | 1027 | 867.4 | 1016.0 | 913.2 | 1608 | 1763 | 7731  |
| MEAN  | 73.4   | 46.7 | 21.4 | 32.2  | 60.6   | 33.1 | 28.9  | 32.8   | 30.4  | 51.9 | 56.9 | 258   |
| MAX   | 513    | 293  | 30   | 307   | 609    | 210  | 219   | 195    | 148   | 223  | 255  | 2140  |
| MIN   | 9.3    | 17   | 15   | 7.2   | 6.6    | 10   | 6.7   | 5.6    | 8.9   | 14   | 11   | 23    |
| AC-FT | 4520   | 2780 | 1310 | 1980  | 3370   | 2040 | 1720  | 2020   | 1810  | 3190 | 3500 | 15330 |
| CFSM  | 4.83   | 3.07 | 1.40 | 2.12  | 3.99   | 2.18 | 1.90  | 2.16   | 2.00  | 3.41 | 3.74 | 17.0  |
| IN.   | 5.57   | 3.43 | 1.62 | 2.44  | 4.15   | 2.51 | 2.12  | 2.49   | 2.23  | 3.94 | 4.31 | 18.92 |

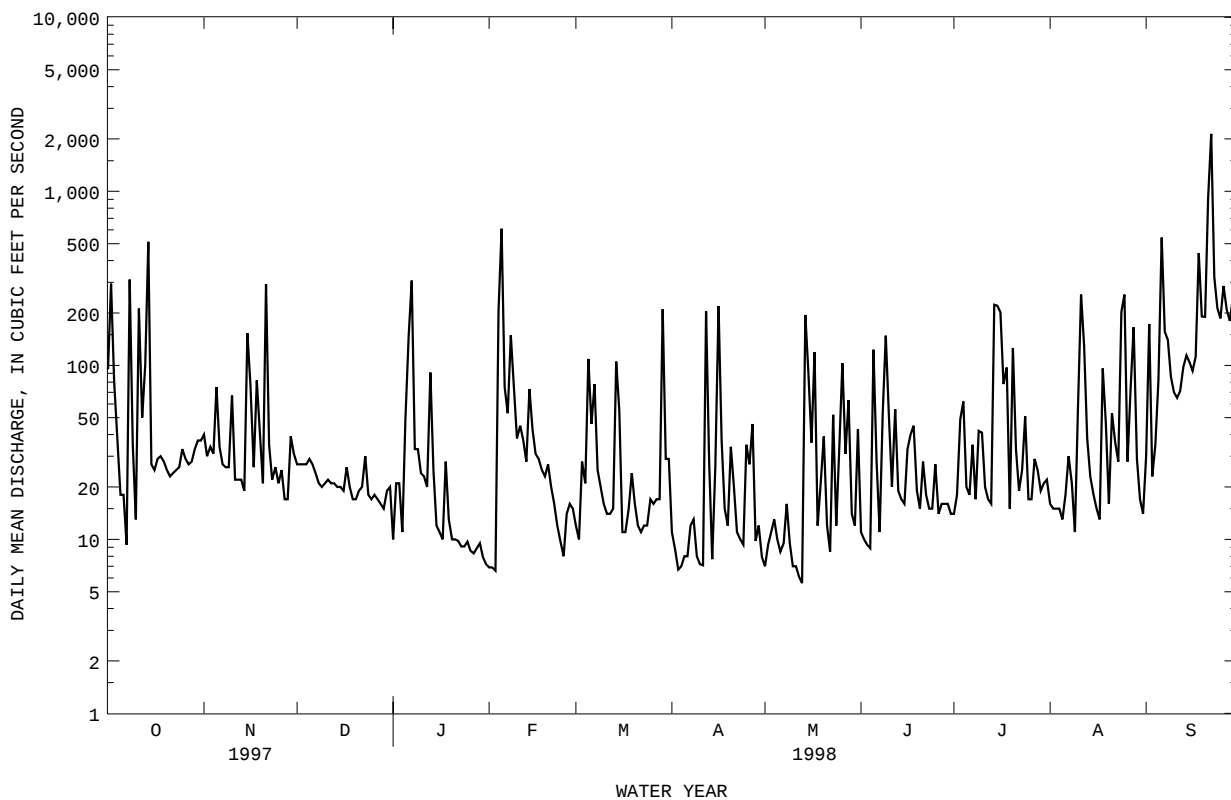
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 67.0 | 73.8 | 47.4 | 45.6 | 43.9 | 37.4 | 54.1 | 44.7 | 41.2 | 49.3 | 57.1 | 103  |
| MAX  | 134  | 235  | 168  | 97.4 | 86.9 | 78.5 | 150  | 97.5 | 81.9 | 97.4 | 84.2 | 261  |
| (WY) | 1991 | 1993 | 1993 | 1993 | 1995 | 1972 | 1972 | 1992 | 1995 | 1993 | 1988 | 1996 |
| MIN  | 16.6 | 23.9 | 18.8 | 12.9 | 10.8 | 11.5 | 13.6 | 4.12 | 20.0 | 12.8 | 20.2 | 26.3 |
| (WY) | 1992 | 1991 | 1992 | 1973 | 1992 | 1994 | 1995 | 1972 | 1994 | 1994 | 1993 | 1972 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1972 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 17493.6                | 21959.2             |                         |
| ANNUAL MEAN              | 47.9                   | 60.2                | 54.7                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 84.0                    |
| LOWEST ANNUAL MEAN       |                        |                     | 28.7                    |
| HIGHEST DAILY MEAN       | 518                    | Jul 20              | 2140                    |
| LOWEST DAILY MEAN        | 9.3                    | Mar 27              | 5.6                     |
| ANNUAL SEVEN-DAY MINIMUM | 12                     | Jun 4               | 7.7                     |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 5700                    |
| INSTANTANEOUS PEAK STAGE |                        |                     | 17.58                   |
| ANNUAL RUNOFF (AC-FT)    | 34700                  | 43560               | 39630                   |
| ANNUAL RUNOFF (CFSM)     | 3.15                   | 3.96                | 3.60                    |
| ANNUAL RUNOFF (INCHES)   | 42.81                  | 53.74               | 48.90                   |
| 10 PERCENT EXCEEDS       | 110                    | 151                 | 122                     |
| 50 PERCENT EXCEEDS       | 25                     | 24                  | 22                      |
| 90 PERCENT EXCEEDS       | 12                     | 9.6                 | 9.6                     |

e Estimated

RIO PUERTO NUEVO BASIN  
50049100 RIO PIEDRAS AT HATO REY, PR--Continued



RIO PUERTO NUEVO BASIN  
50049100 RIO PIEDRAS AT HATO REY, PR  
WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'34", Long 66°04'10", at bridge on Avenida Piñero at Expreso Las Américas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi<sup>2</sup> (39.9 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1971 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| NOV 05... | 1515 | 25                                              | 309                                     | 7.4                                      | 28.0                               | 18                        | 4.5                               | 57                                                | 10                                                   | 58000                                               | 67000                                           |
| MAR 02... | 1315 | 9.9                                             | 476                                     | 7.5                                      | 26.0                               | 1.0                       | 4.6                               | 57                                                | 13                                                   | K780000                                             | 25000                                           |
| JUN 08... | 1220 | 54                                              | 257                                     | 7.0                                      | 28.5                               | 35                        | 5.7                               | 73                                                | 10                                                   | 230000                                              | 65000                                           |
| SEP 03... | 1040 | 25                                              | 365                                     | 7.2                                      | 29.0                               | 22                        | 6.2                               | 80                                                | 12                                                   | 350000                                              | 210000                                          |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 05... | 140                                     | 41                                      | 8.1                                         | 15                                      | .6                                | 5.2                                        | 110                                                 | <.5                               | 25                                       | 22                                         |
| MAR 02... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 180                                                 | --                                | --                                       | --                                         |
| JUN 08... | 39                                      | 8.6                                     | 4.3                                         | 13                                      | .9                                | .90                                        | 98                                                  | --                                | 6.6                                      | 16                                         |
| SEP 03... | 130                                     | 37                                      | 9.0                                         | 21                                      | .8                                | 3.1                                        | 130                                                 | <1.0                              | 14                                       | 24                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 05... | .10                                       | 16                                        | 198                                                     | 13.4                                      | 74                                                     | .654                                         | .096                                         | .750                                         | .940                                         | .66                                          |
| MAR 02... | --                                        | --                                        | --                                                      | --                                        | 7                                                      | .810                                         | .160                                         | .970                                         | 1.60                                         | .10                                          |
| JUN 08... | .10                                       | 16                                        | 198                                                     | 13.4                                      | 74                                                     | .561                                         | .059                                         | .620                                         | .460                                         | .84                                          |
| SEP 03... | .15                                       | 22                                        | 208                                                     | 13.9                                      | 46                                                     | .758                                         | .082                                         | .840                                         | .780                                         | .72                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 05... | 1.6                                                     | 2.3                                  | 10                                     | .280                                  | 1                                  | <100                                            | 40                                            | <1                                               | 1                                                  | <10                                             |
| MAR 02... | 1.7                                                     | 2.7                                  | 12                                     | .320                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 08... | 1.3                                                     | 1.9                                  | 8.5                                    | .250                                  | 1                                  | <100                                            | 50                                            | <1                                               | 2                                                  | <10                                             |
| SEP 03... | 1.5                                                     | 2.3                                  | 10                                     | .200                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO PUERTO NUEVO BASIN

50049820 LAGUNA SAN JOSE NO. 2 AT SAN JUAN, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°25'46", long 66°02'10", 0.2 mi (0.3 km) east of Caño de Martín Peña, and 650 ft (200 m) south of Isla Guachinango.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | SPECIFIC CONDUCTANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STANDARD UNITS) (00400) | TEMPERATURE WATER (DEG C) (00010) | TRANSPARENCY (SECCHI DISK) (IN) (00077) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, SATURATION (PER-CENT) (00301) | COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREPTOCOCCI, FECAL, PER (COLS./100 ML) (31679) | ANC WATER UNFLTRD FIELD (MG/L AS CAC03) (00410) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530) |
|-----------|------|--------------------------------------|-----------------------------------------------|-----------------------------------|-----------------------------------------|-----------------------------------|---------------------------------------|----------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------------|
| NOV 12... | 0945 | 22600                                | 7.1                                           | 29.5                              | 47.0                                    | 2.0                               | 26                                    | 5500                                               | 550                                             | 93                                              | 10                                                    |
| MAR 09... | 1000 | 18500                                | 7.5                                           | 25.5                              | 33.0                                    | 4.0                               | 48                                    | 23000                                              | 800                                             | 90                                              | 22                                                    |
| JUN 12... | 0930 | 19500                                | 8.0                                           | 30.5                              | 26.0                                    | 5.6                               | 74                                    | 58000                                              | 860                                             | 84                                              | 8                                                     |
| SEP 15... | 1030 | 16300                                | 8.1                                           | 30.1                              | 21.0                                    | 4.5                               | 60                                    | 2000                                               | K54                                             | 75                                              | 26                                                    |

| DATE      | NITROGEN, NITRATE TOTAL (MG/L AS N) (00620) | NITROGEN, NITRITE TOTAL (MG/L AS N) (00615) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITROGEN, TOTAL (MG/L AS N) (00600) | NITROGEN, TOTAL (MG/L AS NO3) (71887) | PHOSPHORUS TOTAL (MG/L AS P) (00665) | CARBON, ORGANIC TOTAL (MG/L AS C) (00680) |
|-----------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|-------------------------------------------------------|-------------------------------------|---------------------------------------|--------------------------------------|-------------------------------------------|
| NOV 12... | --                                          | <.010                                       | <.020                                       | .680                                        | .92                                         | 1.6                                                   | --                                  | --                                    | .310                                 | 6.5                                       |
| MAR 09... | .010                                        | .030                                        | .040                                        | 2.00                                        | .30                                         | 2.3                                                   | 2.3                                 | 10                                    | .160                                 | 5.3                                       |
| JUN 12... | .010                                        | .090                                        | .100                                        | .820                                        | 1.1                                         | 1.9                                                   | 2.0                                 | 8.9                                   | .180                                 | 7.1                                       |
| SEP 15... | --                                          | .010                                        | <.020                                       | .160                                        | 1.3                                         | 1.5                                                   | --                                  | --                                    | .210                                 | 3.7                                       |

## RIO PUERTO NUEVO BASIN

50049920 BAHIA DE SAN JUAN NO. 5 AT SAN JUAN, PR

## WATER-QUALITY RECORDS

LOCATION--Lat 18°26'37", long 66°05'11", 0.4 mi (0.6 km) west of Puente de la Constitución, and 0.5 mi (0.8 km) south from U.S. Naval Reservation.

DRAINAGE--Indeterminate.

PERIOD OF RECORD--Water years 1974 to present.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | TIME | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | TRANS-<br>PAR-<br>ENCY<br>(SECCHI<br>DISK)<br>(IN)<br>(00077) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00300)<br>(00301) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00300)<br>(00301) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) | ANC<br>WATER<br>UNFLTRD<br>FET<br>MG/L AS<br>CAC03<br>(00410) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDED<br>(MG/L)<br>(00530) |
|--------------|------|--------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------|
| NOV<br>12... | 1130 | 49500                                                        | 7.3                                                                  | 29.0                                            | 16.0                                                          | 4.0                                                                                  | 52                                                                                   | K6700                                                                      | 2000                                                               | 150                                                           | 37                                                                           |
| MAR<br>09... | 1145 | 40800                                                        | 7.4                                                                  | 27.0                                            | 24.0                                                          | 2.5                                                                                  | 31                                                                                   | K64000                                                                     | 5500                                                               | 130                                                           | 31                                                                           |
| JUN<br>12... | 1130 | 33000                                                        | 7.6                                                                  | 30.0                                            | 15.0                                                          | 2.9                                                                                  | 38                                                                                   | 280000                                                                     | 36000                                                              | 140                                                           | 13                                                                           |
| SEP<br>15... | 1200 | 17300                                                        | 7.6                                                                  | 29.0                                            | 14.0                                                          | .3                                                                                   | 4                                                                                    | 600000                                                                     | K140000                                                            | 140                                                           | 26                                                                           |

| DATE         | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605) | NITRO-<br>GEN,AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N03)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | CARBON,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS C)<br>(00680) |
|--------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|
| NOV<br>12... | --                                                              | .014                                                            | <.020                                                           | 1.80                                                            | .80                                                             | 2.6                                                                           | --                                                   | --                                                     | .410                                                  | 4.6                                                      |
| MAR<br>09... | .022                                                            | .028                                                            | .050                                                            | 2.00                                                            | .10                                                             | 2.1                                                                           | 2.2                                                  | 9.5                                                    | .300                                                  | 8.6                                                      |
| JUN<br>12... | .100                                                            | .070                                                            | .170                                                            | 1.30                                                            | .70                                                             | 2.0                                                                           | 2.2                                                  | 9.6                                                    | .920                                                  | 5.9                                                      |
| SEP<br>15... | .054                                                            | .060                                                            | .110                                                            | 2.9                                                             | .60                                                             | 3.5                                                                           | 3.6                                                  | 16                                                     | .510                                                  | 2.5                                                      |



## RIO GRANDE DE LOIZA BASIN

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°23'27", long 65°58'28", at bridge on Highway 3, 1.4 mi (2.3 km) south of Valle Arriba Heights housing area, and 1.2 mi (1.9 km) west-southwest of Carolina plaza.

DRAINAGE AREA.--2.96 mi<sup>2</sup> (7.67 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1973 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 28... | 0945 | 4.2                                             | 520                                     | 7.4                                            | 26.5                               | 1.5                       | 6.7                               | 82                                                | <10                                                  | K6900                                               | 3400                                            |
| MAR 25... | 1030 | 3.8                                             | 461                                     | 7.1                                            | 26.5                               | 1.2                       | 3.0                               | 37                                                | 23                                                   | K170000                                             | 22000                                           |
| JUN 09... | 1105 | 5.5                                             | 435                                     | 7.2                                            | 27.5                               | 2.3                       | 4.6                               | 58                                                | 10                                                   | 24000                                               | 45000                                           |
| SEP 08... | 1025 | 11                                              | 470                                     | 7.0                                            | 28.0                               | 62                        | 2.8                               | 36                                                | 13                                                   | 600000                                              | 700000                                          |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS SO4) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 28... | 190                                     | 60                                      | 9.1                                         | 29                                      | .9                                | 3.3                                        | 205                                                 | <.5                               | 10                                       | 42                                         |
| MAR 25... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 210                                                 | --                                | --                                       | --                                         |
| JUN 09... | 140                                     | 46                                      | 5.2                                         | 15                                      | .5                                | .73                                        | 170                                                 | --                                | 26                                       | 7.8                                        |
| SEP 08... | 140                                     | 44                                      | 7.8                                         | 26                                      | .9                                | 4.2                                        | 210                                                 | <1.0                              | 12                                       | 35                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 28... | .29                                       | 29                                        | 306                                                     | 3.49                                      | <1                                                     | .470                                         | .170                                         | .640                                         | 1.90                                         | .20                                          |
| MAR 25... | --                                        | --                                        | --                                                      | --                                        | 8                                                      | .200                                         | .010                                         | .210                                         | .020                                         | .20                                          |
| JUN 09... | .30                                       | 25                                        | 236                                                     | 3.53                                      | --                                                     | .610                                         | .210                                         | .820                                         | .600                                         | .50                                          |
| SEP 08... | .11                                       | 22                                        | 277                                                     | 8.51                                      | 134                                                    | .580                                         | .100                                         | .680                                         | 7.10                                         | .90                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS NO3) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 28... | 2.1                                                     | 2.7                                  | 12                                     | .400                                  | 1                                  | <100                                            | 60                                            | <1                                               | <1                                                 | <10                                             |
| MAR 25... | .02                                                     | .24                                  | 1.1                                    | .020                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 09... | 1.1                                                     | 1.9                                  | 8.5                                    | .260                                  | 1                                  | <100                                            | 30                                            | <1                                               | <1                                                 | <10                                             |
| SEP 08... | 8.0                                                     | 8.7                                  | 38                                     | .850                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO GRANDE DE LOIZA BASIN

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR

LOCATION.--Lat 18°07'10", long 65°59'22", Hydrologic Unit 21010005, at intersection of Highways 181 and 9990, 0.2 mi (0.3 km) upstream from confluence with Río Emajagua and about 7.1 mi (11.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--6.00 mi<sup>2</sup> (15.54 km<sup>2</sup>).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft (195 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR   | APR  | MAY  | JUN   | JUL   | AUG    | SEP   |
|-------|-------|------|------|------|------|-------|------|------|-------|-------|--------|-------|
| 1     | 22    | 18   | 19   | 23   | 15   | 12    | 27   | 14   | 16    | 8.7   | 10     | 18    |
| 2     | 62    | 17   | 17   | 15   | 14   | 12    | 42   | 14   | 16    | 10    | 9.7    | 24    |
| 3     | 26    | 18   | 17   | 28   | 14   | e15   | 24   | 15   | 14    | 12    | 9.6    | 36    |
| 4     | 22    | 17   | 16   | 55   | 15   | 13    | 19   | 16   | 13    | 28    | 9.3    | 33    |
| 5     | 20    | 16   | 16   | 44   | 368  | 12    | 46   | 15   | 15    | 25    | 9.0    | 19    |
| 6     | 19    | 15   | 16   | 476  | 30   | 12    | 21   | 16   | 20    | 12    | e27    | 122   |
| 7     | 18    | 14   | 15   | 200  | 19   | 551   | 20   | 14   | 19    | 21    | 11     | 60    |
| 8     | 21    | 14   | 15   | 102  | 22   | 75    | 19   | 26   | 16    | 16    | 22     | 105   |
| 9     | 18    | 26   | 15   | 70   | 23   | 28    | 16   | 17   | 15    | 15    | 32     | 135   |
| 10    | 18    | 472  | 15   | 115  | 16   | 21    | 15   | 14   | 14    | 11    | 23     | 45    |
| 11    | 33    | 31   | 15   | 35   | 16   | 18    | 20   | 12   | e14   | 9.8   | 14     | 26    |
| 12    | 73    | 25   | 17   | 43   | 16   | 17    | 77   | 12   | e20   | 9.5   | 14     | 21    |
| 13    | 460   | 22   | 15   | 35   | 15   | 16    | 18   | 21   | e25   | 9.5   | 12     | 67    |
| 14    | e769  | 21   | 15   | 29   | 67   | 19    | 14   | 34   | e15   | 9.6   | 11     | 42    |
| 15    | e207  | 23   | 14   | 25   | 27   | 17    | 13   | 31   | e14   | 9.1   | 10     | 69    |
| 16    | e90   | 21   | 21   | 23   | 18   | 15    | 37   | 23   | e15   | 11    | 11     | 25    |
| 17    | e51   | 21   | 30   | 22   | 21   | 14    | 51   | 17   | 24    | 10    | 106    | 20    |
| 18    | 41    | 19   | 16   | 21   | 17   | 14    | 83   | 15   | 19    | 15    | 20     | 19    |
| 19    | 34    | 20   | 15   | 19   | 16   | 16    | 52   | 14   | 16    | 17    | 15     | 18    |
| 20    | 30    | 20   | 15   | 19   | 15   | 237   | 128  | 14   | 14    | 54    | 18     | e21   |
| 21    | 27    | 26   | 21   | 18   | 15   | 42    | 31   | 14   | 14    | 27    | 24     | e4360 |
| 22    | 25    | 25   | 15   | 18   | 14   | 29    | 24   | 13   | 31    | 13    | 111    | e4690 |
| 23    | 24    | 26   | 14   | 17   | 14   | 22    | 21   | 13   | 14    | 12    | 27     | 157   |
| 24    | 23    | 22   | 13   | 19   | 13   | 19    | 19   | 14   | 12    | 27    | 593    | 77    |
| 25    | 22    | 20   | 13   | 21   | 13   | 27    | 19   | 12   | 12    | 14    | 433    | 47    |
| 26    | 21    | 35   | 13   | 21   | 13   | 22    | 18   | 56   | 11    | 11    | 108    | 41    |
| 27    | 20    | 24   | 13   | 18   | 13   | 28    | 19   | 48   | 11    | 14    | 39     | 139   |
| 28    | 19    | 20   | 13   | 17   | 12   | 24    | 20   | 14   | 12    | 23    | 28     | 45    |
| 29    | 18    | 19   | 13   | 17   | ---  | 116   | 16   | 25   | 11    | 12    | 33     | 32    |
| 30    | 18    | 22   | 13   | 16   | ---  | 153   | 15   | 51   | 9.5   | 12    | 23     | 29    |
| 31    | 18    | ---  | 13   | 16   | ---  | 45    | ---  | 27   | ---   | 11    | 21     | ---   |
| TOTAL | 2269  | 1089 | 488  | 1597 | 871  | 1661  | 944  | 641  | 471.5 | 489.2 | 1833.6 | 10542 |
| MEAN  | 73.2  | 36.3 | 15.7 | 51.5 | 31.1 | 53.6  | 31.5 | 20.7 | 15.7  | 15.8  | 59.1   | 351   |
| MAX   | 769   | 472  | 30   | 476  | 368  | 551   | 128  | 56   | 31    | 54    | 593    | 4690  |
| MIN   | 18    | 14   | 13   | 15   | 12   | 12    | 13   | 12   | 9.5   | 8.7   | 9.0    | 18    |
| AC-FT | 4500  | 2160 | 968  | 3170 | 1730 | 3290  | 1870 | 1270 | 935   | 970   | 3640   | 20910 |
| CFSM  | 12.2  | 6.05 | 2.62 | 8.59 | 5.18 | 8.93  | 5.24 | 3.45 | 2.62  | 2.63  | 9.86   | 58.6  |
| IN.   | 14.07 | 6.75 | 3.03 | 9.90 | 5.40 | 10.30 | 5.85 | 3.97 | 2.92  | 3.03  | 11.37  | 65.36 |

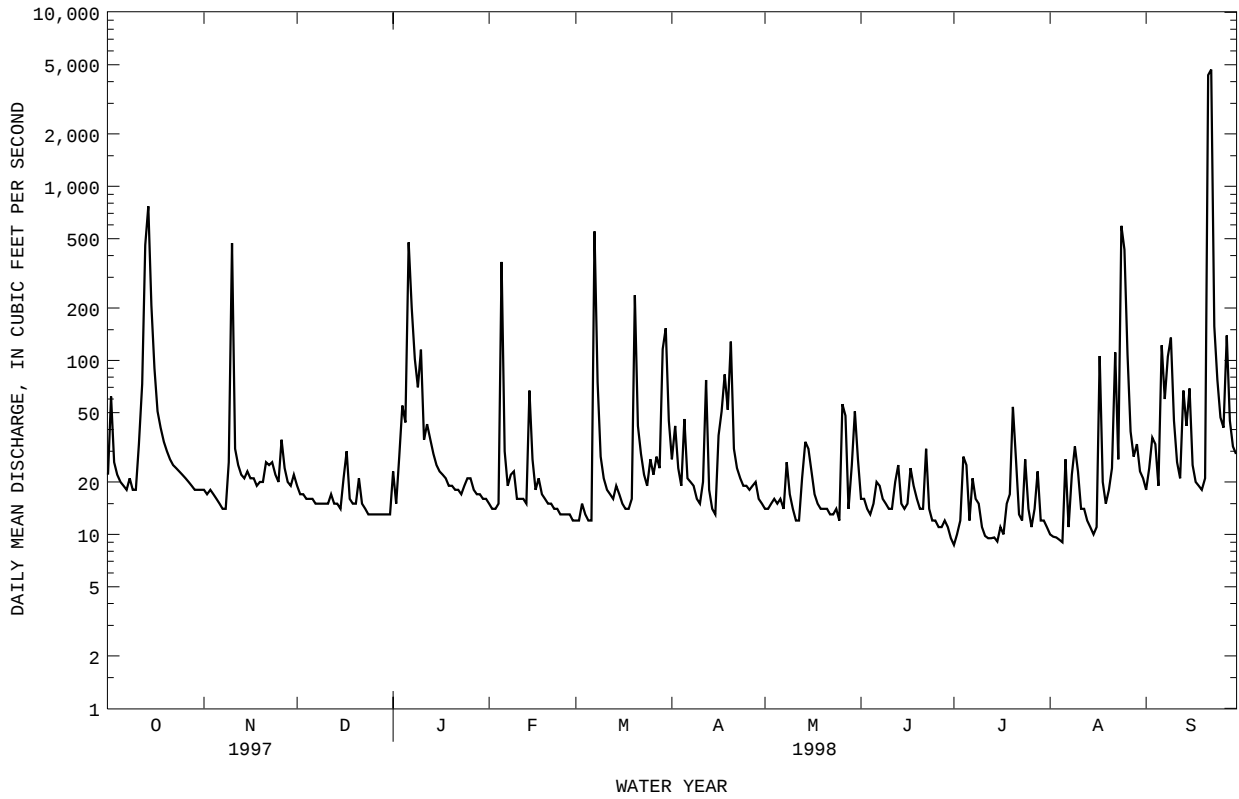
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1998, BY WATER YEAR (WY)

|      | MEAN | 41.2 | 44.0 | 24.5 | 20.9 | 19.5 | 15.7 | 14.6 | 29.8 | 37.6 | 36.5 | 35.1 | 61.4 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 123  | 122  | 55.2 | 56.1 | 38.0 | 53.6 | 31.5 | 77.5 | 122  | 92.3 | 90.0 | 351  |      |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1982 | 1998 | 1998 | 1985 | 1979 | 1993 | 1979 | 1998 |      |
| MIN  | 13.1 | 8.34 | 6.65 | 8.16 | 6.36 | 5.07 | 4.64 | 9.56 | 11.3 | 12.5 | 9.30 | 11.8 |      |
| (WY) | 1990 | 1990 | 1990 | 1990 | 1979 | 1979 | 1979 | 1988 | 1985 | 1986 | 1991 | 1981 |      |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1978 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 10236.1                | 22896.3             |                         |
| ANNUAL MEAN              | 28.0                   | 62.7                | 31.7                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 62.7                    |
| LOWEST ANNUAL MEAN       |                        |                     | 14.5                    |
| HIGHEST DAILY MEAN       | 769                    | Oct 14              | 4690                    |
| LOWEST DAILY MEAN        | 6.6                    | May 6               | 8.7                     |
| ANNUAL SEVEN-DAY MINIMUM | 6.9                    | Apr 30              | 9.8                     |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 45000                   |
| INSTANTANEOUS PEAK STAGE |                        |                     | 26.37                   |
| INSTANTANEOUS LOW FLOW   |                        |                     | 7.9                     |
| ANNUAL RUNOFF (AC-FT)    | 20300                  | 45410               | 23000                   |
| ANNUAL RUNOFF (CFSM)     | 4.67                   | 10.5                | 5.29                    |
| ANNUAL RUNOFF (INCHES)   | 63.46                  | 141.96              | 71.90                   |
| 10 PERCENT EXCEEDS       | 40                     | 64                  | 51                      |
| 50 PERCENT EXCEEDS       | 16                     | 19                  | 15                      |
| 90 PERCENT EXCEEDS       | 8.3                    | 12                  | 7.2                     |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR

LOCATION.--Lat 18°09'40", long 65°58'58", Hydrologic Unit 21010005, 0.1 mi (0.2 km) upstream from bridge on Highway 181, and 2.8 mi (4.5 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.25 mi<sup>2</sup> (8.42 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 459 ft (140 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN   | FEB   | MAR   | APR   | MAY   | JUN  | JUL  | AUG   | SEP   |
|-------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|-------|
| 1     | 3.2   | 3.8   | 3.2  | 2.4   | 2.7   | 2.7   | 4.1   | 2.5   | 2.5  | 1.8  | 1.4   | 1.9   |
| 2     | 22    | 3.1   | 3.1  | 2.7   | 2.7   | 2.7   | 12    | 2.4   | 2.3  | 1.8  | 1.4   | 4.5   |
| 3     | 6.7   | 3.0   | 3.0  | 2.7   | 2.7   | 3.1   | 5.5   | 3.0   | 2.2  | 2.3  | 1.5   | 3.7   |
| 4     | 4.4   | 2.8   | 2.9  | 2.8   | 4.7   | 3.0   | 4.1   | e3.2  | 2.2  | 5.3  | 1.4   | 3.5   |
| 5     | 3.5   | 2.8   | 2.9  | 2.8   | 44    | 2.8   | 3.8   | e2.8  | 3.6  | 2.8  | 1.3   | 1.8   |
| 6     | 2.9   | 2.8   | 2.9  | 29    | 8.5   | 2.7   | 3.3   | e2.3  | 3.3  | 1.9  | 1.3   | 2.3   |
| 7     | 2.4   | 2.6   | 2.9  | 39    | 5.4   | e164  | 3.4   | e2.2  | 2.3  | 1.7  | 1.3   | 4.1   |
| 8     | 3.4   | 2.5   | 2.8  | 15    | 12    | 18    | 3.3   | 15    | 2.5  | 1.7  | 4.1   | 22    |
| 9     | 2.8   | 3.8   | 2.8  | 14    | 8.1   | e11   | 3.1   | 4.8   | 2.3  | 1.6  | 4.2   | 11    |
| 10    | 3.2   | 29    | 2.8  | 14    | 4.1   | e6.7  | 3.0   | 3.0   | 2.2  | 1.6  | 2.7   | 10    |
| 11    | 4.7   | 4.7   | 2.7  | 7.2   | 3.1   | e4.9  | 3.6   | 2.5   | 2.0  | 1.6  | 6.7   | 3.2   |
| 12    | 11    | 3.6   | 2.8  | 5.7   | 2.6   | e4.3  | 12    | 2.3   | 3.4  | 1.5  | 2.2   | 2.0   |
| 13    | 56    | 3.4   | 2.8  | 10    | 2.5   | e4.0  | 4.6   | 5.2   | 2.3  | 1.5  | 1.7   | 4.0   |
| 14    | e126  | 3.1   | 2.8  | 6.8   | 13    | e4.9  | 3.7   | 7.6   | 2.1  | 1.6  | 1.5   | 2.0   |
| 15    | 22    | 3.0   | 2.8  | 4.6   | 6.8   | 4.3   | 3.4   | e7.7  | 2.0  | 1.6  | 1.4   | 38    |
| 16    | 16    | 2.9   | 2.8  | 4.1   | 4.5   | e4.1  | 8.3   | e4.1  | 2.5  | 1.8  | 1.5   | 12    |
| 17    | 15    | 3.1   | 3.3  | 3.9   | 4.3   | 3.8   | 9.5   | 3.2   | 2.3  | 1.8  | 3.6   | 5.5   |
| 18    | 12    | 2.9   | 2.8  | 3.6   | 3.7   | 3.9   | 14    | e2.9  | 2.1  | 4.5  | 2.3   | 3.5   |
| 19    | 8.4   | 3.0   | 2.7  | 3.3   | 3.4   | 4.4   | e7.1  | e2.9  | 2.5  | 2.8  | 1.7   | e3.2  |
| 20    | 6.4   | 2.8   | 2.7  | 3.1   | 3.3   | 34    | 13    | e3.4  | 2.1  | 22   | 2.0   | e3.0  |
| 21    | 5.9   | 3.9   | 3.2  | 2.9   | 3.1   | 9.7   | 7.1   | e2.5  | 2.7  | 6.0  | 3.2   | e182  |
| 22    | 6.2   | 5.4   | 2.6  | 3.0   | 2.9   | 5.7   | 5.2   | 2.4   | 5.4  | 2.1  | 21    | 214   |
| 23    | 5.3   | 7.2   | 2.6  | 2.9   | 2.9   | 4.4   | 4.2   | 2.5   | 2.2  | 1.6  | 6.2   | 24    |
| 24    | 4.6   | 5.8   | 2.5  | 3.1   | 2.7   | 4.2   | 3.7   | 2.5   | 2.0  | 1.8  | 63    | 16    |
| 25    | 4.9   | 4.1   | 2.6  | 3.5   | 2.7   | 4.5   | 3.5   | 2.2   | 2.1  | 1.6  | 63    | 13    |
| 26    | 4.0   | 4.4   | 2.5  | 3.3   | 2.7   | 4.0   | 3.5   | 2.6   | 2.0  | 1.4  | 23    | 9.5   |
| 27    | 4.1   | 3.7   | 2.5  | 3.0   | 2.4   | 7.3   | 3.2   | 6.8   | 2.0  | 1.4  | 13    | 8.3   |
| 28    | 3.8   | 3.5   | 2.5  | 2.9   | 2.9   | 4.6   | 3.4   | 2.8   | 2.1  | 2.3  | 7.4   | 7.1   |
| 29    | 3.5   | 3.3   | 2.4  | 2.8   | ---   | 6.9   | 2.9   | 3.2   | 1.9  | 1.6  | 5.1   | 6.3   |
| 30    | 3.4   | 3.4   | 2.5  | 2.7   | ---   | 6.0   | 2.7   | 6.5   | 1.8  | 1.5  | 3.1   | 5.8   |
| 31    | 3.3   | ---   | 2.5  | 2.7   | ---   | 4.6   | ---   | 3.0   | ---  | 1.5  | 2.3   | ---   |
| TOTAL | 381.0 | 133.4 | 85.9 | 209.5 | 164.4 | 351.2 | 164.2 | 120.0 | 72.9 | 86.0 | 255.5 | 627.2 |
| MEAN  | 12.3  | 4.45  | 2.77 | 6.76  | 5.87  | 11.3  | 5.47  | 3.87  | 2.43 | 2.77 | 8.24  | 20.9  |
| MAX   | 126   | 29    | 3.3  | 39    | 44    | 164   | 14    | 15    | 5.4  | 22   | 63    | 214   |
| MIN   | 2.4   | 2.5   | 2.4  | 2.4   | 2.4   | 2.7   | 2.7   | 2.2   | 1.8  | 1.4  | 1.3   | 1.8   |
| AC-FT | 756   | 265   | 170  | 416   | 326   | 697   | 326   | 238   | 145  | 171  | 507   | 1240  |
| CFSM  | 3.78  | 1.37  | .85  | 2.08  | 1.81  | 3.49  | 1.68  | 1.19  | .75  | .85  | 2.54  | 6.43  |
| IN.   | 4.36  | 1.53  | .98  | 2.40  | 1.88  | 4.02  | 1.88  | 1.37  | .83  | .98  | 2.92  | 7.18  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

|      | MEAN | 10.2 | 14.2 | 6.52 | 4.95 | 4.31 | 4.46 | 2.54 | 6.51 | 5.97 | 6.06 | 7.23 | 10.5 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 47.8 | 36.9 | 30.1 | 9.94 | 8.21 | 20.7 | 5.47 | 31.5 | 21.3 | 15.0 | 20.2 | 27.7 |      |
| (WY) | 1986 | 1985 | 1988 | 1992 | 1989 | 1989 | 1998 | 1985 | 1987 | 1993 | 1988 | 1996 |      |
| MIN  | 2.75 | 2.49 | 1.49 | 1.74 | 1.32 | 1.64 | .75  | .62  | 2.12 | 2.02 | 1.95 | 1.36 |      |
| (WY) | 1993 | 1990 | 1990 | 1995 | 1985 | 1993 | 1994 | 1994 | 1994 | 1986 | 1994 | 1990 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

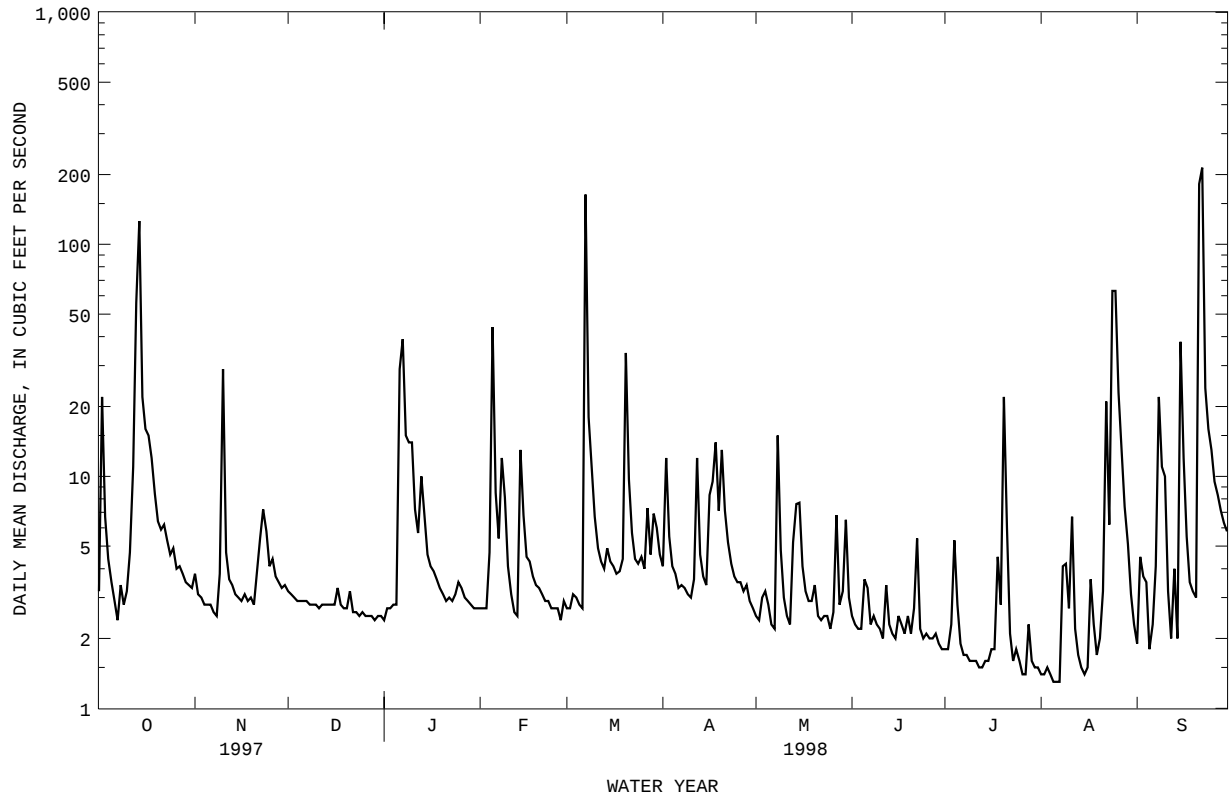
## FOR 1998 WATER YEAR

## WATER YEARS 1984 - 1998

|                          |        |        |       |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL             | 1971.5 | 2651.2 |       |
| ANNUAL MEAN              | 5.40   | 7.26   |       |
| HIGHEST ANNUAL MEAN      |        |        | 6.96  |
| LOWEST ANNUAL MEAN       |        |        | 12.3  |
| HIGHEST DAILY MEAN       |        |        | 2.50  |
| LOWEST DAILY MEAN        | 126    | Oct 14 | 457   |
| ANNUAL SEVEN-DAY MINIMUM | 1.1    | Jul 3  | .33   |
| INSTANTANEOUS PEAK FLOW  | 1.3    | Jul 9  | .37   |
| INSTANTANEOUS PEAK STAGE |        |        | 2970  |
| INSTANTANEOUS LOW FLOW   |        |        | 10.38 |
| ANNUAL RUNOFF (AC-FT)    | 3910   | 1.2    | Aug 4 |
| ANNUAL RUNOFF (CFSM)     | 1.66   |        | 5260  |
| ANNUAL RUNOFF (INCHES)   | 22.57  |        | 2.14  |
| 10 PERCENT EXCEEDS       | 11     |        | 30.35 |
| 50 PERCENT EXCEEDS       | 3.1    |        | 12    |
| 90 PERCENT EXCEEDS       | 1.8    |        | 2.7   |
|                          |        |        | 1.1   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1989.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, &lt;1 mg/L several days in 1996.

SEDIMENT LOADS: Maximum daily mean, 4,940 tons (4,480 tonnes) May 17, 1985; Minimum daily mean, &lt;0.01 ton (&lt;0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,100 mg/L October 14, 1997; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 2,480 tons (2,250 tonnes) September 21, 1998; Minimum daily mean, &lt;0.01 ton (&lt;0.01 tonne) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 3.2                        | 4                                    | .04                                 | 3.8                        | 6                                    | .06                                 | 3.2                        | 9                                    | .08                                 |
| 2       | 22                         | 80                                   | 6.9                                 | 3.1                        | 7                                    | .06                                 | 3.1                        | 9                                    | .07                                 |
| 3       | 6.7                        | 18                                   | .35                                 | 3.0                        | 8                                    | .06                                 | 3.0                        | 9                                    | .07                                 |
| 4       | 4.4                        | 8                                    | .10                                 | 2.8                        | 6                                    | .04                                 | 2.9                        | 6                                    | .05                                 |
| 5       | 3.5                        | 4                                    | .04                                 | 2.8                        | 4                                    | .03                                 | 2.9                        | 4                                    | .04                                 |
| 6       | 2.9                        | 3                                    | .02                                 | 2.8                        | 4                                    | .03                                 | 2.9                        | 6                                    | .05                                 |
| 7       | 2.4                        | 3                                    | .02                                 | 2.6                        | 3                                    | .02                                 | 2.9                        | 10                                   | .08                                 |
| 8       | 3.4                        | 9                                    | .13                                 | 2.5                        | 3                                    | .02                                 | 2.8                        | 16                                   | .12                                 |
| 9       | 2.8                        | 4                                    | .03                                 | 3.8                        | 14                                   | .97                                 | 2.8                        | 15                                   | .12                                 |
| 10      | 3.2                        | 12                                   | .19                                 | 29                         | 631                                  | 131                                 | 2.8                        | 14                                   | .10                                 |
| 11      | 4.7                        | 6                                    | .30                                 | 4.7                        | 11                                   | .13                                 | 2.7                        | 12                                   | .09                                 |
| 12      | 11                         | 18                                   | 2.2                                 | 3.6                        | 7                                    | .07                                 | 2.8                        | 10                                   | .08                                 |
| 13      | 56                         | 203                                  | 157                                 | 3.4                        | 8                                    | .07                                 | 2.8                        | 7                                    | .05                                 |
| 14      | e126                       | 1100                                 | e1130                               | 3.1                        | 9                                    | .08                                 | 2.8                        | 4                                    | .03                                 |
| 15      | 22                         | 182                                  | 11                                  | 3.0                        | 10                                   | .08                                 | 2.8                        | 2                                    | .02                                 |
| 16      | 16                         | 49                                   | 2.2                                 | 2.9                        | 10                                   | .08                                 | 2.8                        | 2                                    | .01                                 |
| 17      | 15                         | 44                                   | 1.9                                 | 3.1                        | 11                                   | .09                                 | 3.3                        | 2                                    | .02                                 |
| 18      | 12                         | 43                                   | 1.4                                 | 2.9                        | 10                                   | .08                                 | 2.8                        | 1                                    | .01                                 |
| 19      | 8.4                        | 32                                   | e.74                                | 3.0                        | 9                                    | .07                                 | 2.7                        | 1                                    | .01                                 |
| 20      | 6.4                        | 23                                   | e.40                                | 2.8                        | 8                                    | .06                                 | 2.7                        | 1                                    | .01                                 |
| 21      | 5.9                        | 10                                   | e.15                                | 3.9                        | 12                                   | .14                                 | 3.2                        | 2                                    | .02                                 |
| 22      | 6.2                        | 5                                    | .08                                 | 5.4                        | 14                                   | .23                                 | 2.6                        | 3                                    | .02                                 |
| 23      | 5.3                        | 9                                    | .12                                 | 7.2                        | 22                                   | .58                                 | 2.6                        | 3                                    | .02                                 |
| 24      | 4.6                        | 13                                   | .17                                 | 5.8                        | 13                                   | .24                                 | 2.5                        | 2                                    | .01                                 |
| 25      | 4.9                        | 8                                    | .11                                 | 4.1                        | 17                                   | .19                                 | 2.6                        | 2                                    | .02                                 |
| 26      | 4.0                        | 4                                    | .04                                 | 4.4                        | 15                                   | .18                                 | 2.5                        | 3                                    | .02                                 |
| 27      | 4.1                        | 2                                    | .03                                 | 3.7                        | 14                                   | .14                                 | 2.5                        | 4                                    | .03                                 |
| 28      | 3.8                        | 3                                    | .03                                 | 3.5                        | 13                                   | .12                                 | 2.5                        | 6                                    | .04                                 |
| 29      | 3.5                        | 3                                    | .03                                 | 3.3                        | 11                                   | .10                                 | 2.4                        | 8                                    | .06                                 |
| 30      | 3.4                        | 4                                    | .04                                 | 3.4                        | 10                                   | .09                                 | 2.5                        | 9                                    | .06                                 |
| 31      | 3.3                        | 5                                    | .04                                 | ---                        | ---                                  | ---                                 | 2.5                        | 9                                    | .06                                 |
| TOTAL   | 381.0                      | ---                                  | 1315.80                             | 133.4                      | ---                                  | 135.11                              | 85.9                       | ---                                  | 1.47                                |

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 2.4                        | 10                                   | .06                                 | 2.7                        | 3                                    | .02                                 | 2.7                        | 2                                    | .01                                 |
| 2       | 2.7                        | 11                                   | .08                                 | 2.7                        | 3                                    | .02                                 | 2.7                        | 3                                    | .02                                 |
| 3       | 2.7                        | 11                                   | .08                                 | 2.7                        | 5                                    | .04                                 | 3.1                        | 3                                    | .02                                 |
| 4       | 2.8                        | 10                                   | .08                                 | 4.7                        | 10                                   | .38                                 | 3.0                        | 2                                    | .02                                 |
| 5       | 2.8                        | 10                                   | .08                                 | 44                         | 216                                  | 42                                  | 2.8                        | 1                                    | .01                                 |
| 6       | 29                         | 267                                  | 54                                  | 8.5                        | 25                                   | .60                                 | 2.7                        | 1                                    | .01                                 |
| 7       | 39                         | 182                                  | 25                                  | 5.4                        | 15                                   | .22                                 | e164                       | 918                                  | e2390                               |
| 8       | 15                         | 48                                   | 2.1                                 | 12                         | 37                                   | 3.8                                 | 18                         | 64                                   | 3.5                                 |
| 9       | 14                         | 74                                   | 3.5                                 | 8.1                        | 20                                   | .63                                 | e11                        | 35                                   | e.97                                |
| 10      | 14                         | 50                                   | 2.3                                 | 4.1                        | 3                                    | .04                                 | e6.7                       | 10                                   | e.18                                |
| 11      | 7.2                        | 15                                   | .29                                 | 3.1                        | 2                                    | .02                                 | e4.9                       | 2                                    | e.02                                |
| 12      | 5.7                        | 8                                    | .13                                 | 2.6                        | 3                                    | .02                                 | e4.3                       | 1                                    | e.01                                |
| 13      | 10                         | 32                                   | 2.8                                 | 2.5                        | 5                                    | .04                                 | e4.0                       | 2                                    | e.02                                |
| 14      | 6.8                        | 17                                   | .37                                 | 13                         | 64                                   | 6.4                                 | e4.9                       | 2                                    | e.03                                |
| 15      | 4.6                        | 11                                   | .14                                 | 6.8                        | 16                                   | .32                                 | 4.3                        | 2                                    | .02                                 |
| 16      | 4.1                        | 15                                   | .17                                 | 4.5                        | 6                                    | .08                                 | e4.1                       | 2                                    | e.02                                |
| 17      | 3.9                        | 13                                   | .13                                 | 4.3                        | 8                                    | .09                                 | 3.8                        | 2                                    | .02                                 |
| 18      | 3.6                        | 10                                   | .10                                 | 3.7                        | 12                                   | .12                                 | 3.9                        | 3                                    | .03                                 |
| 19      | 3.3                        | 8                                    | .07                                 | 3.4                        | 10                                   | .09                                 | 4.4                        | 8                                    | .10                                 |
| 20      | 3.1                        | 4                                    | .04                                 | 3.3                        | 7                                    | .06                                 | 34                         | 248                                  | 75                                  |
| 21      | 2.9                        | 2                                    | .02                                 | 3.1                        | 4                                    | .03                                 | 9.7                        | 29                                   | .85                                 |
| 22      | 3.0                        | 5                                    | .04                                 | 2.9                        | 2                                    | .01                                 | 5.7                        | 10                                   | .16                                 |
| 23      | 2.9                        | 10                                   | .08                                 | 2.9                        | 1                                    | .01                                 | 4.4                        | 6                                    | .07                                 |
| 24      | 3.1                        | 11                                   | .09                                 | 2.7                        | 1                                    | .01                                 | 4.2                        | 5                                    | .06                                 |
| 25      | 3.5                        | 9                                    | .09                                 | 2.7                        | 2                                    | .01                                 | 4.5                        | 9                                    | .12                                 |
| 26      | 3.3                        | 8                                    | .07                                 | 2.7                        | 2                                    | .01                                 | 4.0                        | 5                                    | .06                                 |
| 27      | 3.0                        | 5                                    | .04                                 | 2.4                        | 1                                    | .01                                 | 7.3                        | 9                                    | .28                                 |
| 28      | 2.9                        | 2                                    | .02                                 | 2.9                        | 1                                    | .01                                 | 4.6                        | 2                                    | .12                                 |
| 29      | 2.8                        | 3                                    | .02                                 | ---                        | ---                                  | ---                                 | 6.9                        | 9                                    | .49                                 |
| 30      | 2.7                        | 4                                    | .03                                 | ---                        | ---                                  | ---                                 | 6.0                        | 16                                   | .29                                 |
| 31      | 2.7                        | 4                                    | .03                                 | ---                        | ---                                  | ---                                 | 4.6                        | 10                                   | .13                                 |
| TOTAL   | 209.5                      | ---                                  | 92.05                               | 164.4                      | ---                                  | 55.09                               | 351.2                      | ---                                  | 2472.64                             |

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1     | 4.1                        | 1                                    | .02                                 | 2.5                        | 1                                    | .01                                 | 2.5                        | 3                                    | .02                                 |
| 2     | 12                         | 49                                   | 5.5                                 | 2.4                        | 2                                    | .01                                 | 2.3                        | 2                                    | .01                                 |
| 3     | 5.5                        | 12                                   | .19                                 | 3.0                        | 5                                    | .05                                 | 2.2                        | 1                                    | .01                                 |
| 4     | 4.1                        | 5                                    | .05                                 | e3.2                       | 6                                    | e.05                                | 2.2                        | 1                                    | .01                                 |
| 5     | 3.8                        | 2                                    | .02                                 | e2.8                       | 3                                    | e.02                                | 3.6                        | 7                                    | .14                                 |
| 6     | 3.3                        | 1                                    | .01                                 | e2.3                       | 2                                    | e.01                                | 3.3                        | 7                                    | .07                                 |
| 7     | 3.4                        | 3                                    | .03                                 | e2.2                       | 1                                    | e.01                                | 2.3                        | 4                                    | .03                                 |
| 8     | 3.3                        | 7                                    | .06                                 | 15                         | 245                                  | 87                                  | 2.5                        | 5                                    | .04                                 |
| 9     | 3.1                        | 6                                    | .05                                 | 4.8                        | 18                                   | .23                                 | 2.3                        | 2                                    | .01                                 |
| 10    | 3.0                        | 4                                    | .03                                 | 3.0                        | 14                                   | .11                                 | 2.2                        | 1                                    | .01                                 |
| 11    | 3.6                        | 2                                    | .02                                 | 2.5                        | 11                                   | .07                                 | 2.0                        | 1                                    | <.01                                |
| 12    | 12                         | 32                                   | 1.5                                 | 2.3                        | 9                                    | .06                                 | 3.4                        | 3                                    | .03                                 |
| 13    | 4.6                        | 8                                    | .10                                 | 5.2                        | 15                                   | .31                                 | 2.3                        | 1                                    | .01                                 |
| 14    | 3.7                        | 7                                    | .07                                 | 7.6                        | 36                                   | 2.2                                 | 2.1                        | 1                                    | .01                                 |
| 15    | 3.4                        | 7                                    | .06                                 | e7.7                       | 14                                   | e.42                                | 2.0                        | 1                                    | .01                                 |
| 16    | 8.3                        | 30                                   | 1.5                                 | e4.1                       | 3                                    | e.03                                | 2.5                        | 4                                    | .03                                 |
| 17    | 9.5                        | 22                                   | .83                                 | 3.2                        | 3                                    | .03                                 | 2.3                        | 2                                    | .01                                 |
| 18    | 14                         | 260                                  | 53                                  | e2.9                       | 3                                    | e.02                                | 2.1                        | 1                                    | .01                                 |
| 19    | e7.1                       | 18                                   | e.38                                | e2.9                       | 3                                    | e.02                                | 2.5                        | 4                                    | .03                                 |
| 20    | 13                         | 59                                   | 5.8                                 | e3.4                       | 7                                    | e.08                                | 2.1                        | 3                                    | .02                                 |
| 21    | 7.1                        | 16                                   | .34                                 | e2.5                       | 3                                    | e.02                                | 2.7                        | 6                                    | .04                                 |
| 22    | 5.2                        | 3                                    | .05                                 | 2.4                        | 1                                    | .01                                 | 5.4                        | 13                                   | .25                                 |
| 23    | 4.2                        | 2                                    | .02                                 | 2.5                        | 2                                    | .01                                 | 2.2                        | 4                                    | .02                                 |
| 24    | 3.7                        | 1                                    | .01                                 | 2.5                        | 4                                    | .02                                 | 2.0                        | 3                                    | .02                                 |
| 25    | 3.5                        | 2                                    | .01                                 | 2.2                        | 6                                    | .04                                 | 2.1                        | 2                                    | .01                                 |
| 26    | 3.5                        | 3                                    | .03                                 | 2.6                        | 6                                    | .04                                 | 2.0                        | 1                                    | .01                                 |
| 27    | 3.2                        | 4                                    | .04                                 | 6.8                        | 21                                   | .54                                 | 2.0                        | 1                                    | <.01                                |
| 28    | 3.4                        | 2                                    | .02                                 | 2.8                        | 3                                    | .03                                 | 2.1                        | 1                                    | .01                                 |
| 29    | 2.9                        | 1                                    | .01                                 | 3.2                        | 1                                    | .01                                 | 1.9                        | 1                                    | <.01                                |
| 30    | 2.7                        | 1                                    | .01                                 | 6.5                        | 19                                   | .57                                 | 1.8                        | 1                                    | .01                                 |
| 31    | ---                        | ---                                  | ---                                 | 3.0                        | 6                                    | .05                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 164.2                      | ---                                  | 69.76                               | 120.0                      | ---                                  | 92.08                               | 72.9                       | ---                                  | 0.91                                |

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 1.8                        | 2                               | .01                                 | 1.4                        | 2                               | .01                                 | 1.9                        | 2                               | .01                                 |
| 2     | 1.8                        | 1                               | .01                                 | 1.4                        | 1                               | <.01                                | 4.5                        | 8                               | .29                                 |
| 3     | 2.3                        | 3                               | .02                                 | 1.5                        | 1                               | <.01                                | 3.7                        | 7                               | .08                                 |
| 4     | 5.3                        | 4                               | .22                                 | 1.4                        | 1                               | <.01                                | 3.5                        | 5                               | .06                                 |
| 5     | 2.8                        | 3                               | .05                                 | 1.3                        | 1                               | <.01                                | 1.8                        | 2                               | .01                                 |
| 6     | 1.9                        | 2                               | .01                                 | 1.3                        | 1                               | <.01                                | 2.3                        | 3                               | .03                                 |
| 7     | 1.7                        | 5                               | .02                                 | 1.3                        | 1                               | <.01                                | 4.1                        | 4                               | .06                                 |
| 8     | 1.7                        | 12                              | .05                                 | 4.1                        | 2                               | .24                                 | 22                         | 80                              | 6.9                                 |
| 9     | 1.6                        | 14                              | .06                                 | 4.2                        | 6                               | .12                                 | 11                         | 22                              | 1.1                                 |
| 10    | 1.6                        | 15                              | .06                                 | 2.7                        | 5                               | .04                                 | 10                         | 29                              | 1.1                                 |
| 11    | 1.6                        | 11                              | .05                                 | 6.7                        | 18                              | .55                                 | 3.2                        | 8                               | .07                                 |
| 12    | 1.5                        | 7                               | .03                                 | 2.2                        | 3                               | .02                                 | 2.0                        | 5                               | .03                                 |
| 13    | 1.5                        | 5                               | .02                                 | 1.7                        | 2                               | .01                                 | 4.0                        | 11                              | .21                                 |
| 14    | 1.6                        | 3                               | .01                                 | 1.5                        | 2                               | .01                                 | 2.0                        | 3                               | .02                                 |
| 15    | 1.6                        | 2                               | .01                                 | 1.4                        | 2                               | .01                                 | 38                         | 384                             | 136                                 |
| 16    | 1.8                        | 1                               | .01                                 | 1.5                        | 3                               | .01                                 | 12                         | 12                              | .47                                 |
| 17    | 1.8                        | 1                               | <.01                                | 3.6                        | 8                               | .09                                 | 5.5                        | 3                               | .04                                 |
| 18    | 4.5                        | 14                              | .38                                 | 2.3                        | 3                               | .02                                 | 3.5                        | 2                               | .02                                 |
| 19    | 2.8                        | 7                               | .05                                 | 1.7                        | 1                               | .01                                 | e3.2                       | 2                               | .02                                 |
| 20    | 22                         | 78                              | 9.2                                 | 2.0                        | 1                               | <.01                                | e3.0                       | 2                               | .02                                 |
| 21    | 6.0                        | 15                              | .32                                 | 3.2                        | 3                               | .03                                 | e182                       | 982                             | 2480                                |
| 22    | 2.1                        | 4                               | .02                                 | 21                         | 100                             | 12                                  | 214                        | 1040                            | 968                                 |
| 23    | 1.6                        | 3                               | .01                                 | 6.2                        | 14                              | .30                                 | 24                         | 69                              | 5.4                                 |
| 24    | 1.8                        | 4                               | .02                                 | 63                         | 745                             | 279                                 | 16                         | 13                              | .53                                 |
| 25    | 1.6                        | 3                               | .01                                 | 63                         | 313                             | 88                                  | 13                         | 4                               | .14                                 |
| 26    | 1.4                        | 2                               | .01                                 | 23                         | 38                              | 3.0                                 | 9.5                        | 9                               | .22                                 |
| 27    | 1.4                        | 1                               | <.01                                | 13                         | 7                               | .24                                 | 8.3                        | 12                              | .26                                 |
| 28    | 2.3                        | 3                               | .03                                 | 7.4                        | 3                               | .05                                 | 7.1                        | 13                              | .24                                 |
| 29    | 1.6                        | 1                               | .01                                 | 5.1                        | 2                               | .03                                 | 6.3                        | 7                               | .12                                 |
| 30    | 1.5                        | 1                               | .01                                 | 3.1                        | 2                               | .02                                 | 5.8                        | 3                               | .05                                 |
| 31    | 1.5                        | 2                               | .01                                 | 2.3                        | 2                               | .01                                 | ---                        | ---                             | ---                                 |
| TOTAL | 86.0                       | ---                             | 10.74                               | 255.5                      | ---                             | 383.89                              | 627.2                      | ---                             | 3601.50                             |
| YEAR  | 2651.2                     |                                 | 8231.04                             |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

&lt; Actual value is known to be less than the value shown

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 1515 | 10                                                                    | 86                                                    | 2.3                                                                       | 97                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 1100 | 12                                                                    | 93                                                    | 3.0                                                                       | 95                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 1715 | 20                                                                    | 161                                                   | 8.7                                                                       | 92                                                                       |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 1840 | 632                                                                   | 4320                                                  | 7370                                                                      | 82                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 24... | 1615 | 53                                                                    | 282                                                   | 40                                                                        | 96                                                                       |
| 24... | 2350 | 132                                                                   | 3900                                                  | 1390                                                                      | 80                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 22... | 0340 | 393                                                                   | 1850                                                  | 1960                                                                      | 73                                                                       |

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| MAR<br>07... | 1710 | 1440                                                                    | 4370                                                                    | 17000                                                                    | 24                                                                       | 30                                                                       | 41                                                                       |                                                                          |
| AUG<br>24... | 1351 | 205                                                                     | 8350                                                                    | 4620                                                                     | 26                                                                       | 32                                                                       | 41                                                                       |                                                                          |
| SEP<br>21... | 2150 | 576                                                                     | 5000                                                                    | 7780                                                                     | 32                                                                       | 43                                                                       | 59                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| MAR<br>07... | 52   | 62                                                                      | 69                                                                      | 81                                                                       | 91                                                                       | 98                                                                       | 100                                                                      |                                                                          |
| AUG<br>24... | 50   | 56                                                                      | 60                                                                      | 78                                                                       | 87                                                                       | 91                                                                       | 94                                                                       |                                                                          |
| SEP<br>21... | 71   | 75                                                                      | 79                                                                      | 90                                                                       | 97                                                                       | 100                                                                      | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR

LOCATION.--Lat 18°10'24", long 65°58'38", Hydrologic Unit 21010005, on left downstream side of bridge on Highway 181, 0.2 mi (0.3 km) upstream from Rio Grande de Loiza, and 1.5 mi (2.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.74 mi<sup>2</sup> (9.69 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 330 ft (100 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN   | FEB    | MAR   | APR  | MAY  | JUN  | JUL   | AUG    | SEP    |
|-------|-------|------|------|-------|--------|-------|------|------|------|-------|--------|--------|
| 1     | e2.0  | 2.7  | 1.9  | 1.6   | 1.1    | 1.4   | 1.5  | 1.2  | 1.4  | 1.1   | .62    | 2.4    |
| 2     | e14   | 2.2  | 1.8  | 1.9   | 1.0    | 1.4   | 2.8  | 1.2  | 1.4  | 1.1   | .60    | 3.1    |
| 3     | e3.8  | 2.1  | 1.8  | 1.8   | .95    | 1.5   | 3.1  | 1.5  | 1.4  | 1.1   | .60    | 3.1    |
| 4     | e2.8  | 2.1  | 1.7  | 1.9   | 9.7    | 1.6   | 1.6  | 1.5  | 1.3  | 2.1   | .58    | 2.8    |
| 5     | e2.3  | 2.1  | 1.7  | 2.4   | 101    | 1.7   | 1.5  | 1.4  | 1.4  | 2.1   | .56    | 2.3    |
| 6     | e1.8  | 2.1  | 1.6  | 67    | 5.0    | 1.8   | 1.4  | 1.3  | 1.8  | 1.2   | e.57   | 2.5    |
| 7     | e1.4  | 2.0  | 1.6  | 66    | 3.2    | 329   | 1.4  | 1.3  | 1.3  | 1.2   | e1.0   | 2.6    |
| 8     | 2.0   | 2.0  | 1.6  | 8.5   | 44     | 7.4   | 1.4  | 12   | 1.3  | 1.1   | 1.2    | 8.3    |
| 9     | 1.8   | e8.1 | 1.5  | 4.9   | 11     | 2.8   | 1.3  | 2.6  | 1.3  | 1.0   | 1.1    | 4.3    |
| 10    | 2.0   | e7.4 | 1.5  | 4.3   | 3.1    | 2.2   | 1.2  | 1.7  | 1.2  | 1.0   | .91    | 4.3    |
| 11    | 2.0   | 3.0  | 1.5  | 3.6   | 2.4    | 1.9   | 1.2  | 1.5  | 1.2  | .99   | .94    | 2.6    |
| 12    | 3.0   | 2.5  | 1.5  | 2.9   | 2.1    | 1.7   | 2.2  | 1.4  | 1.5  | 1.0   | .85    | 2.4    |
| 13    | e336  | 2.5  | 1.6  | 7.4   | 1.9    | 1.7   | 1.4  | 1.6  | 1.5  | .91   | .75    | 4.2    |
| 14    | e97   | 2.3  | 1.7  | 5.2   | 11     | 1.7   | 1.3  | 2.7  | 1.3  | .87   | .69    | 2.9    |
| 15    | 13    | 2.4  | 1.6  | 3.1   | 4.2    | 1.6   | 1.3  | 2.6  | 1.2  | .90   | .69    | 7.3    |
| 16    | 8.0   | 2.3  | 1.6  | 2.6   | 2.6    | 1.6   | 2.0  | 1.6  | 1.5  | 1.2   | .86    | 3.3    |
| 17    | e8.2  | 2.5  | 2.1  | 2.3   | 2.4    | 1.6   | 2.3  | 1.5  | 1.2  | 1.2   | 1.1    | 3.0    |
| 18    | 6.4   | 2.3  | 1.7  | 2.1   | 2.2    | 1.7   | 2.0  | 1.9  | e1.3 | 1.4   | .96    | 3.1    |
| 19    | 4.3   | 2.2  | 1.8  | 1.9   | 2.0    | 2.1   | e1.7 | 1.8  | e1.4 | 1.4   | .81    | 3.4    |
| 20    | 3.5   | 2.1  | 1.6  | 1.8   | 1.9    | 14    | 4.3  | 1.6  | 1.3  | 30    | .84    | 4.9    |
| 21    | 3.1   | 2.2  | 1.9  | 1.7   | 1.8    | 3.4   | 2.4  | 1.4  | 1.7  | 2.1   | 1.2    | 434    |
| 22    | 2.8   | 3.3  | 1.7  | 1.6   | 1.7    | 2.2   | 2.1  | 1.3  | 2.0  | 1.0   | 5.3    | 810    |
| 23    | 2.7   | 3.6  | 2.1  | 1.6   | 1.6    | 1.8   | 1.5  | 1.4  | 1.4  | .75   | 1.3    | 100    |
| 24    | 2.6   | 2.6  | 1.9  | 1.6   | 1.6    | 1.6   | 1.4  | 1.4  | 1.2  | .85   | 105    | 19     |
| 25    | 2.8   | 2.2  | 1.8  | 1.6   | 1.6    | 1.7   | 1.4  | 1.2  | 1.2  | .72   | 91     | 4.6    |
| 26    | 2.5   | 3.4  | 1.7  | 1.6   | 1.6    | 1.5   | 1.4  | 1.3  | 1.2  | .68   | 11     | 5.5    |
| 27    | 2.3   | 2.6  | 1.7  | 1.4   | 1.5    | 1.9   | 1.4  | 3.5  | 1.1  | .66   | 4.6    | 6.7    |
| 28    | 2.3   | 2.1  | 1.6  | 1.3   | 1.5    | 1.7   | 1.6  | 1.6  | 1.2  | .82   | 3.4    | 7.7    |
| 29    | 2.2   | 2.0  | 1.6  | 1.3   | ---    | 4.8   | 1.4  | 1.6  | 1.1  | .71   | 3.0    | 11     |
| 30    | 2.1   | 2.0  | e1.6 | 1.2   | ---    | 2.2   | 1.3  | 1.9  | 1.1  | .65   | 2.7    | 10     |
| 31    | 2.2   | ---  | 1.7  | 1.1   | ---    | 1.6   | ---  | 1.7  | ---  | .63   | 2.5    | ---    |
| TOTAL | 542.9 | 82.9 | 52.7 | 209.2 | 225.65 | 404.8 | 52.8 | 62.2 | 40.4 | 62.44 | 247.23 | 1481.3 |
| MEAN  | 17.5  | 2.76 | 1.70 | 6.75  | 8.06   | 13.1  | 1.76 | 2.01 | 1.35 | 2.01  | 7.98   | 49.4   |
| MAX   | 336   | 8.1  | 2.1  | 67    | 101    | 329   | 4.3  | 12   | 2.0  | 30    | 105    | 810    |
| MIN   | 1.4   | 2.0  | 1.5  | 1.1   | .95    | 1.4   | 1.2  | 1.2  | 1.1  | .63   | .56    | 2.3    |
| AC-FT | 1080  | 164  | 105  | 415   | 448    | 803   | 105  | 123  | 80   | 124   | 490    | 2940   |
| CFSM  | 4.68  | .74  | .45  | 1.80  | 2.15   | 3.49  | .47  | .54  | .36  | .54   | 2.13   | 13.2   |
| IN.   | 5.40  | .82  | .52  | 2.08  | 2.24   | 4.03  | .53  | .62  | .40  | .62   | 2.46   | 14.73  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

|  | MEAN | 9.31 | 11.4 | 4.87 | 5.05 | 3.64 | 3.69 | 2.37 | 5.92 | 6.18 | 5.43 | 6.32 | 18.0 |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
|  | MAX  | 36.2 | 33.4 | 22.8 | 23.4 | 10.3 | 17.4 | 6.60 | 35.8 | 17.5 | 20.5 | 14.5 | 76.5 |
|  | (WY) | 1986 | 1988 | 1988 | 1992 | 1984 | 1989 | 1985 | 1985 | 1996 | 1993 | 1996 | 1996 |
|  | MIN  | 2.31 | 2.72 | 1.17 | 1.16 | 1.23 | 1.15 | .66  | .86  | .92  | 1.45 | 1.51 | 1.88 |
|  | (WY) | 1987 | 1990 | 1990 | 1990 | 1990 | 1992 | 1995 | 1995 | 1997 | 1994 | 1994 | 1990 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

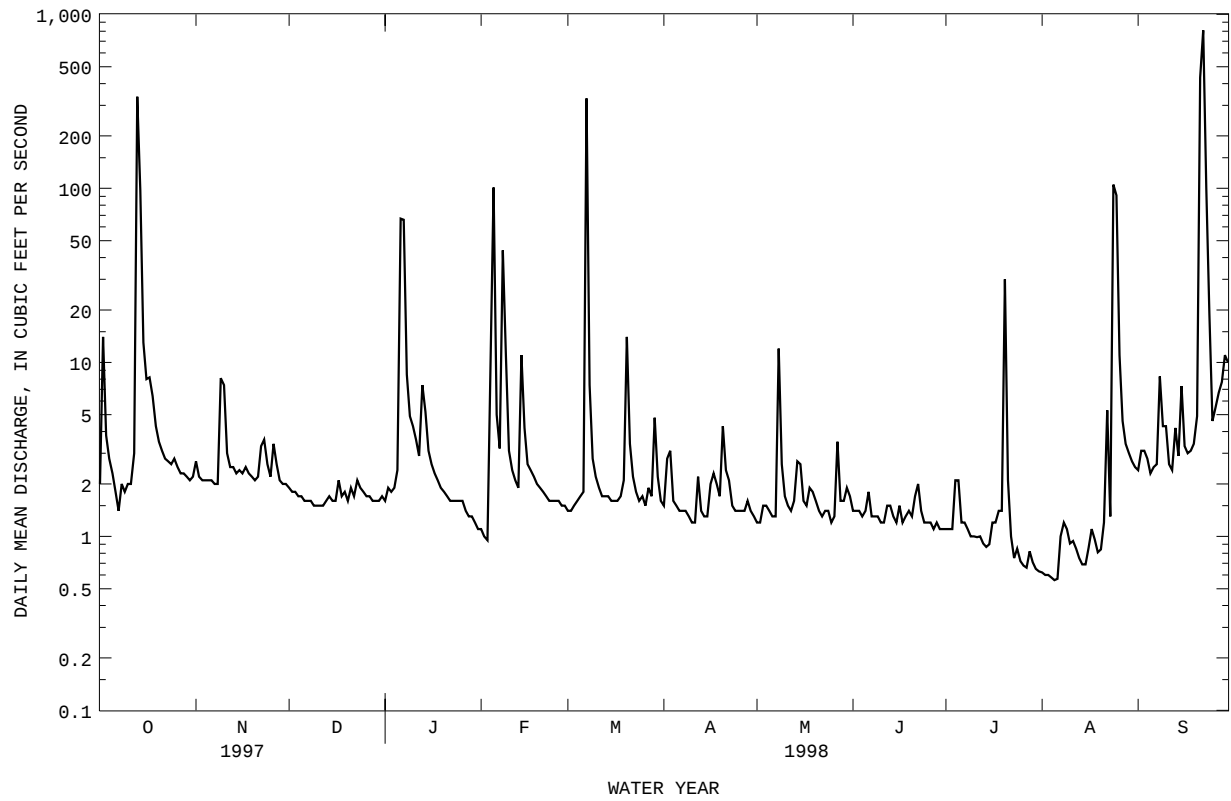
## WATER YEARS 1984 - 1998

|                          |         |         |        |
|--------------------------|---------|---------|--------|
| ANNUAL TOTAL             | 1610.92 | 3464.52 |        |
| ANNUAL MEAN              | 4.41    | 9.49    | 6.86   |
| HIGHEST ANNUAL MEAN      |         |         | 12.4   |
| LOWEST ANNUAL MEAN       |         |         | 3.19   |
| HIGHEST DAILY MEAN       | 336     | Oct 13  | 810    |
| LOWEST DAILY MEAN        | .48     | Jul 2   | .56    |
| ANNUAL SEVEN-DAY MINIMUM | .51     | Jun 28  | .59    |
| INSTANTANEOUS PEAK FLOW  |         |         | 4930   |
| INSTANTANEOUS PEAK STAGE |         |         | 14.88  |
| INSTANTANEOUS LOW FLOW   |         |         | Sep 21 |
| ANNUAL RUNOFF (AC-FT)    | 3200    | 6870    | 4970   |
| ANNUAL RUNOFF (CFSM)     | 1.18    | 2.54    | 1.83   |
| ANNUAL RUNOFF (INCHES)   | 16.02   | 34.46   | 24.93  |
| 10 PERCENT EXCEEDS       | 5.7     | 5.9     | 9.6    |
| 50 PERCENT EXCEEDS       | 1.9     | 1.7     | 2.0    |
| 90 PERCENT EXCEEDS       | .85     | 1.1     | .93    |

e Estimated

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1984 to 1986 and water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1989.

REMARKS.-- Sediment samples were collected by local observer on a weekly basis. During high flow sediment samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 33,000 tons (29,900 tonnes) Sep. 10, 1996; Minimum daily mean, &lt;0.01 ton (&lt;0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1998.-

SEDIMENT CONCENTRATION: Maximum daily mean, 1,590 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 6,110 tons (5,540 tonnes) September 21, 1998; Minimum daily mean, &lt;0.01 (&lt;0.01) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | e2.0                       | 4                               | e.02                                | 2.7                        | 5                               | .03                                 | 1.9                        | 4                               | .02                                 |
| 2       | e14                        | 50                              | e1.7                                | 2.2                        | 4                               | .03                                 | 1.8                        | 3                               | .01                                 |
| 3       | e3.8                       | 9                               | e.12                                | 2.1                        | 4                               | .02                                 | 1.8                        | 2                               | .01                                 |
| 4       | e2.8                       | 8                               | e.06                                | 2.1                        | 4                               | .03                                 | 1.7                        | 3                               | .01                                 |
| 5       | e2.3                       | 7                               | e.04                                | 2.1                        | 5                               | .03                                 | 1.7                        | 5                               | .02                                 |
| 6       | e1.8                       | 6                               | e.03                                | 2.1                        | 8                               | .05                                 | 1.6                        | 6                               | .03                                 |
| 7       | e1.4                       | 5                               | e.02                                | 2.0                        | 11                              | .06                                 | 1.6                        | 7                               | .03                                 |
| 8       | 2.0                        | 4                               | .02                                 | 2.0                        | 11                              | .06                                 | 1.6                        | 8                               | .04                                 |
| 9       | 1.8                        | 4                               | .02                                 | e8.1                       | 45                              | e3.3                                | 1.5                        | 10                              | .04                                 |
| 10      | 2.0                        | 4                               | .02                                 | e7.4                       | 90                              | e3.1                                | 1.5                        | 10                              | .04                                 |
| 11      | 2.0                        | 6                               | .03                                 | 3.0                        | 7                               | .06                                 | 1.5                        | 5                               | .02                                 |
| 12      | 3.0                        | 8                               | .07                                 | 2.5                        | 5                               | .03                                 | 1.5                        | 2                               | .01                                 |
| 13      | e336                       | 687                             | e2320                               | 2.5                        | 8                               | .05                                 | 1.6                        | 2                               | .01                                 |
| 14      | e97                        | 1280                            | e708                                | 2.3                        | 12                              | .07                                 | 1.7                        | 2                               | .01                                 |
| 15      | 13                         | 50                              | 1.7                                 | 2.4                        | 11                              | .07                                 | 1.6                        | 2                               | .01                                 |
| 16      | 8.0                        | 24                              | .54                                 | 2.3                        | 9                               | .05                                 | 1.6                        | 7                               | .03                                 |
| 17      | e8.2                       | 18                              | e.43                                | 2.5                        | 7                               | .05                                 | 2.1                        | 23                              | .13                                 |
| 18      | 6.4                        | 17                              | .29                                 | 2.3                        | 5                               | .03                                 | 1.7                        | 24                              | .11                                 |
| 19      | 4.3                        | 11                              | .13                                 | 2.2                        | 4                               | .02                                 | 1.8                        | 19                              | .09                                 |
| 20      | 3.5                        | 7                               | .07                                 | 2.1                        | 7                               | .04                                 | 1.6                        | 11                              | .05                                 |
| 21      | 3.1                        | 4                               | .03                                 | 2.2                        | 14                              | .08                                 | 1.9                        | 6                               | .03                                 |
| 22      | 2.8                        | 2                               | .02                                 | 3.3                        | 10                              | .09                                 | 1.7                        | 3                               | .02                                 |
| 23      | 2.7                        | 5                               | .03                                 | 3.6                        | 6                               | .06                                 | 2.1                        | 4                               | .02                                 |
| 24      | 2.6                        | 7                               | .05                                 | 2.6                        | 5                               | .03                                 | 1.9                        | 5                               | .02                                 |
| 25      | 2.8                        | 4                               | .03                                 | 2.2                        | 8                               | .05                                 | 1.8                        | 4                               | .02                                 |
| 26      | 2.5                        | 2                               | .01                                 | 3.4                        | 13                              | .13                                 | 1.7                        | 3                               | .01                                 |
| 27      | 2.3                        | 1                               | .01                                 | 2.6                        | 10                              | .07                                 | 1.7                        | 5                               | .02                                 |
| 28      | 2.3                        | 1                               | .01                                 | 2.1                        | 7                               | .04                                 | 1.6                        | 8                               | .04                                 |
| 29      | 2.2                        | 2                               | .01                                 | 2.0                        | 6                               | .03                                 | 1.6                        | 12                              | .05                                 |
| 30      | 2.1                        | 3                               | .02                                 | 2.0                        | 5                               | .03                                 | e1.6                       | 8                               | e.04                                |
| 31      | 2.2                        | 5                               | .03                                 | ---                        | ---                             | ---                                 | 1.7                        | 5                               | .02                                 |
| TOTAL   | 542.9                      | ---                             | 3033.56                             | 82.9                       | ---                             | 7.79                                | 52.7                       | ---                             | 1.01                                |

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 1.6                        | 3                                    | .01                                 | 1.1                        | 2                                    | <.01                                | 1.4                        | 2                                    | .01                                 |
| 2       | 1.9                        | 2                                    | .01                                 | 1.0                        | 1                                    | <.01                                | 1.4                        | 2                                    | .01                                 |
| 3       | 1.8                        | 5                                    | .02                                 | .95                        | 2                                    | .01                                 | 1.5                        | 3                                    | .01                                 |
| 4       | 1.9                        | 11                                   | .06                                 | 9.7                        | 118                                  | 61                                  | 1.6                        | 6                                    | .03                                 |
| 5       | 2.4                        | 24                                   | .15                                 | 101                        | 1210                                 | 656                                 | 1.7                        | 3                                    | .01                                 |
| 6       | 67                         | 466                                  | 350                                 | 5.0                        | 41                                   | .60                                 | 1.8                        | 1                                    | .01                                 |
| 7       | 66                         | 777                                  | 233                                 | 3.2                        | 22                                   | .19                                 | 329                        | 1540                                 | 5390                                |
| 8       | 8.5                        | 110                                  | 2.8                                 | 44                         | 363                                  | 211                                 | 7.4                        | 121                                  | 4.2                                 |
| 9       | 4.9                        | 26                                   | .34                                 | 11                         | 176                                  | 11                                  | 2.8                        | 9                                    | .07                                 |
| 10      | 4.3                        | 12                                   | .14                                 | 3.1                        | 8                                    | .07                                 | 2.2                        | 3                                    | .02                                 |
| 11      | 3.6                        | 7                                    | .07                                 | 2.4                        | 4                                    | .02                                 | 1.9                        | 2                                    | .01                                 |
| 12      | 2.9                        | 4                                    | .04                                 | 2.1                        | 2                                    | .01                                 | 1.7                        | 2                                    | .01                                 |
| 13      | 7.4                        | 64                                   | 4.6                                 | 1.9                        | 2                                    | .01                                 | 1.7                        | 1                                    | <.01                                |
| 14      | 5.2                        | 66                                   | 1.2                                 | 11                         | 84                                   | 6.7                                 | 1.7                        | 1                                    | .01                                 |
| 15      | 3.1                        | 7                                    | .06                                 | 4.2                        | 29                                   | .40                                 | 1.6                        | 2                                    | .01                                 |
| 16      | 2.6                        | 2                                    | .02                                 | 2.6                        | 4                                    | .03                                 | 1.6                        | 3                                    | .01                                 |
| 17      | 2.3                        | 3                                    | .02                                 | 2.4                        | 2                                    | .01                                 | 1.6                        | 2                                    | .01                                 |
| 18      | 2.1                        | 5                                    | .03                                 | 2.2                        | 1                                    | .01                                 | 1.7                        | 1                                    | <.01                                |
| 19      | 1.9                        | 8                                    | .04                                 | 2.0                        | 1                                    | <.01                                | 2.1                        | 2                                    | .01                                 |
| 20      | 1.8                        | 4                                    | .02                                 | 1.9                        | 1                                    | <.01                                | 14                         | 353                                  | 35                                  |
| 21      | 1.7                        | 2                                    | .01                                 | 1.8                        | 1                                    | <.01                                | 3.4                        | 36                                   | .35                                 |
| 22      | 1.6                        | 2                                    | .01                                 | 1.7                        | 1                                    | <.01                                | 2.2                        | 11                                   | .06                                 |
| 23      | 1.6                        | 3                                    | .01                                 | 1.6                        | 1                                    | <.01                                | 1.8                        | 3                                    | .01                                 |
| 24      | 1.6                        | 5                                    | .02                                 | 1.6                        | 1                                    | <.01                                | 1.6                        | 1                                    | .01                                 |
| 25      | 1.6                        | 8                                    | .03                                 | 1.6                        | 1                                    | <.01                                | 1.7                        | 1                                    | <.01                                |
| 26      | 1.6                        | 12                                   | .05                                 | 1.6                        | 1                                    | <.01                                | 1.5                        | 2                                    | .01                                 |
| 27      | 1.4                        | 5                                    | .02                                 | 1.5                        | 1                                    | <.01                                | 1.9                        | 3                                    | .01                                 |
| 28      | 1.3                        | 1                                    | <.01                                | 1.5                        | 1                                    | <.01                                | 1.7                        | 3                                    | .01                                 |
| 29      | 1.3                        | 2                                    | .01                                 | ---                        | ---                                  | ---                                 | 4.8                        | 183                                  | 11                                  |
| 30      | 1.2                        | 3                                    | .01                                 | ---                        | ---                                  | ---                                 | 2.2                        | 23                                   | .14                                 |
| 31      | 1.1                        | 3                                    | .01                                 | ---                        | ---                                  | ---                                 | 1.6                        | 6                                    | .03                                 |
| TOTAL   | 209.2                      | ---                                  | 592.82                              | 225.65                     | ---                                  | 947.18                              | 404.8                      | ---                                  | 5441.10                             |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 1.5                        | 2                                    | .01                                 | 1.2                        | 7                                    | .02                                 | 1.4                        | 4                                    | .02                                 |
| 2       | 2.8                        | 14                                   | .19                                 | 1.2                        | 6                                    | .02                                 | 1.4                        | 3                                    | .01                                 |
| 3       | 3.1                        | 18                                   | .16                                 | 1.5                        | 4                                    | .02                                 | 1.4                        | 2                                    | .01                                 |
| 4       | 1.6                        | 12                                   | .05                                 | 1.5                        | 3                                    | .01                                 | 1.3                        | 5                                    | .02                                 |
| 5       | 1.5                        | 13                                   | .05                                 | 1.4                        | 3                                    | .01                                 | 1.4                        | 11                                   | .04                                 |
| 6       | 1.4                        | 12                                   | .05                                 | 1.3                        | 5                                    | .02                                 | 1.8                        | 9                                    | .04                                 |
| 7       | 1.4                        | 8                                    | .03                                 | 1.3                        | 5                                    | .02                                 | 1.3                        | 5                                    | .02                                 |
| 8       | 1.4                        | 4                                    | .01                                 | 12                         | 323                                  | 78                                  | 1.3                        | 3                                    | .01                                 |
| 9       | 1.3                        | 2                                    | .01                                 | 2.6                        | 36                                   | .26                                 | 1.3                        | 5                                    | .02                                 |
| 10      | 1.2                        | 2                                    | .01                                 | 1.7                        | 23                                   | .11                                 | 1.2                        | 7                                    | .02                                 |
| 11      | 1.2                        | 2                                    | .01                                 | 1.5                        | 15                                   | .06                                 | 1.2                        | 6                                    | .02                                 |
| 12      | 2.2                        | 30                                   | .19                                 | 1.4                        | 8                                    | .03                                 | 1.5                        | 4                                    | .02                                 |
| 13      | 1.4                        | 22                                   | .09                                 | 1.6                        | 5                                    | .02                                 | 1.5                        | 4                                    | .01                                 |
| 14      | 1.3                        | 11                                   | .04                                 | 2.7                        | 42                                   | 1.1                                 | 1.3                        | 3                                    | .01                                 |
| 15      | 1.3                        | 6                                    | .02                                 | 2.6                        | 58                                   | .54                                 | 1.2                        | 3                                    | .01                                 |
| 16      | 2.0                        | 23                                   | .21                                 | 1.6                        | 8                                    | .04                                 | 1.5                        | 3                                    | .01                                 |
| 17      | 2.3                        | 19                                   | .17                                 | 1.5                        | 6                                    | .02                                 | 1.2                        | 3                                    | .01                                 |
| 18      | 2.0                        | 10                                   | .08                                 | 1.9                        | 16                                   | .12                                 | e1.3                       | 5                                    | e.02                                |
| 19      | e1.7                       | 10                                   | e.05                                | 1.8                        | 32                                   | .16                                 | e1.4                       | 9                                    | e.03                                |
| 20      | 4.3                        | 135                                  | 5.5                                 | 1.6                        | 18                                   | .08                                 | 1.3                        | 8                                    | .03                                 |
| 21      | 2.4                        | 24                                   | .16                                 | 1.4                        | 13                                   | .05                                 | 1.7                        | 6                                    | .03                                 |
| 22      | 2.1                        | 13                                   | .08                                 | 1.3                        | 11                                   | .04                                 | 2.0                        | 5                                    | .03                                 |
| 23      | 1.5                        | 8                                    | .03                                 | 1.4                        | 12                                   | .04                                 | 1.4                        | 5                                    | .02                                 |
| 24      | 1.4                        | 5                                    | .02                                 | 1.4                        | 14                                   | .05                                 | 1.2                        | 5                                    | .02                                 |
| 25      | 1.4                        | 4                                    | .01                                 | 1.2                        | 16                                   | .05                                 | 1.2                        | 6                                    | .02                                 |
| 26      | 1.4                        | 3                                    | .01                                 | 1.3                        | 12                                   | .04                                 | 1.2                        | 8                                    | .02                                 |
| 27      | 1.4                        | 3                                    | .01                                 | 3.5                        | 38                                   | .54                                 | 1.1                        | 7                                    | .02                                 |
| 28      | 1.6                        | 2                                    | .01                                 | 1.6                        | 15                                   | .06                                 | 1.2                        | 7                                    | .02                                 |
| 29      | 1.4                        | 2                                    | .01                                 | 1.6                        | 18                                   | .08                                 | 1.1                        | 6                                    | .02                                 |
| 30      | 1.3                        | 4                                    | .01                                 | 1.9                        | 13                                   | .06                                 | 1.1                        | 6                                    | .02                                 |
| 31      | ---                        | ---                                  | ---                                 | 1.7                        | 7                                    | .03                                 | ---                        | ---                                  | ---                                 |
| TOTAL   | 52.8                       | ---                                  | 7.28                                | 62.2                       | ---                                  | 81.70                               | 40.4                       | ---                                  | 0.60                                |

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 1.1                        | 7                               | .02                                 | .62                        | 14                              | .02                                 | 2.4                        | 6                               | .04                                 |
| 2     | 1.1                        | 8                               | .02                                 | .60                        | 9                               | .01                                 | 3.1                        | 20                              | .25                                 |
| 3     | 1.1                        | 11                              | .03                                 | .60                        | 6                               | .01                                 | 3.1                        | 17                              | .14                                 |
| 4     | 2.1                        | 33                              | .18                                 | .58                        | 4                               | .01                                 | 2.8                        | 13                              | .10                                 |
| 5     | 2.1                        | 49                              | .30                                 | .56                        | 2                               | <.01                                | 2.3                        | 15                              | .10                                 |
| 6     | 1.2                        | 19                              | .06                                 | e.57                       | 5                               | e.01                                | 2.5                        | 20                              | .14                                 |
| 7     | 1.2                        | 13                              | .04                                 | e1.0                       | 9                               | e.03                                | 2.6                        | 26                              | .18                                 |
| 8     | 1.1                        | 11                              | .03                                 | 1.2                        | 11                              | .04                                 | 8.3                        | 278                             | 17                                  |
| 9     | 1.0                        | 8                               | .02                                 | 1.1                        | 12                              | .04                                 | 4.3                        | 84                              | 1.8                                 |
| 10    | 1.0                        | 5                               | .01                                 | .91                        | 13                              | .03                                 | 4.3                        | 41                              | .52                                 |
| 11    | .99                        | 5                               | .01                                 | .94                        | 8                               | .02                                 | 2.6                        | 13                              | .09                                 |
| 12    | 1.0                        | 5                               | .01                                 | .85                        | 5                               | .01                                 | 2.4                        | 10                              | .06                                 |
| 13    | .91                        | 6                               | .01                                 | .75                        | 4                               | .01                                 | 4.2                        | 66                              | 1.1                                 |
| 14    | .87                        | 6                               | .01                                 | .69                        | 4                               | .01                                 | 2.9                        | 31                              | .24                                 |
| 15    | .90                        | 6                               | .01                                 | .69                        | 4                               | .01                                 | 7.3                        | 579                             | 33                                  |
| 16    | 1.2                        | 7                               | .02                                 | .86                        | 7                               | .01                                 | 3.3                        | 22                              | .19                                 |
| 17    | 1.2                        | 7                               | .02                                 | 1.1                        | 9                               | .03                                 | 3.0                        | 13                              | .11                                 |
| 18    | 1.4                        | 7                               | .03                                 | .96                        | 7                               | .02                                 | 3.1                        | 10                              | .08                                 |
| 19    | 1.4                        | 7                               | .03                                 | .81                        | 5                               | .01                                 | 3.4                        | 9                               | .09                                 |
| 20    | 30                         | 424                             | 75                                  | .84                        | 5                               | .01                                 | 4.9                        | 31                              | .56                                 |
| 21    | 2.1                        | 38                              | .23                                 | 1.2                        | 5                               | .02                                 | 434                        | 1260                            | 6110                                |
| 22    | 1.0                        | 18                              | .05                                 | 5.3                        | 194                             | 15                                  | 810                        | 1590                            | 6050                                |
| 23    | .75                        | 8                               | .02                                 | 1.3                        | 12                              | .05                                 | 100                        | 105                             | 43                                  |
| 24    | .85                        | 7                               | .02                                 | 105                        | 955                             | 734                                 | 19                         | 18                              | .95                                 |
| 25    | .72                        | 8                               | .01                                 | 91                         | 869                             | 453                                 | 4.6                        | 12                              | .15                                 |
| 26    | .68                        | 9                               | .02                                 | 11                         | 128                             | 6.4                                 | 5.5                        | 9                               | .14                                 |
| 27    | .66                        | 9                               | .02                                 | 4.6                        | 23                              | .28                                 | 6.7                        | 9                               | .16                                 |
| 28    | .82                        | 5                               | .01                                 | 3.4                        | 12                              | .11                                 | 7.7                        | 9                               | .18                                 |
| 29    | .71                        | 3                               | <.01                                | 3.0                        | 8                               | .06                                 | 11                         | 8                               | .25                                 |
| 30    | .65                        | 6                               | .01                                 | 2.7                        | 6                               | .04                                 | 10                         | 8                               | .23                                 |
| 31    | .63                        | 16                              | .03                                 | 2.5                        | 4                               | .03                                 | ---                        | ---                             | ---                                 |
| TOTAL | 62.44                      | ---                             | 76.29                               | 247.23                     | ---                             | 1209.34                             | 1481.3                     | ---                             | 12260.85                            |
| YEAR  | 3464.52                    |                                 | 23659.52                            |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

&lt; Actual value is known to be less than the value shown

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 1510 | 173                                                                   | 913                                                   | 426                                                                       | 97                                                                       |
| 07... | 1700 | 52                                                                    | 327                                                   | 46                                                                        | 98                                                                       |
| 13... | 2100 | 31                                                                    | 449                                                   | 38                                                                        | 98                                                                       |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 1830 | 1070                                                                  | 3090                                                  | 8930                                                                      | 83                                                                       |
| 20... | 1600 | 14                                                                    | 350                                                   | 13                                                                        | 99                                                                       |
| 29... | 1700 | 36                                                                    | 1820                                                  | 177                                                                       | 98                                                                       |
| JUL   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 20... | 1515 | 43                                                                    | 2710                                                  | 315                                                                       | 100                                                                      |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 22... | 0437 | 44                                                                    | 3770                                                  | 448                                                                       | 100                                                                      |
| 25... | 2250 | 66                                                                    | 549                                                   | 98                                                                        | 92                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 2310 | 2670                                                                  | 4140                                                  | 29800                                                                     | 67                                                                       |
| 22... | 0455 | 572                                                                   | 1300                                                  | 2010                                                                      | 85                                                                       |

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME                                                                    | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)  | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |
|--------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| JAN<br>07... | 1426                                                                    | 378                                                                     | 2370                                                                     | 2420                                                                     | 33                                                                       | 42                                                                       | 54                                                                       |
| MAR<br>07... | 1545                                                                    | 968                                                                     | 4760                                                                     | 12400                                                                    | 21                                                                       | 29                                                                       | 36                                                                       |
| AUG<br>24... | 1600                                                                    | 53                                                                      | 665                                                                      | 95                                                                       | 54                                                                       | 69                                                                       | 80                                                                       |
| SEP<br>15... | 0829                                                                    | 21                                                                      | 245                                                                      | 14                                                                       | 26                                                                       | 40                                                                       | 60                                                                       |
| 21...        | 1910                                                                    | 586                                                                     | 4040                                                                     | 6390                                                                     | 38                                                                       | 50                                                                       | 64                                                                       |
| DATE         | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| JAN<br>07... | 66                                                                      | 78                                                                      | 85                                                                       | 94                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |
| MAR<br>07... | 46                                                                      | 59                                                                      | 71                                                                       | 85                                                                       | 94                                                                       | 98                                                                       | 100                                                                      |
| AUG<br>24... | 88                                                                      | 97                                                                      | 98                                                                       | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| SEP<br>15... | 77                                                                      | 86                                                                      | 91                                                                       | 98                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |
| 21...        | 76                                                                      | 83                                                                      | 87                                                                       | 94                                                                       | 97                                                                       | 98                                                                       | 100                                                                      |

RIO GRANDE DE LOIZA BASIN  
50051310 RIO CAYAGUAS AT CERRO GORDO, PR

LOCATION.--Lat 18°09'13", long 65°57'24", Hydrologic Unit 21010005, at downstream side of bridge on Highway 912, at Barrio Cerro Gordo, 2.8 mi (4.5 km) south of San Lorenzo.

DRAINAGE AREA.--10.2 mi<sup>2</sup> (26.4 km<sup>2</sup>).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft (150 m), from topographic map. Prior to Oct. 1, 1983, at site 2,000 ft (610 m) downstream at different datum.

REMARKS.--Records poor. Sand removal at a commercial level is practiced at times during the year. This takes place about one hundred feet downstream from the low water control. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN   | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG   | SEP   |
|-------|-------|------|------|-------|------|------|------|------|------|------|-------|-------|
| 1     | 37    | 46   | e37  | 74    | e29  | e21  | e37  | e21  | e26  | 14   | 22    | 38    |
| 2     | 216   | 28   | e34  | 57    | e26  | e21  | e41  | e22  | e22  | 17   | 18    | 48    |
| 3     | 62    | 41   | e34  | 65    | e25  | e24  | e37  | e25  | e20  | 22   | 15    | 68    |
| 4     | 65    | 34   | e32  | 107   | e29  | e23  | e30  | e26  | 20   | 60   | 15    | 54    |
| 5     | 34    | e37  | e33  | 84    | e620 | e21  | e35  | e24  | 22   | 66   | 31    | 36    |
| 6     | 28    | e34  | e32  | 591   | e64  | e21  | e30  | e23  | 25   | 20   | e133  | 69    |
| 7     | 30    | e30  | e31  | e517  | e54  | e960 | e28  | e22  | 22   | 37   | 31    | 161   |
| 8     | 33    | e28  | e30  | e213  | e120 | e66  | e28  | e56  | 37   | 23   | 22    | 332   |
| 9     | 43    | e54  | e31  | 158   | e82  | e33  | e26  | e39  | 30   | 43   | 45    | 165   |
| 10    | 37    | e400 | e30  | 321   | e41  | e27  | e24  | e27  | 28   | 21   | 36    | e135  |
| 11    | 81    | e43  | e30  | 95    | e31  | e24  | e25  | e23  | 22   | 16   | 43    | 82    |
| 12    | 140   | e35  | e32  | 52    | e27  | e23  | e56  | e22  | 52   | 14   | 31    | 66    |
| 13    | 406   | e34  | 33   | 70    | e26  | e22  | e30  | e32  | 69   | 18   | 26    | 97    |
| 14    | 1750  | e31  | 29   | 71    | e130 | e24  | e26  | e37  | 25   | 21   | 24    | 122   |
| 15    | 223   | e32  | 37   | 46    | e52  | e25  | e24  | e43  | 28   | 14   | 26    | 502   |
| 16    | 134   | e31  | 44   | e40   | e35  | e22  | e35  | e31  | 30   | 16   | 29    | e68   |
| 17    | 93    | e32  | 68   | e32   | e33  | e21  | e42  | e26  | 48   | 14   | 331   | e52   |
| 18    | 60    | e30  | 42   | e36   | e29  | e20  | e47  | e23  | 34   | 35   | 82    | e50   |
| 19    | 50    | e30  | 34   | 36    | e28  | e22  | e36  | e22  | 30   | 25   | 32    | e52   |
| 20    | 47    | e29  | 33   | 28    | e26  | e110 | e66  | e21  | 23   | 144  | 53    | e50   |
| 21    | 51    | e54  | 69   | 25    | e25  | e50  | e50  | e19  | 27   | 73   | 88    | e2900 |
| 22    | 41    | e60  | 55   | 36    | e23  | e35  | e38  | e19  | 61   | 23   | 250   | e4100 |
| 23    | 38    | e64  | 48   | 31    | e22  | e29  | e30  | e23  | 24   | 16   | 75    | e140  |
| 24    | 37    | e49  | 47   | 36    | e21  | e26  | e28  | e21  | 19   | 58   | 742   | e94   |
| 25    | 38    | e41  | 43   | e40   | e21  | e30  | e27  | e18  | 21   | 22   | e860  | e80   |
| 26    | 36    | e58  | 38   | e36   | e21  | e29  | e26  | 86   | 20   | 20   | e90   | e70   |
| 27    | 29    | e49  | 30   | 30    | e19  | e34  | e27  | 117  | 21   | 39   | e90   | e78   |
| 28    | 31    | e40  | 31   | 31    | e22  | e31  | e30  | 21   | 21   | 65   | e78   | e70   |
| 29    | 35    | e38  | 32   | 44    | ---  | e50  | e25  | 24   | 15   | 29   | e84   | e62   |
| 30    | 39    | e40  | 42   | 48    | ---  | e86  | e22  | 141  | 15   | 27   | e70   | e56   |
| 31    | 37    | ---  | 30   | 34    | ---  | e58  | ---  | 26   | ---  | 22   | e41   | ---   |
| TOTAL | 3981  | 1552 | 1171 | 3084  | 1681 | 1988 | 1006 | 1080 | 857  | 1034 | 3513  | 9897  |
| MEAN  | 128   | 51.7 | 37.8 | 99.5  | 60.0 | 64.1 | 33.5 | 34.8 | 28.6 | 33.4 | 113   | 330   |
| MAX   | 1750  | 400  | 69   | 591   | 620  | 960  | 66   | 141  | 69   | 144  | 860   | 4100  |
| MIN   | 28    | 28   | 29   | 25    | 19   | 20   | 22   | 18   | 15   | 14   | 15    | 36    |
| AC-FT | 7900  | 3080 | 2320 | 6120  | 3330 | 3940 | 2000 | 2140 | 1700 | 2050 | 6970  | 19630 |
| CFSM  | 12.6  | 5.07 | 3.70 | 9.75  | 5.89 | 6.29 | 3.29 | 3.42 | 2.80 | 3.27 | 11.1  | 32.3  |
| IN.   | 14.52 | 5.66 | 4.27 | 11.25 | 6.13 | 7.25 | 3.67 | 3.94 | 3.13 | 3.77 | 12.81 | 36.09 |

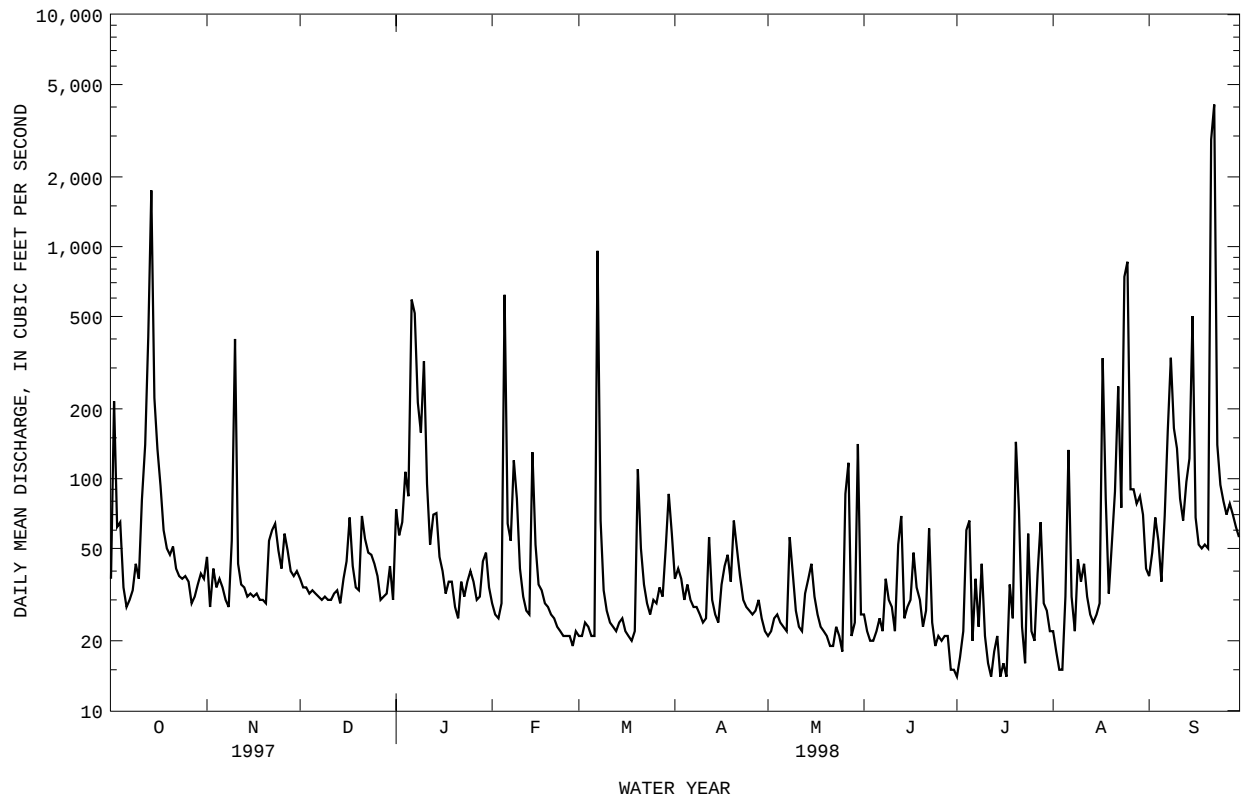
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 62.3 | 68.3 | 44.2 | 33.3 | 30.8 | 24.2 | 21.0 | 42.9 | 44.6 | 43.5 | 51.9 | 81.1 |
| MAX  | 176  | 196  | 163  | 99.5 | 74.1 | 64.1 | 46.0 | 155  | 140  | 118  | 202  | 330  |
| (WY) | 1986 | 1988 | 1988 | 1998 | 1997 | 1998 | 1985 | 1985 | 1979 | 1979 | 1979 | 1998 |
| MIN  | 14.4 | 19.2 | 12.5 | 14.6 | 11.0 | 11.3 | 10.7 | 9.68 | 10.9 | 15.4 | 14.5 | 16.9 |
| (WY) | 1992 | 1982 | 1992 | 1990 | 1992 | 1992 | 1980 | 1990 | 1994 | 1994 | 1991 | 1980 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1977 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 18902.5                | 30844               |                         |
| ANNUAL MEAN              | 51.8                   | 84.5                | 45.7                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 89.7                    |
| LOWEST ANNUAL MEAN       |                        |                     | 18.6                    |
| HIGHEST DAILY MEAN       | 1750                   | Oct 14              | 5120                    |
| LOWEST DAILY MEAN        | 8.4                    | May 6               | 7.1                     |
| ANNUAL SEVEN-DAY MINIMUM | 10                     | May 3               | 8.5                     |
| INSTANTANEOUS PEAK FLOW  |                        | 16                  | Jul 11                  |
| INSTANTANEOUS PEAK STAGE |                        | 12700               | Sep 21                  |
| ANNUAL RUNOFF (AC-FT)    | 37490                  | 23.26               | Sep 21                  |
| ANNUAL RUNOFF (CFSM)     | 5.08                   | 61180               | 33100                   |
| ANNUAL RUNOFF (INCHES)   | 68.94                  | 8.28                | 4.48                    |
| 10 PERCENT EXCEEDS       | 95                     | 112.49              | 60.87                   |
| 50 PERCENT EXCEEDS       | 29                     | 96                  | 70                      |
| 90 PERCENT EXCEEDS       | 12                     | 34                  | 25                      |
|                          |                        | 21                  | 13                      |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50051310 RIO CAYAGUAS AT CERRO GORDO, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR

LOCATION.--Lat 18°11'09", long 65°57'42", Hydrologic Unit 21010005, at upstream side of bridge on Highway 183 by-pass, 0.4 mi (0.6 km) south from Plaza de San Lorenzo, 1.4 mi (2.2 km), southwest from Escuela Rafael Colón García and 2.0 mi (3.2 km) northwest from Escuela Segunda Unidad de Carlos Zayas.

DRAINAGE AREA.--25.0 mi<sup>2</sup> (64.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 262 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated discharges, which are poor. Water purification plant located about 0.2 mi (0.3 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN   | FEB   | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|-------|------|------|-------|-------|------|------|------|------|------|------|-------|
| 1     | 84    | 93   | 72   | 71    | e78   | 57   | 121  | 55   | 61   | 39   | 36   | 77    |
| 2     | 195   | 86   | 66   | 69    | e74   | 54   | 136  | 56   | 54   | 39   | 34   | 79    |
| 3     | 96    | 87   | 64   | 67    | e71   | 63   | 124  | 64   | 53   | 42   | 33   | 107   |
| 4     | 91    | 88   | 62   | 114   | e84   | 61   | 101  | 67   | 54   | 108  | 31   | 103   |
| 5     | 80    | 86   | 63   | 94    | e1600 | 54   | 118  | 62   | 54   | 89   | 31   | 73    |
| 6     | 73    | 81   | 61   | 711   | e220  | 55   | 101  | 59   | 69   | 46   | e61  | 116   |
| 7     | 68    | 79   | 58   | 695   | e130  | 1460 | 92   | 55   | 56   | 51   | 50   | 151   |
| 8     | 71    | 79   | 58   | 332   | e400  | 236  | 93   | 141  | 57   | 48   | 73   | 265   |
| 9     | 74    | 101  | 60   | 287   | e300  | 116  | 86   | 98   | 58   | 48   | 86   | 197   |
| 10    | 70    | 647  | 57   | 386   | e120  | 96   | 81   | 71   | 54   | 42   | 70   | 149   |
| 11    | 111   | 129  | 57   | 187   | e90   | 83   | 83   | 58   | 47   | 38   | 62   | 94    |
| 12    | 162   | 106  | 61   | 162   | e82   | 79   | 187  | 56   | 68   | 35   | 47   | 82    |
| 13    | 954   | 104  | 59   | 169   | 70    | 75   | 101  | 79   | 84   | 33   | 43   | 124   |
| 14    | 3120  | 94   | 58   | 169   | 151   | 85   | 86   | 93   | 53   | 41   | 36   | 122   |
| 15    | 376   | 94   | 57   | 129   | 126   | 88   | 81   | 108  | 47   | 35   | 36   | 337   |
| 16    | 249   | 93   | 57   | 123   | 85    | 75   | 117  | 78   | 53   | 40   | 36   | 126   |
| 17    | 217   | 95   | 89   | 114   | 83    | 72   | 140  | 67   | 77   | 36   | 175  | 98    |
| 18    | 173   | 90   | 60   | 109   | 78    | 70   | 155  | 60   | e61  | 58   | 74   | 92    |
| 19    | 139   | 89   | 57   | 104   | 72    | 77   | e119 | 57   | 61   | 62   | 49   | 96    |
| 20    | 124   | 87   | 54   | 103   | 71    | 380  | 217  | 55   | 51   | 215  | 55   | e94   |
| 21    | 117   | 105  | 77   | 98    | 69    | 165  | 131  | 51   | 55   | 110  | 81   | e3700 |
| 22    | 111   | 113  | 60   | 96    | 65    | 118  | 93   | 50   | 91   | 54   | 211  | e5020 |
| 23    | 108   | 101  | 58   | 98    | 63    | 98   | 76   | 57   | 52   | 46   | 95   | 603   |
| 24    | 102   | 93   | 54   | 99    | 60    | 89   | 72   | 53   | 47   | 63   | 903  | 401   |
| 25    | 104   | 79   | 52   | 104   | 58    | 103  | 69   | 46   | 45   | 52   | 1160 | 336   |
| 26    | 97    | 110  | 50   | 104   | 61    | 99   | 67   | 99   | 46   | 43   | 330  | 296   |
| 27    | 93    | 94   | 50   | 94    | 60    | 114  | 68   | 132  | 46   | 46   | 144  | 332   |
| 28    | 91    | 76   | 50   | 90    | 59    | 103  | 75   | 61   | 50   | 64   | 111  | 302   |
| 29    | 90    | 72   | 49   | 92    | ---   | 182  | 64   | 72   | 43   | 48   | 119  | 261   |
| 30    | 87    | 76   | 53   | e83   | ---   | 289  | 57   | 125  | 40   | 43   | 93   | 240   |
| 31    | 88    | ---  | 52   | e80   | ---   | 200  | ---  | 86   | ---  | 41   | 83   | ---   |
| TOTAL | 7615  | 3327 | 1835 | 5233  | 4480  | 4896 | 3111 | 2271 | 1687 | 1755 | 4448 | 14073 |
| MEAN  | 246   | 111  | 59.2 | 169   | 160   | 158  | 104  | 73.3 | 56.2 | 56.6 | 143  | 469   |
| MAX   | 3120  | 647  | 89   | 711   | 1600  | 1460 | 217  | 141  | 91   | 215  | 1160 | 5020  |
| MIN   | 68    | 72   | 49   | 67    | 58    | 54   | 57   | 46   | 40   | 33   | 31   | 73    |
| AC-FT | 15100 | 6600 | 3640 | 10380 | 8890  | 9710 | 6170 | 4500 | 3350 | 3480 | 8820 | 27910 |
| CFSM  | 9.83  | 4.44 | 2.37 | 6.75  | 6.40  | 6.32 | 4.15 | 2.93 | 2.25 | 2.26 | 5.74 | 18.8  |
| IN.   | 11.33 | 4.95 | 2.73 | 7.79  | 6.67  | 7.29 | 4.63 | 3.38 | 2.51 | 2.61 | 6.62 | 20.94 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

|      | MEAN | 137  | 129  | 85.5 | 109  | 82.1 | 61.9 | 43.9 | 64.5 | 109  | 96.3 | 112  | 230  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 266  | 223  | 110  | 192  | 160  | 158  | 104  | 186  | 290  | 208  | 208  | 196  | 631  |
| (WY) | 1991 | 1992 | 1993 | 1992 | 1998 | 1998 | 1998 | 1992 | 1992 | 1993 | 1993 | 1996 | 1996 |
| MIN  | 77.6 | 69.2 | 59.2 | 50.1 | 21.0 | 17.4 | 16.8 | 25.2 | 42.3 | 42.3 | 39.3 | 59.7 | 59.7 |
| (WY) | 1993 | 1996 | 1998 | 1995 | 1992 | 1992 | 1992 | 1995 | 1994 | 1994 | 1994 | 1994 | 1990 |

## SUMMARY STATISTICS

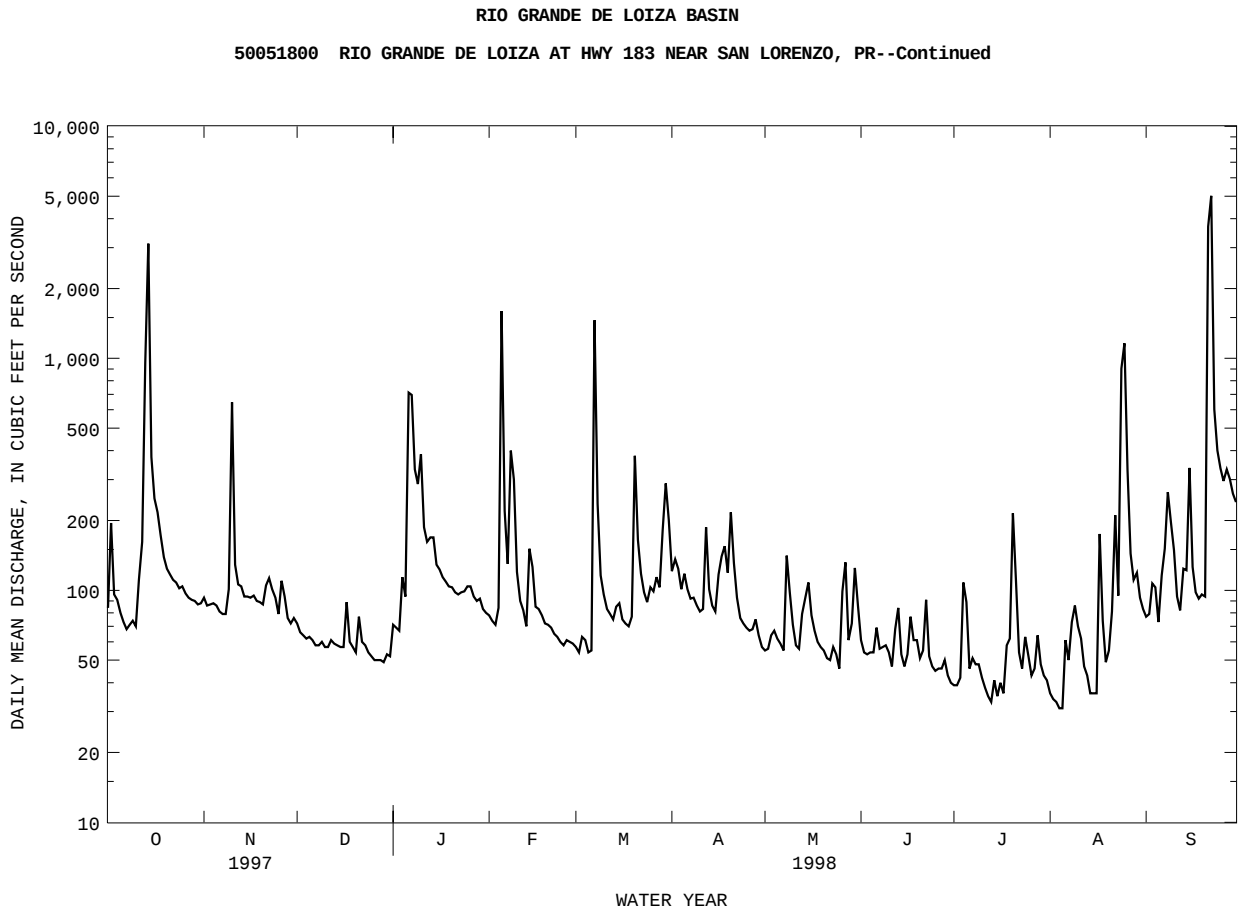
## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1990 - 1998

|                          |       |        |        |
|--------------------------|-------|--------|--------|
| ANNUAL TOTAL             | 33576 | 54731  |        |
| ANNUAL MEAN              | 92.0  | 150    | 108    |
| HIGHEST ANNUAL MEAN      |       |        | 154    |
| LOWEST ANNUAL MEAN       |       |        | 67.8   |
| HIGHEST DAILY MEAN       | 3120  | Oct 14 | 5020   |
| LOWEST DAILY MEAN        | 21    | Jul 3  | 31     |
| ANNUAL SEVEN-DAY MINIMUM | 24    | Jun 28 | 36     |
| INSTANTANEOUS PEAK FLOW  |       |        | 36600  |
| INSTANTANEOUS PEAK STAGE |       |        | 30.14  |
| ANNUAL RUNOFF (AC-FT)    | 66600 |        | 108600 |
| ANNUAL RUNOFF (CFSM)     | 3.68  |        | 6.00   |
| ANNUAL RUNOFF (INCHES)   | 49.96 |        | 81.44  |
| 10 PERCENT EXCEEDS       | 133   |        | 213    |
| 50 PERCENT EXCEEDS       | 63    |        | 81     |
| 90 PERCENT EXCEEDS       | 34    |        | 48     |

e Estimated



## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by a local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,080 mg/L November 10, 1997; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 80,600 tons (73,100 tonnes) September 10, 1996; Minimum daily mean, 0.20 ton (0.18 tonne) May 05, 1992.

EXTREMES FOR CURRENT YEAR 1998--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,080 mg/l November 10, 1997; Minimum daily mean, 11 mg/l March 11, 1998.

SEDIMENT LOADS: Maximum daily mean, 56,000 tons (50,800 tonnes) September 21, 1998; Minimum daily mean, 1.8 tons (1.6 tonnes) April 30, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 84                         | 102                             | 23                                  | 93                         | 39                              | 9.7                                 | 72                         | 49                              | 9.6                                 |
| 2       | 195                        | 564                             | 459                                 | 86                         | 39                              | 9.1                                 | 66                         | 72                              | 13                                  |
| 3       | 96                         | 121                             | 31                                  | 87                         | 42                              | 10                                  | 64                         | 94                              | 16                                  |
| 4       | 91                         | 121                             | 30                                  | 88                         | 64                              | 15                                  | 62                         | 83                              | 14                                  |
| 5       | 80                         | 124                             | 27                                  | 86                         | 82                              | 19                                  | 63                         | 68                              | 12                                  |
| 6       | 73                         | 125                             | 25                                  | 81                         | 43                              | 9.5                                 | 61                         | 42                              | 6.9                                 |
| 7       | 68                         | 113                             | 21                                  | 79                         | 23                              | 4.8                                 | 58                         | 23                              | 3.6                                 |
| 8       | 71                         | 105                             | 20                                  | 79                         | 21                              | 4.5                                 | 58                         | 16                              | 2.5                                 |
| 9       | 74                         | 107                             | 21                                  | 101                        | 64                              | 23                                  | 60                         | 30                              | 4.9                                 |
| 10      | 70                         | 110                             | 21                                  | 647                        | 3080                            | 11100                               | 57                         | 50                              | 7.7                                 |
| 11      | 111                        | 314                             | 184                                 | 129                        | 281                             | 99                                  | 57                         | 34                              | 5.2                                 |
| 12      | 162                        | 536                             | 407                                 | 106                        | 142                             | 41                                  | 61                         | 21                              | 3.5                                 |
| 13      | 954                        | 1390                            | 20000                               | 104                        | 97                              | 27                                  | 59                         | 23                              | 3.7                                 |
| 14      | 3120                       | 2760                            | 49200                               | 94                         | 74                              | 19                                  | 58                         | 28                              | 4.4                                 |
| 15      | 376                        | 165                             | 169                                 | 94                         | 83                              | 21                                  | 57                         | 36                              | 5.5                                 |
| 16      | 249                        | 74                              | 50                                  | 93                         | 100                             | 25                                  | 57                         | 62                              | 9.6                                 |
| 17      | 217                        | 188                             | 128                                 | 95                         | 114                             | 29                                  | 89                         | 92                              | 25                                  |
| 18      | 173                        | 273                             | 129                                 | 90                         | 109                             | 26                                  | 60                         | 52                              | 8.5                                 |
| 19      | 139                        | 205                             | 77                                  | 89                         | 102                             | 25                                  | 57                         | 51                              | 7.8                                 |
| 20      | 124                        | 151                             | 51                                  | 87                         | 101                             | 24                                  | 54                         | 50                              | 7.2                                 |
| 21      | 117                        | 108                             | 34                                  | 105                        | 153                             | 46                                  | 77                         | 49                              | 10                                  |
| 22      | 111                        | 83                              | 25                                  | 113                        | 155                             | 48                                  | 60                         | 48                              | 7.8                                 |
| 23      | 108                        | 86                              | 25                                  | 101                        | 139                             | 38                                  | 58                         | 43                              | 6.7                                 |
| 24      | 102                        | 93                              | 26                                  | 93                         | 122                             | 31                                  | 54                         | 38                              | 5.5                                 |
| 25      | 104                        | 103                             | 29                                  | 79                         | 121                             | 26                                  | 52                         | 34                              | 4.8                                 |
| 26      | 97                         | 113                             | 30                                  | 110                        | 168                             | 50                                  | 50                         | 32                              | 4.3                                 |
| 27      | 93                         | 117                             | 30                                  | 94                         | 67                              | 18                                  | 50                         | 34                              | 4.5                                 |
| 28      | 91                         | 92                              | 23                                  | 76                         | 25                              | 5.0                                 | 50                         | 36                              | 4.9                                 |
| 29      | 90                         | 70                              | 17                                  | 72                         | 28                              | 5.5                                 | 49                         | 38                              | 5.0                                 |
| 30      | 87                         | 52                              | 12                                  | 76                         | 37                              | 7.6                                 | 53                         | 38                              | 5.5                                 |
| 31      | 88                         | 40                              | 9.5                                 | ---                        | ---                             | ---                                 | 52                         | 37                              | 5.2                                 |
| TOTAL   | 7615                       | ---                             | 71333.5                             | 3327                       | ---                             | 11815.7                             | 1835                       | ---                             | 234.8                               |

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 71                         | 83                              | 18                                  | e78                        | 70                              | e17                                 | 57                         | 18                              | 2.8                                 |
| 2       | 69                         | 92                              | 17                                  | e74                        | 66                              | e18                                 | 54                         | 20                              | 2.9                                 |
| 3       | 67                         | 89                              | 16                                  | e71                        | 52                              | e15                                 | 63                         | 30                              | 5.2                                 |
| 4       | 114                        | 159                             | 50                                  | e84                        | 32                              | e16                                 | 61                         | 51                              | 8.4                                 |
| 5       | 94                         | 142                             | 37                                  | e1600                      | 173                             | e15100                              | 54                         | 87                              | 13                                  |
| 6       | 711                        | 1350                            | 6300                                | e220                       | 888                             | e230                                | 55                         | 123                             | 18                                  |
| 7       | 695                        | 923                             | 2030                                | e130                       | 660                             | e53                                 | 1460                       | 2070                            | 25200                               |
| 8       | 332                        | 459                             | 448                                 | e400                       | 278                             | e594                                | 236                        | 340                             | 260                                 |
| 9       | 287                        | 299                             | 240                                 | e300                       | 121                             | e321                                | 116                        | 109                             | 35                                  |
| 10      | 386                        | 514                             | 661                                 | e120                       | 82                              | e53                                 | 96                         | 35                              | 9.2                                 |
| 11      | 187                        | 163                             | 85                                  | e90                        | 69                              | e24                                 | 83                         | 11                              | 2.6                                 |
| 12      | 162                        | 125                             | 58                                  | e82                        | 98                              | e13                                 | 79                         | 16                              | 3.4                                 |
| 13      | 169                        | 280                             | 110                                 | 70                         | 121                             | 23                                  | 75                         | 34                              | 6.8                                 |
| 14      | 169                        | 176                             | 87                                  | 151                        | 181                             | 119                                 | 85                         | 33                              | 7.6                                 |
| 15      | 129                        | 56                              | 20                                  | 126                        | 153                             | 57                                  | 88                         | 27                              | 6.4                                 |
| 16      | 123                        | 26                              | 8.7                                 | 85                         | 42                              | 9.6                                 | 75                         | 23                              | 4.6                                 |
| 17      | 114                        | 32                              | 9.9                                 | 83                         | 39                              | 8.7                                 | 72                         | 33                              | 6.4                                 |
| 18      | 109                        | 43                              | 13                                  | 78                         | 53                              | 11                                  | 70                         | 54                              | 10                                  |
| 19      | 104                        | 56                              | 16                                  | 72                         | 82                              | 16                                  | 77                         | 83                              | 17                                  |
| 20      | 103                        | 50                              | 14                                  | 71                         | 122                             | 23                                  | 380                        | 538                             | 1070                                |
| 21      | 98                         | 41                              | 11                                  | 69                         | 130                             | 24                                  | 165                        | 270                             | 128                                 |
| 22      | 96                         | 34                              | 8.8                                 | 65                         | 129                             | 23                                  | 118                        | 100                             | 32                                  |
| 23      | 98                         | 29                              | 7.6                                 | 63                         | 113                             | 19                                  | 98                         | 37                              | 9.8                                 |
| 24      | 99                         | 36                              | 9.5                                 | 60                         | 56                              | 9.1                                 | 89                         | 30                              | 7.1                                 |
| 25      | 104                        | 49                              | 14                                  | 58                         | 27                              | 4.3                                 | 103                        | 29                              | 8.1                                 |
| 26      | 104                        | 67                              | 19                                  | 61                         | 20                              | 3.3                                 | 99                         | 29                              | 7.8                                 |
| 27      | 94                         | 74                              | 19                                  | 60                         | 18                              | 2.9                                 | 114                        | 108                             | 35                                  |
| 28      | 90                         | 77                              | 19                                  | 59                         | 18                              | 2.8                                 | 103                        | 144                             | 40                                  |
| 29      | 92                         | 78                              | 19                                  | ---                        | ---                             | ---                                 | 182                        | 200                             | 196                                 |
| 30      | e83                        | 77                              | e14                                 | ---                        | ---                             | ---                                 | 289                        | 318                             | 601                                 |
| 31      | e80                        | 74                              | e18                                 | ---                        | ---                             | ---                                 | 200                        | 241                             | 160                                 |
| TOTAL   | 5233                       | ---                             | 10397.5                             | 4480                       | ---                             | 16809.7                             | 4896                       | ---                             | 27914.1                             |

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1     | 121                        | 58                              | 19                                  | 55                         | 13                              | 2.0                                 | 61                         | 58                              | 9.6                                 |
| 2     | 136                        | 107                             | 53                                  | 56                         | 21                              | 3.1                                 | 54                         | 31                              | 4.6                                 |
| 3     | 124                        | 103                             | 37                                  | 64                         | 36                              | 6.3                                 | 53                         | 21                              | 3.0                                 |
| 4     | 101                        | 54                              | 15                                  | 67                         | 59                              | 11                                  | 54                         | 39                              | 5.8                                 |
| 5     | 118                        | 106                             | 40                                  | 62                         | 56                              | 9.3                                 | 54                         | 83                              | 12                                  |
| 6     | 101                        | 87                              | 24                                  | 59                         | 84                              | 13                                  | 69                         | 83                              | 15                                  |
| 7     | 92                         | 60                              | 15                                  | 55                         | 67                              | 9.9                                 | 56                         | 68                              | 10                                  |
| 8     | 93                         | 46                              | 12                                  | 141                        | 431                             | 456                                 | 57                         | 59                              | 9.2                                 |
| 9     | 86                         | 36                              | 8.3                                 | 98                         | 163                             | 44                                  | 58                         | 88                              | 14                                  |
| 10    | 81                         | 28                              | 6.1                                 | 71                         | 92                              | 18                                  | 54                         | 134                             | 19                                  |
| 11    | 83                         | 22                              | 4.9                                 | 58                         | 59                              | 9.2                                 | 47                         | 97                              | 12                                  |
| 12    | 187                        | 463                             | 340                                 | 56                         | 63                              | 9.6                                 | 68                         | 77                              | 18                                  |
| 13    | 101                        | 72                              | 20                                  | 79                         | 120                             | 26                                  | 84                         | 80                              | 27                                  |
| 14    | 86                         | 43                              | 10                                  | 93                         | 167                             | 42                                  | 53                         | 61                              | 8.8                                 |
| 15    | 81                         | 33                              | 7.2                                 | 108                        | 214                             | 61                                  | 47                         | 36                              | 4.5                                 |
| 16    | 117                        | 90                              | 40                                  | 78                         | 162                             | 34                                  | 53                         | 58                              | 8.4                                 |
| 17    | 140                        | 182                             | 75                                  | 67                         | 108                             | 20                                  | 77                         | 89                              | 20                                  |
| 18    | 155                        | 394                             | 282                                 | 60                         | 73                              | 12                                  | e61                        | 79                              | e9.6                                |
| 19    | e119                       | 181                             | e54                                 | 57                         | 58                              | 8.8                                 | 61                         | 116                             | 19                                  |
| 20    | 217                        | 251                             | 220                                 | 55                         | 47                              | 7.0                                 | 51                         | 111                             | 15                                  |
| 21    | 131                        | 235                             | 65                                  | 51                         | 35                              | 4.9                                 | 55                         | 100                             | 15                                  |
| 22    | 93                         | 108                             | 28                                  | 50                         | 27                              | 3.6                                 | 91                         | 125                             | 32                                  |
| 23    | 76                         | 53                              | 11                                  | 57                         | 33                              | 5.1                                 | 52                         | 75                              | 11                                  |
| 24    | 72                         | 33                              | 6.4                                 | 53                         | 45                              | 6.3                                 | 47                         | 50                              | 6.4                                 |
| 25    | 69                         | 29                              | 5.4                                 | 46                         | 58                              | 7.2                                 | 45                         | 46                              | 5.7                                 |
| 26    | 67                         | 30                              | 5.4                                 | 99                         | 92                              | 40                                  | 46                         | 46                              | 5.7                                 |
| 27    | 68                         | 29                              | 5.3                                 | 132                        | 190                             | 78                                  | 46                         | 41                              | 5.1                                 |
| 28    | 75                         | 19                              | 3.7                                 | 61                         | 99                              | 16                                  | 50                         | 36                              | 4.8                                 |
| 29    | 64                         | 12                              | 2.0                                 | 72                         | 83                              | 17                                  | 43                         | 31                              | 3.7                                 |
| 30    | 57                         | 12                              | 1.8                                 | 125                        | 100                             | 63                                  | 40                         | 35                              | 3.8                                 |
| 31    | ---                        | ---                             | ---                                 | 86                         | 96                              | 68                                  | ---                        | ---                             | ---                                 |
| TOTAL | 3111                       | ---                             | 1416.5                              | 2271                       | ---                             | 1111.3                              | 1687                       | ---                             | 337.7                               |

## RIO GRANDE DE LOIZA BASIN

50051800 Rio GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 39                         | 42                                   | 4.4                                 | 36                         | 36                                   | 3.5                                 | 77                         | 85                                   | 18                                  |
| 2     | 39                         | 48                                   | 5.0                                 | 34                         | 46                                   | 4.2                                 | 79                         | 109                                  | 24                                  |
| 3     | 42                         | 58                                   | 6.8                                 | 33                         | 56                                   | 4.9                                 | 107                        | 122                                  | 43                                  |
| 4     | 108                        | 96                                   | 46                                  | 31                         | 50                                   | 4.2                                 | 103                        | 123                                  | 35                                  |
| 5     | 89                         | 82                                   | 32                                  | 31                         | 59                                   | 4.9                                 | 73                         | 95                                   | 19                                  |
| 6     | 46                         | 55                                   | 6.9                                 | e61                        | 61                                   | e9.6                                | 116                        | 342                                  | 200                                 |
| 7     | 51                         | 41                                   | 5.6                                 | 50                         | 90                                   | 12                                  | 151                        | 117                                  | 61                                  |
| 8     | 48                         | 34                                   | 4.5                                 | 73                         | 127                                  | 36                                  | 265                        | 518                                  | 644                                 |
| 9     | 48                         | 27                                   | 3.6                                 | 86                         | 136                                  | 32                                  | 197                        | 463                                  | 407                                 |
| 10    | 42                         | 22                                   | 2.5                                 | 70                         | 68                                   | 13                                  | 149                        | 220                                  | 96                                  |
| 11    | 38                         | 25                                   | 2.6                                 | 62                         | 81                                   | 14                                  | 94                         | 82                                   | 21                                  |
| 12    | 35                         | 31                                   | 2.9                                 | 47                         | 118                                  | 15                                  | 82                         | 70                                   | 16                                  |
| 13    | 33                         | 38                                   | 3.4                                 | 43                         | 103                                  | 12                                  | 124                        | 143                                  | 68                                  |
| 14    | 41                         | 47                                   | 5.2                                 | 36                         | 78                                   | 7.5                                 | 122                        | 100                                  | 35                                  |
| 15    | 35                         | 58                                   | 5.5                                 | 36                         | 61                                   | 5.9                                 | 337                        | 455                                  | 860                                 |
| 16    | 40                         | 71                                   | 7.7                                 | 36                         | 55                                   | 5.2                                 | 126                        | 137                                  | 48                                  |
| 17    | 36                         | 77                                   | 7.5                                 | 175                        | 97                                   | 241                                 | 98                         | 110                                  | 29                                  |
| 18    | 58                         | 77                                   | 18                                  | 74                         | 160                                  | 32                                  | 92                         | 112                                  | 28                                  |
| 19    | 62                         | 90                                   | 15                                  | 49                         | 156                                  | 21                                  | 96                         | 114                                  | 29                                  |
| 20    | 215                        | 470                                  | 458                                 | 55                         | 196                                  | 29                                  | e94                        | 117                                  | 26                                  |
| 21    | 110                        | 665                                  | 199                                 | 81                         | 225                                  | 49                                  | e3700                      | 1270                                 | e56000                              |
| 22    | 54                         | 552                                  | 80                                  | 211                        | 146                                  | 82                                  | e5020                      | 2300                                 | e49100                              |
| 23    | 46                         | 367                                  | 46                                  | 95                         | 145                                  | 39                                  | 603                        | 122                                  | 225                                 |
| 24    | 63                         | 227                                  | 38                                  | 903                        | 1800                                 | 10800                               | 401                        | 48                                   | 52                                  |
| 25    | 52                         | 124                                  | 18                                  | 1160                       | 977                                  | 5020                                | 336                        | 34                                   | 31                                  |
| 26    | 43                         | 65                                   | 7.5                                 | 330                        | 438                                  | 477                                 | 296                        | 51                                   | 41                                  |
| 27    | 46                         | 42                                   | 5.3                                 | 144                        | 215                                  | 84                                  | 332                        | 193                                  | 272                                 |
| 28    | 64                         | 79                                   | 16                                  | 111                        | 177                                  | 53                                  | 302                        | 141                                  | 127                                 |
| 29    | 48                         | 55                                   | 7.3                                 | 119                        | 142                                  | 54                                  | 261                        | 49                                   | 35                                  |
| 30    | 43                         | 36                                   | 4.2                                 | 93                         | 113                                  | 29                                  | 240                        | 48                                   | 32                                  |
| 31    | 41                         | 31                                   | 3.4                                 | 83                         | 69                                   | 16                                  | ---                        | ---                                  | ---                                 |
| TOTAL | 1755                       | ---                                  | 1067.8                              | 4448                       | ---                                  | 17209.9                             | 14073                      | ---                                  | 108622                              |
| YEAR  | 54731                      |                                      | 268270.5                            |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>D (MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>D (T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 10... | 1050 | 398                                                                   | 2540                                                   | 2730                                                                       | 98                                                                       |
| JAN   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 07... | 1630 | 495                                                                   | 728                                                    | 973                                                                        | 87                                                                       |
| MAR   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 07... | 1500 | 2180                                                                  | 7900                                                   | 46500                                                                      | 58                                                                       |
| 07... | 1900 | 3600                                                                  | 6010                                                   | 58400                                                                      | 70                                                                       |
| AUG   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 24... | 1530 | 894                                                                   | 2450                                                   | 5910                                                                       | 88                                                                       |
| SEP   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 21... | 2015 | 5920                                                                  | 2300                                                   | 36800                                                                      | 73                                                                       |
| 22... | 0815 | 8840                                                                  | 3340                                                   | 79700                                                                      | 62                                                                       |

## RIO GRANDE DE LOIZA BASIN

50051800 Rio GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      | SEP<br>22...                                                            | 0100                                                                    | 13200                                                                    | 5600                                                                     | 200000                                                                   | 19                                                                       | 26                                                                       |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
| SEP<br>22... | 47   | 59                                                                      | 67                                                                      | 80                                                                       | 92                                                                       | 99                                                                       | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR

LOCATION.--Lat 18°09'35", long 66°02'26", Hydrologic Unit 21010005, on left bank at Highway 765, 1.2 mi (1.9 km) south of Villa Borinquen, 8.1 mi (13.0 km) upstream from Río Grande de Loiza.

DRAINAGE AREA.--7.14 mi<sup>2</sup> (18.49 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 492 ft (150 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN   | JUL   | AUG   | SEP   |
|-------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| 1     | 12   | e17  | e15  | e11  | 11   | e12  | 21   | 14   | 15    | 9.3   | 9.9   | 12    |
| 2     | 24   | e15  | e14  | e13  | 11   | e12  | 48   | 14   | 14    | 8.8   | 9.2   | 13    |
| 3     | 14   | e14  | 13   | e13  | 11   | 12   | e32  | 17   | 14    | 14    | 9.8   | 21    |
| 4     | 13   | e13  | 13   | e14  | 20   | e12  | e23  | 16   | 13    | 33    | 9.4   | 25    |
| 5     | 12   | e13  | 13   | e13  | 149  | e12  | 21   | 15   | 14    | 13    | 9.1   | 13    |
| 6     | 12   | e13  | 13   | e110 | 30   | 12   | 19   | 14   | 16    | 11    | 11    | 14    |
| 7     | 12   | e12  | 13   | e150 | 20   | 81   | 18   | 14   | 13    | 11    | 19    | 15    |
| 8     | 15   | e11  | 12   | e60  | 29   | 57   | 18   | 38   | 13    | 11    | 36    | 48    |
| 9     | 14   | e17  | 12   | e56  | 26   | 29   | 17   | 23   | 13    | 10    | 23    | 30    |
| 10    | 13   | e120 | 12   | e56  | e18  | 24   | 17   | 18   | 12    | 10    | 18    | 20    |
| 11    | 21   | e21  | 12   | e26  | e13  | 21   | 18   | 16   | 11    | 9.8   | 13    | 14    |
| 12    | 39   | e17  | 13   | e22  | e12  | 21   | 32   | 15   | 16    | 9.6   | 12    | 12    |
| 13    | 274  | e16  | 12   | 30   | e11  | 21   | 19   | 23   | 15    | 9.6   | 11    | 31    |
| 14    | 486  | e15  | 12   | 27   | e56  | 22   | 17   | 24   | 11    | 9.3   | 10    | 16    |
| 15    | 113  | e14  | 12   | 19   | e28  | 21   | 16   | 23   | 11    | 9.6   | 13    | 95    |
| 16    | 75   | e13  | e13  | 18   | e15  | 20   | 18   | 19   | 12    | 10    | 11    | 27    |
| 17    | 85   | e14  | e15  | 17   | e14  | 20   | 19   | 16   | 13    | 9.5   | 36    | 19    |
| 18    | 60   | e13  | e13  | 15   | 16   | 19   | 17   | 21   | e11   | 12    | 15    | 22    |
| 19    | 39   | e14  | e12  | 13   | 15   | 19   | 17   | 16   | 11    | 12    | 12    | 19    |
| 20    | 31   | e13  | 12   | 13   | 14   | 82   | 31   | 15   | 11    | 34    | 12    | 23    |
| 21    | 28   | e19  | 14   | 13   | 14   | 42   | 19   | 14   | 11    | 17    | 21    | e827  |
| 22    | 25   | e25  | 13   | 13   | 14   | 29   | 17   | 14   | 16    | 12    | 109   | e1190 |
| 23    | 24   | e33  | 12   | 12   | 13   | 23   | 17   | 14   | 11    | 11    | 21    | 166   |
| 24    | 22   | e25  | 12   | 13   | e13  | 20   | 17   | 14   | 10    | 12    | 197   | 94    |
| 25    | 21   | e19  | e12  | 14   | e13  | 21   | 17   | 14   | 10    | 11    | 189   | 70    |
| 26    | 20   | e20  | e12  | 13   | e13  | 20   | 17   | 32   | 10    | 10    | 72    | 57    |
| 27    | e19  | e17  | e12  | 12   | 12   | 28   | 17   | 43   | 10    | 11    | 26    | 57    |
| 28    | e17  | e16  | e12  | 12   | 12   | 21   | 18   | 18   | 11    | 12    | 20    | 48    |
| 29    | e18  | e15  | e11  | 11   | ---  | 35   | 15   | 18   | 10    | 11    | 17    | 62    |
| 30    | e16  | e16  | e12  | 11   | ---  | 38   | 15   | 21   | 9.9   | 10    | 15    | 43    |
| 31    | e15  | ---  | e12  | 11   | ---  | 29   | ---  | 16   | ---   | 10    | 13    | ---   |
| TOTAL | 1589 | 600  | 390  | 831  | 623  | 835  | 607  | 589  | 367.9 | 383.5 | 999.4 | 3103  |
| MEAN  | 51.3 | 20.0 | 12.6 | 26.8 | 22.3 | 26.9 | 20.2 | 19.0 | 12.3  | 12.4  | 32.2  | 103   |
| MAX   | 486  | 120  | 15   | 150  | 149  | 82   | 48   | 43   | 16    | 34    | 197   | 1190  |
| MIN   | 12   | 11   | 11   | 11   | 11   | 12   | 15   | 14   | 9.9   | 8.8   | 9.1   | 12    |
| MED   | 21   | 16   | 12   | 13   | 14   | 21   | 18   | 16   | 12    | 11    | 15    | 26    |
| AC-FT | 3150 | 1190 | 774  | 1650 | 1240 | 1660 | 1200 | 1170 | 730   | 761   | 1980  | 6150  |
| CFSM  | 7.18 | 2.80 | 1.76 | 3.75 | 3.12 | 3.77 | 2.83 | 2.66 | 1.72  | 1.73  | 4.52  | 14.5  |
| IN.   | 8.28 | 3.13 | 2.03 | 4.33 | 3.25 | 4.35 | 3.16 | 3.07 | 1.92  | 2.00  | 5.21  | 16.17 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 27.3 | 23.2 | 17.0 | 23.0 | 17.7 | 13.6 | 10.0 | 15.1 | 25.4 | 22.5 | 22.8 | 50.4 |
| MAX  | 51.3 | 37.9 | 23.1 | 47.5 | 25.0 | 26.9 | 20.2 | 31.9 | 67.9 | 54.6 | 41.4 | 123  |
| (WY) | 1998 | 1992 | 1991 | 1992 | 1997 | 1998 | 1998 | 1993 | 1996 | 1993 | 1996 | 1996 |
| MIN  | 10.3 | 18.6 | 10.6 | 7.85 | 8.93 | 7.35 | 6.18 | 6.11 | 9.59 | 8.42 | 6.98 | 14.1 |
| (WY) | 1994 | 1996 | 1994 | 1990 | 1990 | 1993 | 1990 | 1994 | 1991 | 1995 | 1994 | 1990 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

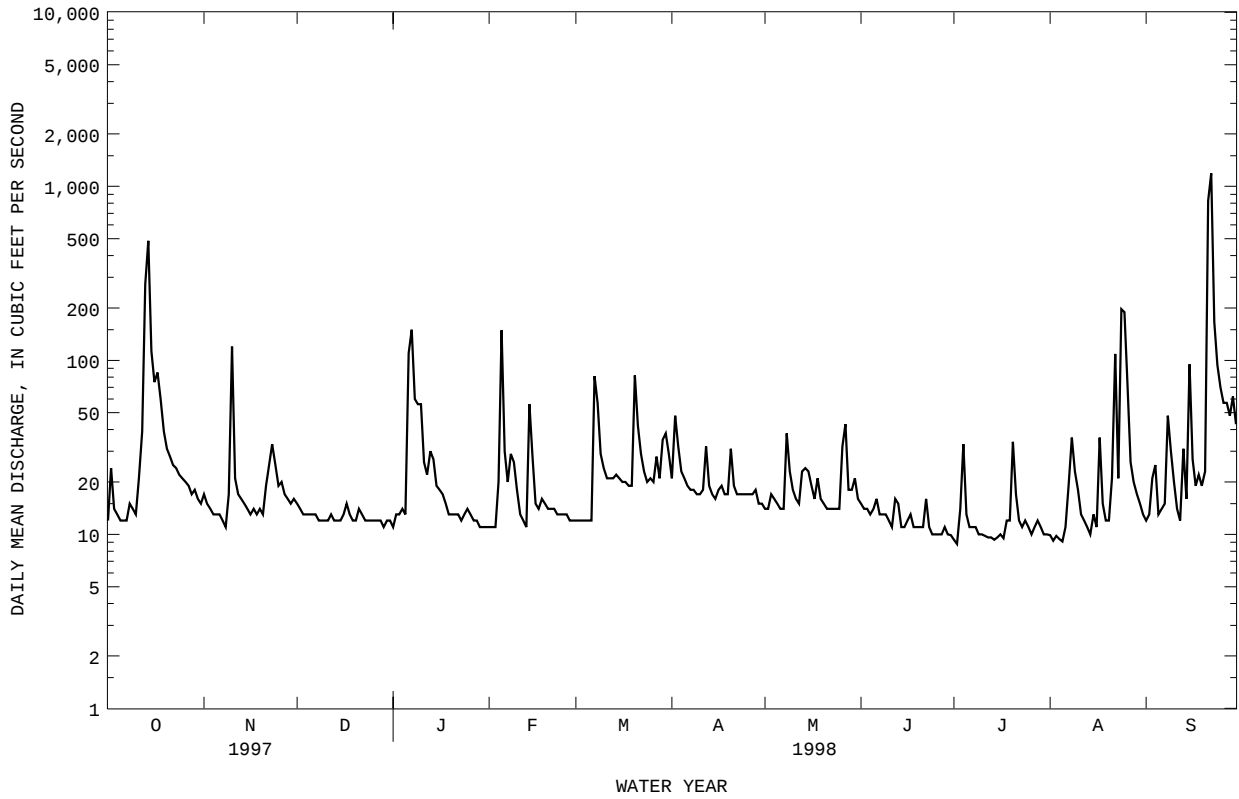
## FOR 1998 WATER YEAR

## WATER YEARS 1990 - 1998

|                          |        |         |       |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL             | 7243.8 | 10917.8 |       |
| ANNUAL MEAN              | 19.8   | 29.9    | 23.2  |
| HIGHEST ANNUAL MEAN      |        |         | 38.1  |
| LOWEST ANNUAL MEAN       |        |         | 12.1  |
| HIGHEST DAILY MEAN       | 486    | Oct 14  | 1940  |
| LOWEST DAILY MEAN        | 6.3    | Jul 4   | 3.3   |
| ANNUAL SEVEN-DAY MINIMUM | 6.8    | Jun 28  | 9.6   |
| INSTANTANEOUS PEAK FLOW  |        |         | 13100 |
| INSTANTANEOUS PEAK STAGE |        |         | 21.62 |
| INSTANTANEOUS LOW FLOW   |        |         | 8.3   |
| ANNUAL RUNOFF (AC-FT)    | 14370  | 21660   | 16790 |
| ANNUAL RUNOFF (CFSM)     | 2.78   | 4.19    | 3.25  |
| ANNUAL RUNOFF (INCHES)   | 37.74  | 56.88   | 44.09 |
| 10 PERCENT EXCEEDS       | 28     | 40      | 35    |
| 50 PERCENT EXCEEDS       | 13     | 15      | 12    |
| 90 PERCENT EXCEEDS       | 8.1    | 11      | 6.1   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: January 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 9,230 mg/L September 10, 1996; Minimum daily mean, 1 mg/L Several years.

SEDIMENT LOADS: Maximum daily mean, 80,900 tons (73,400 tonnes) September 10, 1996; Minimum daily mean, 0.01 ton (0.01 tonne) Several days.

EXTREMES FOR CURRENT YEAR 1998.

SEDIMENT CONCENTRATION: Maximum daily mean, e50,900 tons (46,200 tonnes) September 21, 1998; Minimum daily mean, 0.06 ton (0.05 tonne), July 19, 1998.

SEDIMENT LOADS: Maximum daily mean, e5,790 mg/L September 22, 1998; Minimum daily mean, 2 severals days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 |                                     | NOVEMBER                   |                                 |                                     | DECEMBER                   |                                 |                                     |
| 1       | 12                         | 62                              | 2.0                                 | e17                        | 2                               | e.09                                | e15                        | 9                               | e.33                                |
| 2       | 24                         | 83                              | 6.6                                 | e15                        | 2                               | e.09                                | e14                        | 9                               | e.32                                |
| 3       | 14                         | 21                              | .81                                 | e14                        | 2                               | e.09                                | 13                         | 8                               | .29                                 |
| 4       | 13                         | 15                              | .51                                 | e13                        | 2                               | e.09                                | 13                         | 7                               | .24                                 |
| 5       | 12                         | 13                              | .44                                 | e13                        | 2                               | e.09                                | 13                         | 5                               | .19                                 |
| 6       | 12                         | 12                              | .37                                 | e13                        | 3                               | e.09                                | 13                         | 4                               | .15                                 |
| 7       | 12                         | 11                              | .33                                 | e12                        | 3                               | e.09                                | 13                         | 5                               | .16                                 |
| 8       | 15                         | 28                              | 2.2                                 | e11                        | 3                               | e.09                                | 12                         | 6                               | .20                                 |
| 9       | 14                         | 45                              | 1.7                                 | e17                        | 3                               | e.19                                | 12                         | 8                               | .25                                 |
| 10      | 13                         | 27                              | .99                                 | e120                       | 3                               | e113                                | 12                         | 9                               | .29                                 |
| 11      | 21                         | 61                              | 6.5                                 | e21                        | 3                               | e.15                                | 12                         | 10                              | .34                                 |
| 12      | 39                         | 86                              | 36                                  | e17                        | 3                               | e.19                                | 13                         | 11                              | .39                                 |
| 13      | 274                        | 982                             | 5140                                | e16                        | 4                               | e.19                                | 12                         | 8                               | .25                                 |
| 14      | 486                        | 1180                            | 4470                                | e15                        | 4                               | e.09                                | 12                         | 4                               | .14                                 |
| 15      | 113                        | 304                             | 112                                 | e14                        | 4                               | e.09                                | 12                         | 2                               | .08                                 |
| 16      | 75                         | 156                             | 34                                  | e13                        | 4                               | e.09                                | e13                        | 2                               | e.06                                |
| 17      | 85                         | 364                             | 143                                 | e14                        | 4                               | e.09                                | e15                        | 4                               | e.57                                |
| 18      | 60                         | 73                              | 14                                  | e13                        | 5                               | e.09                                | e13                        | 10                              | e.57                                |
| 19      | 39                         | 13                              | 1.4                                 | e14                        | 5                               | e.09                                | e12                        | 17                              | e.57                                |
| 20      | 31                         | 11                              | .93                                 | e13                        | 5                               | e.09                                | 12                         | 16                              | .55                                 |
| 21      | 28                         | 9                               | .68                                 | e19                        | 5                               | e.19                                | 14                         | 16                              | .60                                 |
| 22      | 25                         | 6                               | .40                                 | e25                        | 6                               | e.40                                | 13                         | 12                              | .43                                 |
| 23      | 24                         | 4                               | .22                                 | e33                        | 6                               | e.93                                | 12                         | 9                               | .30                                 |
| 24      | 22                         | 2                               | .13                                 | e25                        | 6                               | e.40                                | 12                         | 6                               | .21                                 |
| 25      | 21                         | 3                               | .15                                 | e19                        | 7                               | e.24                                | e12                        | 5                               | e.15                                |
| 26      | 20                         | 4                               | .19                                 | e20                        | 7                               | e.24                                | e12                        | 5                               | e.15                                |
| 27      | e19                        | 5                               | e.24                                | e17                        | 7                               | e.33                                | e12                        | 7                               | e.15                                |
| 28      | e17                        | 4                               | e.19                                | e16                        | 8                               | e.33                                | e12                        | 9                               | e.15                                |
| 29      | e18                        | 3                               | e.14                                | e15                        | 8                               | e.33                                | e11                        | 13                              | e.15                                |
| 30      | e16                        | 2                               | e.09                                | e16                        | 8                               | e.31                                | e12                        | 17                              | e.15                                |
| 31      | e15                        | 2                               | e.09                                | ---                        | ---                             | ---                                 | e12                        | 24                              | e.15                                |
| TOTAL   | 1589                       | ---                             | 9976.30                             | 600                        | ---                             | 118.77                              | 390                        | ---                             | 8.53                                |

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | e11                        | 33                                   | e.15                                | 11                         | 5                                    | .16                                 | e12                        | 12                                   | e.38                                |
| 2       | e13                        | 46                                   | e.57                                | 11                         | 5                                    | .14                                 | e12                        | 9                                    | e.28                                |
| 3       | e13                        | 64                                   | e.57                                | 11                         | 6                                    | .17                                 | 12                         | 6                                    | .20                                 |
| 4       | e14                        | 89                                   | e.60                                | 20                         | 17                                   | 28                                  | e12                        | 4                                    | e.13                                |
| 5       | e13                        | 123                                  | e.57                                | 149                        | 80                                   | 392                                 | e12                        | 4                                    | e.11                                |
| 6       | e110                       | 170                                  | e112                                | 30                         | 81                                   | 7.1                                 | 12                         | 3                                    | .10                                 |
| 7       | e150                       | 163                                  | e112                                | 20                         | 17                                   | .96                                 | 81                         | 9                                    | 178                                 |
| 8       | e60                        | 193                                  | e14                                 | 29                         | 69                                   | 18                                  | 57                         | 53                                   | 41                                  |
| 9       | e56                        | 169                                  | e35                                 | 26                         | 56                                   | 5.1                                 | 29                         | 55                                   | 4.4                                 |
| 10      | e56                        | 79                                   | e35                                 | e18                        | 4                                    | e.17                                | 24                         | 16                                   | 1.0                                 |
| 11      | e26                        | 56                                   | e4.4                                | e13                        | 3                                    | e.14                                | 21                         | 11                                   | .63                                 |
| 12      | e22                        | 53                                   | e.20                                | e12                        | 3                                    | e.13                                | 21                         | 8                                    | .44                                 |
| 13      | 30                         | 92                                   | 13                                  | e11                        | 3                                    | e.12                                | 21                         | 6                                    | .31                                 |
| 14      | 27                         | 60                                   | 5.2                                 | e56                        | 4                                    | e41                                 | 22                         | 4                                    | .25                                 |
| 15      | 19                         | 12                                   | .62                                 | e28                        | 5                                    | e5.0                                | 21                         | 5                                    | .31                                 |
| 16      | 18                         | 6                                    | .31                                 | e15                        | 8                                    | e.36                                | 20                         | 7                                    | .40                                 |
| 17      | 17                         | 4                                    | .16                                 | e14                        | 8                                    | e.36                                | 20                         | 9                                    | .50                                 |
| 18      | 15                         | 5                                    | .19                                 | 16                         | 6                                    | .26                                 | 19                         | 10                                   | .52                                 |
| 19      | 13                         | 8                                    | .27                                 | 15                         | 7                                    | .27                                 | 19                         | 10                                   | .52                                 |
| 20      | 13                         | 11                                   | .40                                 | 14                         | 8                                    | .30                                 | 82                         | 281                                  | 110                                 |
| 21      | 13                         | 10                                   | .36                                 | 14                         | 9                                    | .33                                 | 42                         | 16                                   | 1.9                                 |
| 22      | 13                         | 9                                    | .31                                 | 14                         | 10                                   | .37                                 | 29                         | 13                                   | 1.0                                 |
| 23      | 12                         | 8                                    | .27                                 | 13                         | 10                                   | .37                                 | 23                         | 13                                   | .80                                 |
| 24      | 13                         | 7                                    | .23                                 | e13                        | 8                                    | e.27                                | 20                         | 12                                   | .66                                 |
| 25      | 14                         | 6                                    | .23                                 | e13                        | 6                                    | e.20                                | 21                         | 9                                    | .54                                 |
| 26      | 13                         | 7                                    | .25                                 | e13                        | 4                                    | e.16                                | 20                         | 7                                    | .37                                 |
| 27      | 12                         | 9                                    | .27                                 | 12                         | 6                                    | .20                                 | 28                         | 5                                    | .39                                 |
| 28      | 12                         | 10                                   | .30                                 | 12                         | 9                                    | .29                                 | 21                         | 5                                    | .29                                 |
| 29      | 11                         | 8                                    | .26                                 | ---                        | ---                                  | ---                                 | 35                         | 14                                   | 23                                  |
| 30      | 11                         | 7                                    | .21                                 | ---                        | ---                                  | ---                                 | 38                         | 100                                  | 15                                  |
| 31      | 11                         | 6                                    | .18                                 | ---                        | ---                                  | ---                                 | 29                         | 54                                   | 4.6                                 |
| TOTAL   | 831                        | ---                                  | 338.08                              | 623                        | ---                                  | 501.93                              | 835                        | ---                                  | 388.03                              |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 21                         | 23                                   | 1.3                                 | 14                         | 8                                    | .31                                 | 15                         | 14                                   | .55                                 |
| 2       | 48                         | 116                                  | 35                                  | 14                         | 7                                    | .26                                 | 14                         | 8                                    | .32                                 |
| 3       | e32                        | 55                                   | e4.7                                | 17                         | 8                                    | .38                                 | 14                         | 7                                    | .27                                 |
| 4       | e23                        | 34                                   | e2.1                                | 16                         | 10                                   | .41                                 | 13                         | 10                                   | .38                                 |
| 5       | 21                         | 21                                   | 1.2                                 | 15                         | 11                                   | .44                                 | 14                         | 11                                   | .41                                 |
| 6       | 19                         | 13                                   | .68                                 | 14                         | 7                                    | .28                                 | 16                         | 29                                   | 1.3                                 |
| 7       | 18                         | 8                                    | .41                                 | 14                         | 7                                    | .24                                 | 13                         | 13                                   | .44                                 |
| 8       | 18                         | 6                                    | .26                                 | 38                         | 102                                  | 24                                  | 13                         | 9                                    | .30                                 |
| 9       | 17                         | 5                                    | .23                                 | 23                         | 72                                   | 4.5                                 | 13                         | 10                                   | .34                                 |
| 10      | 17                         | 5                                    | .22                                 | 18                         | 23                                   | 1.1                                 | 12                         | 12                                   | .40                                 |
| 11      | 18                         | 12                                   | .82                                 | 16                         | 8                                    | .32                                 | 11                         | 14                                   | .41                                 |
| 12      | 32                         | 85                                   | 9.3                                 | 15                         | 5                                    | .21                                 | 16                         | 26                                   | 1.9                                 |
| 13      | 19                         | 12                                   | .60                                 | 23                         | 11                                   | 6.8                                 | 15                         | 17                                   | .73                                 |
| 14      | 17                         | 9                                    | .40                                 | 24                         | 42                                   | 4.1                                 | 11                         | 12                                   | .36                                 |
| 15      | 16                         | 8                                    | .36                                 | 23                         | 50                                   | 3.3                                 | 11                         | 10                                   | .30                                 |
| 16      | 18                         | 18                                   | .93                                 | 19                         | 25                                   | 1.3                                 | 12                         | 13                                   | .51                                 |
| 17      | 19                         | 47                                   | 2.6                                 | 16                         | 21                                   | .92                                 | 13                         | 20                                   | .71                                 |
| 18      | 17                         | 19                                   | .86                                 | 21                         | 14                                   | 5.2                                 | e11                        | 18                                   | .52                                 |
| 19      | 17                         | 18                                   | .88                                 | 16                         | 10                                   | .41                                 | 11                         | 10                                   | .31                                 |
| 20      | 31                         | 104                                  | 16                                  | 15                         | 13                                   | .52                                 | 11                         | 5                                    | .16                                 |
| 21      | 19                         | 21                                   | 1.1                                 | 14                         | 17                                   | .67                                 | 11                         | 5                                    | .15                                 |
| 22      | 17                         | 18                                   | .83                                 | 14                         | 9                                    | .32                                 | 16                         | 32                                   | 1.7                                 |
| 23      | 17                         | 16                                   | .71                                 | 14                         | 4                                    | .16                                 | 11                         | 11                                   | .33                                 |
| 24      | 17                         | 13                                   | .60                                 | 14                         | 4                                    | .15                                 | 10                         | 8                                    | .21                                 |
| 25      | 17                         | 11                                   | .49                                 | 14                         | 4                                    | .15                                 | 10                         | 10                                   | .28                                 |
| 26      | 17                         | 9                                    | .42                                 | 32                         | 114                                  | 15                                  | 10                         | 16                                   | .44                                 |
| 27      | 17                         | 11                                   | .50                                 | 43                         | 126                                  | 28                                  | 10                         | 22                                   | .63                                 |
| 28      | 18                         | 12                                   | .61                                 | 18                         | 17                                   | .79                                 | 11                         | 16                                   | .47                                 |
| 29      | 15                         | 14                                   | .57                                 | 18                         | 29                                   | 3.1                                 | 10                         | 11                                   | .31                                 |
| 30      | 15                         | 11                                   | .44                                 | 21                         | 42                                   | 2.5                                 | 9.9                        | 14                                   | .38                                 |
| 31      | ---                        | ---                                  | ---                                 | 16                         | 22                                   | .99                                 | ---                        | ---                                  | ---                                 |
| TOTAL   | 607                        | ---                                  | 85.12                               | 589                        | ---                                  | 106.83                              | 367.9                      | ---                                  | 15.52                               |

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 9.3                        | 20                                   | .51                                 | 9.9                        | 24                                   | .63                                 | 12                         | 8                                    | .27                                 |
| 2     | 8.8                        | 21                                   | .50                                 | 9.2                        | 14                                   | .36                                 | 13                         | 18                                   | 1.6                                 |
| 3     | 14                         | 37                                   | 2.3                                 | 9.8                        | 8                                    | .20                                 | 21                         | 68                                   | 4.3                                 |
| 4     | 33                         | 120                                  | 18                                  | 9.4                        | 9                                    | .22                                 | 25                         | 122                                  | 7.3                                 |
| 5     | 13                         | 31                                   | 1.1                                 | 9.1                        | 22                                   | .56                                 | 13                         | 80                                   | 2.8                                 |
| 6     | 11                         | 15                                   | .45                                 | 11                         | 33                                   | .94                                 | 14                         | 31                                   | 1.4                                 |
| 7     | 11                         | 8                                    | .23                                 | 19                         | 31                                   | 6.7                                 | 15                         | 19                                   | .80                                 |
| 8     | 11                         | 10                                   | .31                                 | 36                         | 141                                  | 46                                  | 48                         | 108                                  | 54                                  |
| 9     | 10                         | 16                                   | .44                                 | 23                         | 81                                   | 5.0                                 | 30                         | 9                                    | .76                                 |
| 10    | 10                         | 19                                   | .53                                 | 18                         | 34                                   | 1.7                                 | 20                         | 8                                    | .44                                 |
| 11    | 9.8                        | 23                                   | .60                                 | 13                         | 15                                   | .53                                 | 14                         | 8                                    | .29                                 |
| 12    | 9.6                        | 17                                   | .45                                 | 12                         | 10                                   | .33                                 | 12                         | 7                                    | .24                                 |
| 13    | 9.6                        | 12                                   | .31                                 | 11                         | 8                                    | .25                                 | 31                         | 8                                    | 34                                  |
| 14    | 9.3                        | 9                                    | .22                                 | 10                         | 8                                    | .22                                 | 16                         | 9                                    | .37                                 |
| 15    | 9.6                        | 11                                   | .28                                 | 13                         | 33                                   | 1.7                                 | 95                         | 338                                  | 319                                 |
| 16    | 10                         | 13                                   | .36                                 | 11                         | 29                                   | 1.0                                 | 27                         | 11                                   | .77                                 |
| 17    | 9.5                        | 6                                    | .16                                 | 36                         | 17                                   | 43                                  | 19                         | 10                                   | .54                                 |
| 18    | 12                         | 2                                    | .07                                 | 15                         | 17                                   | .66                                 | 22                         | 33                                   | 2.9                                 |
| 19    | 12                         | 2                                    | .06                                 | 12                         | 14                                   | .46                                 | 19                         | 22                                   | 1.1                                 |
| 20    | 34                         | 106                                  | 17                                  | 12                         | 13                                   | .42                                 | 23                         | 50                                   | 4.2                                 |
| 21    | 17                         | 43                                   | 2.3                                 | 21                         | 15                                   | 4.4                                 | e827                       | 3390                                 | e50900                              |
| 22    | 12                         | 21                                   | .65                                 | 109                        | 21                                   | 473                                 | e1190                      | 5790                                 | e35600                              |
| 23    | 11                         | 18                                   | .51                                 | 21                         | 26                                   | 4.3                                 | 166                        | 25                                   | 11                                  |
| 24    | 12                         | 13                                   | .44                                 | 197                        | 38                                   | 1540                                | 94                         | 20                                   | 5.1                                 |
| 25    | 11                         | 10                                   | .31                                 | 189                        | 385                                  | 644                                 | 70                         | 11                                   | 2.1                                 |
| 26    | 10                         | 11                                   | .30                                 | 72                         | 163                                  | 48                                  | 57                         | 6                                    | 1.0                                 |
| 27    | 11                         | 11                                   | .33                                 | 26                         | 28                                   | 2.0                                 | 57                         | 33                                   | 7.7                                 |
| 28    | 12                         | 13                                   | .43                                 | 20                         | 16                                   | .86                                 | 48                         | 9                                    | 1.2                                 |
| 29    | 11                         | 15                                   | .42                                 | 17                         | 10                                   | .46                                 | 62                         | 11                                   | 2.0                                 |
| 30    | 10                         | 18                                   | .49                                 | 15                         | 9                                    | .36                                 | 43                         | 9                                    | 1.1                                 |
| 31    | 10                         | 21                                   | .58                                 | 13                         | 9                                    | .31                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 383.5                      | ---                                  | 50.64                               | 999.4                      | ---                                  | 2828.57                             | 3103                       | ---                                  | 86968.28                            |
| YEAR  | 10917.8                    |                                      | 101386.60                           |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 14... | 0445 | 792                                                                   | 1410                                                  | 1510                                                                      | 87                                                                       |
| 15... | 1230 | 108                                                                   | 100                                                   | 29                                                                        | 98                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 20... | 1214 | 13                                                                    | 165                                                   | 5.8                                                                       | 98                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 03... | 1520 | 23                                                                    | 83                                                    | 5.2                                                                       | 97                                                                       |

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>14... | 0030 | 1590                                                                    | 5050                                                                    | 21700                                                                    | 18                                                                       | 26                                                                       | 35                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>14... | 45   | 55                                                                      | 62                                                                      | 72                                                                       | 84                                                                       | 95                                                                       | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR

LOCATION.--Lat 18°14'33", long 66°00'34", Hydrologic Unit 21010005, on right bank 250 ft (76 m) upstream from bridge on Highway 189, 1.2 mi (1.9 km) downstream from Río Turabo, and 1.8 mi (2.9 km) east of Plaza de Caguas.

DRAINAGE AREA.--89.8 mi<sup>2</sup> (232.6 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959 (low-flow measurement only), February to November 1959 (monthly measurements only), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 143.28 ft (43.672 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN   | FEB   | MAR   | APR  | MAY  | JUN  | JUL  | AUG   | SEP   |
|-------|-------|------|------|-------|-------|-------|------|------|------|------|-------|-------|
| 1     | 98    | 127  | 98   | 67    | 79    | 78    | 171  | 83   | 78   | 42   | 49    | 154   |
| 2     | 337   | 120  | 92   | 89    | 73    | 74    | 204  | 85   | 68   | 43   | 46    | 157   |
| 3     | 140   | 111  | 85   | 78    | 71    | 79    | 217  | 92   | 67   | 44   | 42    | 261   |
| 4     | 113   | 115  | 84   | 135   | 84    | 78    | 139  | 100  | 68   | 143  | 41    | 271   |
| 5     | 88    | 105  | 80   | 125   | 2390  | 132   | 147  | 95   | 81   | 120  | 37    | 161   |
| 6     | 75    | 103  | 79   | 1780  | 334   | 85    | 139  | 86   | 103  | 63   | e51   | 188   |
| 7     | 66    | 94   | 75   | 1600  | 195   | 2250  | 139  | 84   | 73   | 58   | e155  | 319   |
| 8     | 66    | 89   | 73   | 513   | 597   | 661   | 143  | 293  | 71   | 61   | 97    | 628   |
| 9     | 104   | 92   | 72   | e395  | 449   | 204   | 116  | 197  | 74   | 56   | 180   | 368   |
| 10    | 91    | 1280 | 74   | e583  | 174   | 146   | 107  | 109  | 74   | 54   | 115   | 345   |
| 11    | 188   | 178  | 69   | 250   | 135   | 132   | 105  | 79   | 59   | 45   | 82    | 197   |
| 12    | 371   | 139  | 70   | 217   | 123   | 116   | 275  | 70   | 95   | 45   | 72    | 168   |
| 13    | 752   | 124  | 76   | 243   | 105   | 110   | 145  | 79   | 125  | 40   | 59    | 232   |
| 14    | 6490  | 117  | 71   | 299   | 248   | 112   | 112  | 128  | 73   | 43   | 51    | 283   |
| 15    | 1070  | 116  | 70   | 177   | 280   | 120   | 102  | 157  | 62   | 41   | 54    | 733   |
| 16    | 640   | 117  | 69   | 153   | 143   | 104   | 140  | 105  | 66   | 45   | 59    | 314   |
| 17    | 747   | 110  | 120  | 143   | 128   | 88    | 201  | 84   | 116  | 49   | 241   | 221   |
| 18    | 527   | 103  | 88   | 129   | 116   | 86    | 203  | 77   | e76  | 61   | 140   | 190   |
| 19    | 323   | 107  | 78   | 119   | 107   | 87    | e178 | 80   | e75  | 97   | 74    | 204   |
| 20    | 258   | 101  | 67   | 114   | 98    | 749   | 305  | 70   | 61   | 418  | 73    | 192   |
| 21    | 213   | 106  | 96   | 112   | 98    | 349   | 253  | 69   | 73   | 241  | 137   | e3490 |
| 22    | 206   | 179  | 86   | 106   | 91    | 168   | 169  | 61   | 124  | 85   | 536   | e8930 |
| 23    | 190   | 161  | 74   | 104   | 85    | 134   | 115  | 64   | 74   | 64   | 210   | 1150  |
| 24    | 179   | 129  | 73   | 107   | 82    | 113   | 107  | 71   | 60   | 83   | 1630  | 575   |
| 25    | 175   | 120  | 66   | 114   | 73    | 131   | 102  | 60   | 58   | 81   | 2430  | 462   |
| 26    | 163   | 171  | 64   | 119   | 79    | 124   | 100  | 131  | 55   | 59   | 720   | 399   |
| 27    | 147   | 165  | 62   | 102   | 84    | 148   | 105  | 251  | 53   | 61   | 339   | 374   |
| 28    | 144   | 112  | 60   | 98    | 78    | 135   | 109  | 94   | 59   | 98   | 258   | 456   |
| 29    | 131   | 100  | 58   | 86    | ---   | 374   | e99  | 87   | 54   | 76   | 269   | 337   |
| 30    | 125   | 104  | 62   | 85    | ---   | 464   | 87   | 180  | 49   | 54   | 202   | 292   |
| 31    | 121   | ---  | 60   | 80    | ---   | 409   | ---  | 114  | ---  | 54   | 165   | ---   |
| TOTAL | 14338 | 4795 | 2351 | 8322  | 6599  | 8040  | 4534 | 3335 | 2224 | 2524 | 8614  | 22051 |
| MEAN  | 463   | 160  | 75.8 | 268   | 236   | 259   | 151  | 108  | 74.1 | 81.4 | 278   | 735   |
| MAX   | 6490  | 1280 | 120  | 1780  | 2390  | 2250  | 305  | 293  | 125  | 418  | 2430  | 8930  |
| MIN   | 66    | 89   | 58   | 67    | 71    | 74    | 87   | 60   | 49   | 40   | 37    | 154   |
| AC-FT | 28440 | 9510 | 4660 | 16510 | 13090 | 15950 | 8990 | 6610 | 4410 | 5010 | 17090 | 43740 |
| CFSM  | 5.15  | 1.78 | .84  | 2.99  | 2.62  | 2.89  | 1.68 | 1.20 | .83  | .91  | 3.09  | 8.19  |
| IN.   | 5.94  | 1.99 | .97  | 3.45  | 2.73  | 3.33  | 1.88 | 1.38 | .92  | 1.05 | 3.57  | 9.13  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1998, BY WATER YEAR (WY)

|      | MEAN | 358  | 311  | 217  | 148  | 113  | 95.5 | 91.3 | 223  | 243  | 225  | 266  | 328 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX  | 1910 | 1131 | 714  | 559  | 291  | 306  | 355  | 863  | 1283 | 660  | 949  | 1438 |     |
| (WY) | 1971 | 1988 | 1988 | 1992 | 1984 | 1989 | 1978 | 1985 | 1979 | 1961 | 1979 | 1960 |     |
| MIN  | 44.2 | 64.9 | 33.6 | 45.3 | 35.6 | 23.2 | 30.6 | 33.7 | 34.1 | 21.8 | 51.4 | 37.4 |     |
| (WY) | 1968 | 1968 | 1968 | 1968 | 1968 | 1968 | 1995 | 1974 | 1975 | 1974 | 1994 | 1967 |     |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

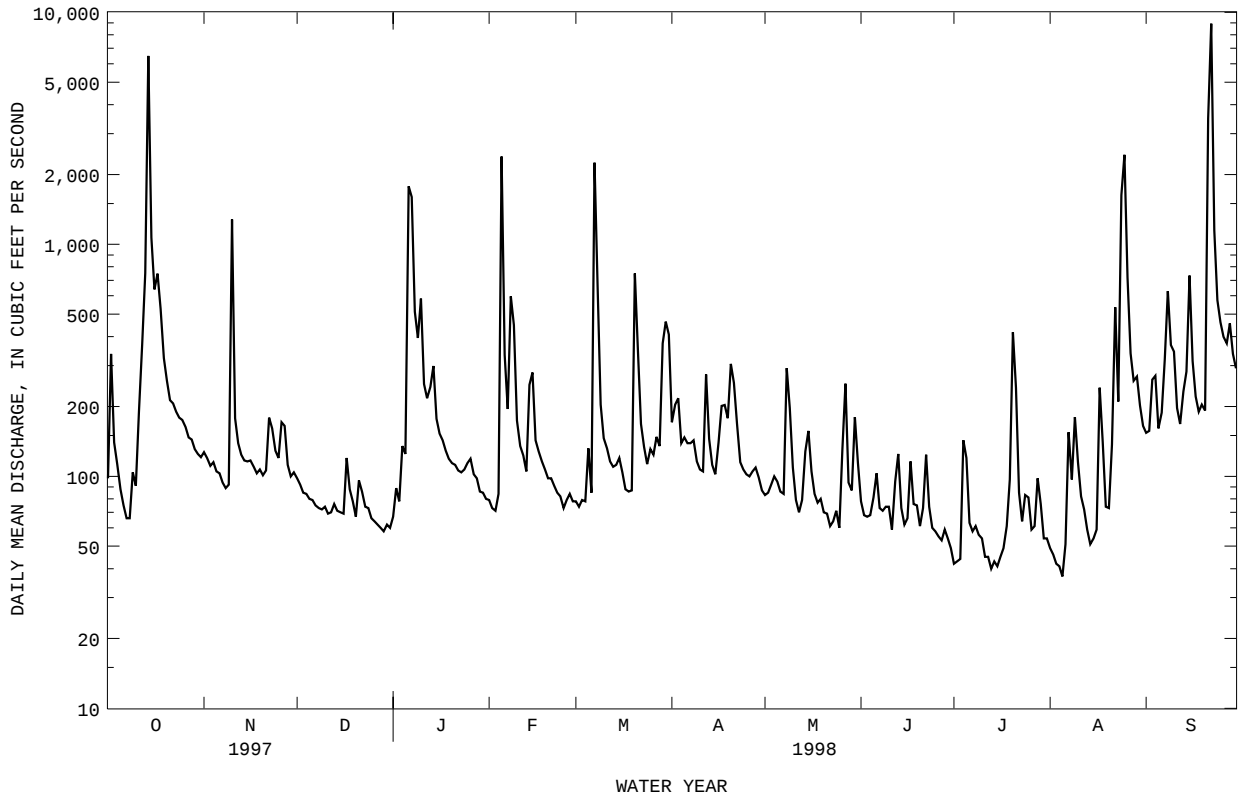
## FOR 1998 WATER YEAR

## WATER YEARS 1960 - 1998

|                          |        |        |        |
|--------------------------|--------|--------|--------|
| ANNUAL TOTAL             | 55612  | 87727  |        |
| ANNUAL MEAN              | 152    | 240    |        |
| HIGHEST ANNUAL MEAN      |        |        | 216    |
| LOWEST ANNUAL MEAN       |        |        | 526    |
| HIGHEST DAILY MEAN       | 6490   | Oct 14 | 8930   |
| LOWEST DAILY MEAN        | 23     | Jul 4  | 37     |
| ANNUAL SEVEN-DAY MINIMUM | 28     | Jun 29 | 44     |
| INSTANTANEOUS PEAK FLOW  |        |        | 49000  |
| INSTANTANEOUS PEAK STAGE |        |        | 25.64  |
| INSTANTANEOUS LOW FLOW   |        |        | 35     |
| ANNUAL RUNOFF (AC-FT)    | 110300 | 174000 | 156500 |
| ANNUAL RUNOFF (CFSM)     | 1.70   | 2.68   | 2.41   |
| ANNUAL RUNOFF (INCHES)   | 23.04  | 36.34  | 32.68  |
| 10 PERCENT EXCEEDS       | 229    | 372    | 360    |
| 50 PERCENT EXCEEDS       | 88     | 107    | 106    |
| 90 PERCENT EXCEEDS       | 43     | 60     | 40     |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued



RIO GRANDE DE LOIZA BASIN  
50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR  
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1995.

INSTRUMENTATION.-- USD-49 sediment sampler since October 1983. Sediment pumping sampler since 1984.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L Nov. 27, 1987; Minimum daily mean, 8 mg/L January 23, 1992.

SEDIMENT LOADS: Maximum daily mean, 396,000 tons ( 359,000 tonnes) September 10, 1996; Minimum daily mean, 0.65 tons (0.59 tonnes) May 25, 1995.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 6,300 mg/L September 22, 1998 ; minimum daily mean, 13 mg/L January 2, 1998.

SEDIMENT LOADS: Maximum daily mean, 254,000 tons (230,000 tonnes) September 22, 1998; minimum daily 2.7 ton ( 2.4 tonnes) December 27, 28, 1997.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076) | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) |
|--------------|------|-----------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT<br>15... | 1000 | 1010                                                                  | 152                                                          | 6.6                                                                  | 25.5                                            | 80                                      | 7.4                                            | 90                                                                        | 16                                                                         | 31000                                                                      | 22000                                                              |
| MAR<br>10... | 0935 | 161                                                                   | 238                                                          | 7.0                                                                  | 25.0                                            | 17                                      | 7.2                                            | 87                                                                        | <10                                                                        | K16000                                                                     | 2000                                                               |
| JUN<br>02... | 0900 | 70                                                                    | 271                                                          | 6.8                                                                  | 29.5                                            | 14                                      | 6.7                                            | 88                                                                        | <10                                                                        | 3400                                                                       | K170                                                               |
| SEP<br>04... | 0830 | 489                                                                   | 202                                                          | 6.3                                                                  | 27.5                                            | 290                                     | 6.6                                            | 84                                                                        | <10                                                                        | 31000                                                                      | 49000                                                              |

| DATE         | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CACO3)<br>(00900) | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915) | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925) | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930) | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931) | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935) | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CACO3<br>(00410) | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745) | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS SO4)<br>(00945) | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940) |
|--------------|------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|
| OCT<br>15... | 42                                                         | 11                                                      | 3.9                                                             | 12                                                      | .8                                                 | 2.1                                                            | 39                                                                     | <.5                                           | 8.9                                                      | 13                                                             |
| MAR<br>10... | --                                                         | --                                                      | --                                                              | --                                                      | --                                                 | --                                                             | 82                                                                     | --                                            | --                                                       | --                                                             |
| JUN<br>02... | 71                                                         | 18                                                      | 6.2                                                             | 20                                                      | 1                                                  | 2.1                                                            | 78                                                                     | --                                            | 13                                                       | 17                                                             |
| SEP<br>04... | 59                                                         | 14                                                      | 5.9                                                             | 17                                                      | 1                                                  | 2.2                                                            | 79                                                                     | <1.0                                          | 8.4                                                      | 14                                                             |

| DATE         | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955) | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | SOLIDS,<br>DIS-<br>SOLVED<br>(TONS<br>PER<br>DAY)<br>(70302) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| OCT<br>15... | .10                                                           | 23                                                           | 96                                                                             | 263                                                          | 124                                                                         | .470                                                            | .010                                                            | .480                                                            | .020                                                            | .41                                                             |
| MAR<br>10... | --                                                            | --                                                           | --                                                                             | --                                                           | 10                                                                          | .880                                                            | .020                                                            | .900                                                            | .100                                                            | .14                                                             |
| JUN<br>02... | .12                                                           | 30                                                           | 154                                                                            | 29.0                                                         | 25                                                                          | .314                                                            | .016                                                            | .330                                                            | .070                                                            | .25                                                             |
| SEP<br>04... | .11                                                           | 26                                                           | 135                                                                            | 178                                                          | 700                                                                         | .320                                                            | .060                                                            | .380                                                            | .290                                                            | 1.0                                                             |

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002) | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027) | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034) | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) |
|-----------|--------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT 15... | .43                                                                            | .91                                                  | 4.0                                                    | .070                                                  | <1                                             | <100                                                               | 30                                                               | <1                                                                 | 1                                                                         | 13                                                                 |
| MAR 10... | .24                                                                            | 1.1                                                  | 5.0                                                    | .090                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |
| JUN 02... | .32                                                                            | .65                                                  | 2.9                                                    | .060                                                  | <1                                             | <100                                                               | 30                                                               | <1                                                                 | <1                                                                        | <10                                                                |
| SEP 04... | 1.3                                                                            | 1.7                                                  | 7.4                                                    | .260                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |

| DATE      | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045) | LEAD,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS PB)<br>(01051) | MANGA-<br>NESE,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS MN)<br>(01055) | MERCURY<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS HG)<br>(71900) | SELE-<br>NIUM,<br>TOTAL<br>(UG/L<br>AS SE)<br>(01147) | SILVER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS AG)<br>(01077) | ZINC,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS ZN)<br>(01092) | CYANIDE<br>TOTAL<br>(MG/L<br>AS CN)<br>(00720) | PHENOLS<br>TOTAL<br>(UG/L)<br>(32730) | METHY-<br>LENE<br>BLUE<br>ACTIVE<br>SUB-<br>STANCE<br>TOTAL<br>(MG/L)<br>(38260) |
|-----------|------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------|
| OCT 15... | 3600                                                             | 2                                                                | 290                                                                        | <.10                                                               | <1                                                    | <1                                                                 | 30                                                               | <.010                                          | <1                                    | .07                                                                              |
| MAR 10... | --                                                               | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                             | --                                    | --                                                                               |
| JUN 02... | 740                                                              | <1                                                               | 150                                                                        | <.10                                                               | <1                                                    | <1                                                                 | 10                                                               | <.010                                          | <1                                    | .18                                                                              |
| SEP 04... | --                                                               | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                             | --                                    | --                                                                               |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

|       | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| DAY   |                            |                                      |                                     |                            |                                      |                                     |                            |                                      |                                     |
|       | OCTOBER                    |                                      |                                     | NOVEMBER                   |                                      |                                     | DECEMBER                   |                                      |                                     |
| 1     | 98                         | 79                                   | 22                                  | 127                        | 40                                   | 14                                  | 98                         | 32                                   | 8.4                                 |
| 2     | 337                        | 112                                  | 305                                 | 120                        | 33                                   | 11                                  | 92                         | 54                                   | 13                                  |
| 3     | 140                        | 78                                   | 32                                  | 111                        | 27                                   | 8.2                                 | 85                         | 100                                  | 23                                  |
| 4     | 113                        | 72                                   | 24                                  | 115                        | 24                                   | 7.3                                 | 84                         | 101                                  | 23                                  |
| 5     | 88                         | 133                                  | 31                                  | 105                        | 33                                   | 9.4                                 | 80                         | 83                                   | 18                                  |
| 6     | 75                         | 217                                  | 44                                  | 103                        | 51                                   | 14                                  | 79                         | 59                                   | 13                                  |
| 7     | 66                         | 167                                  | 30                                  | 94                         | 37                                   | 9.3                                 | 75                         | 41                                   | 8.3                                 |
| 8     | 66                         | 104                                  | 18                                  | 89                         | 24                                   | 5.8                                 | 73                         | 28                                   | 5.6                                 |
| 9     | 104                        | 72                                   | 20                                  | 92                         | 27                                   | 6.9                                 | 72                         | 26                                   | 5.0                                 |
| 10    | 91                         | 53                                   | 13                                  | 1280                       | 1140                                 | 9060                                | 74                         | 26                                   | 5.2                                 |
| 11    | 188                        | 154                                  | 94                                  | 178                        | 142                                  | 75                                  | 69                         | 44                                   | 8.1                                 |
| 12    | 371                        | 227                                  | 288                                 | 139                        | 64                                   | 24                                  | 70                         | 80                                   | 15                                  |
| 13    | 752                        | 501                                  | 7110                                | 124                        | 40                                   | 13                                  | 76                         | 76                                   | 16                                  |
| 14    | 6490                       | 2650                                 | 123000                              | 117                        | 35                                   | 11                                  | 71                         | 59                                   | 11                                  |
| 15    | 1070                       | 303                                  | 887                                 | 116                        | 33                                   | 10                                  | 70                         | 46                                   | 8.8                                 |
| 16    | 640                        | 134                                  | 238                                 | 117                        | 32                                   | 10                                  | 69                         | 43                                   | 8.1                                 |
| 17    | 747                        | 277                                  | 1010                                | 110                        | 30                                   | 9.0                                 | 120                        | 58                                   | 20                                  |
| 18    | 527                        | 203                                  | 359                                 | 103                        | 31                                   | 8.6                                 | 88                         | 30                                   | 7.3                                 |
| 19    | 323                        | 26                                   | 23                                  | 107                        | 36                                   | 10                                  | 78                         | 22                                   | 4.6                                 |
| 20    | 258                        | 21                                   | 14                                  | 101                        | 77                                   | 21                                  | 67                         | 20                                   | 3.6                                 |
| 21    | 213                        | 28                                   | 16                                  | 106                        | 69                                   | 21                                  | 96                         | 19                                   | 5.0                                 |
| 22    | 206                        | 44                                   | 24                                  | 179                        | 127                                  | 61                                  | 86                         | 19                                   | 4.4                                 |
| 23    | 190                        | 42                                   | 21                                  | 161                        | 108                                  | 49                                  | 74                         | 19                                   | 3.7                                 |
| 24    | 179                        | 34                                   | 16                                  | 129                        | 73                                   | 26                                  | 73                         | 18                                   | 3.6                                 |
| 25    | 175                        | 27                                   | 13                                  | 120                        | 87                                   | 28                                  | 66                         | 18                                   | 3.1                                 |
| 26    | 163                        | 22                                   | 9.6                                 | 171                        | 84                                   | 60                                  | 64                         | 17                                   | 2.9                                 |
| 27    | 147                        | 18                                   | 7.1                                 | 165                        | 104                                  | 48                                  | 62                         | 17                                   | 2.7                                 |
| 28    | 144                        | 19                                   | 7.6                                 | 112                        | 47                                   | 14                                  | 60                         | 17                                   | 2.7                                 |
| 29    | 131                        | 23                                   | 8.1                                 | 100                        | 35                                   | 9.5                                 | 58                         | 23                                   | 3.6                                 |
| 30    | 125                        | 31                                   | 10                                  | 104                        | 33                                   | 9.2                                 | 62                         | 31                                   | 5.1                                 |
| 31    | 121                        | 42                                   | 14                                  | ---                        | ---                                  | ---                                 | 60                         | 22                                   | 3.6                                 |
| TOTAL | 14338                      | ---                                  | 133708.4                            | 4795                       | ---                                  | 9663.2                              | 2351                       | ---                                  | 265.4                               |

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 67                         | 15                              | 2.7                                 | 79                         | 55                              | 12                                  | 78                         | 49                              | 10                                  |
| 2       | 89                         | 13                              | 3.2                                 | 73                         | 50                              | 10                                  | 74                         | 50                              | 10                                  |
| 3       | 78                         | 13                              | 2.6                                 | 71                         | 48                              | 9.2                                 | 79                         | 76                              | 16                                  |
| 4       | 135                        | 62                              | 27                                  | 84                         | 49                              | 13                                  | 78                         | 36                              | 7.7                                 |
| 5       | 125                        | 59                              | 20                                  | 2390                       | 1360                            | 12600                               | 132                        | 84                              | 54                                  |
| 6       | 1780                       | 940                             | 10700                               | 334                        | 155                             | 163                                 | 85                         | 173                             | 40                                  |
| 7       | 1600                       | 657                             | 3140                                | 195                        | 73                              | 38                                  | 2250                       | 1920                            | 39400                               |
| 8       | 513                        | 494                             | 794                                 | 597                        | 231                             | 1190                                | 661                        | 309                             | 806                                 |
| 9       | e395                       | 263                             | e286                                | 449                        | 353                             | 655                                 | 204                        | 52                              | 30                                  |
| 10      | e583                       | 344                             | e600                                | 174                        | 256                             | 118                                 | 146                        | 30                              | 12                                  |
| 11      | 250                        | 102                             | 72                                  | 135                        | 234                             | 86                                  | 132                        | 27                              | 9.7                                 |
| 12      | 217                        | 62                              | 44                                  | 123                        | 115                             | 39                                  | 116                        | 25                              | 7.9                                 |
| 13      | 243                        | 181                             | 127                                 | 105                        | 48                              | 14                                  | 110                        | 25                              | 7.4                                 |
| 14      | 299                        | 183                             | 171                                 | 248                        | 52                              | 202                                 | 112                        | 30                              | 9.3                                 |
| 15      | 177                        | 96                              | 46                                  | 280                        | 89                              | 167                                 | 120                        | 36                              | 12                                  |
| 16      | 153                        | 87                              | 36                                  | 143                        | 94                              | 37                                  | 104                        | 43                              | 12                                  |
| 17      | 143                        | 100                             | 38                                  | 128                        | 50                              | 17                                  | 88                         | 43                              | 10                                  |
| 18      | 129                        | 110                             | 38                                  | 116                        | 26                              | 8.3                                 | 86                         | 41                              | 9.6                                 |
| 19      | 119                        | 71                              | 23                                  | 107                        | 30                              | 8.7                                 | 87                         | 41                              | 9.5                                 |
| 20      | 114                        | 44                              | 13                                  | 98                         | 43                              | 11                                  | 749                        | 367                             | 1770                                |
| 21      | 112                        | 42                              | 13                                  | 98                         | 39                              | 10                                  | 349                        | 356                             | 398                                 |
| 22      | 106                        | 66                              | 19                                  | 91                         | 30                              | 7.4                                 | 168                        | 83                              | 39                                  |
| 23      | 104                        | 66                              | 19                                  | 85                         | 27                              | 6.1                                 | 134                        | 24                              | 8.7                                 |
| 24      | 107                        | 58                              | 17                                  | 82                         | 42                              | 9.2                                 | 113                        | 38                              | 11                                  |
| 25      | 114                        | 51                              | 16                                  | 73                         | 60                              | 12                                  | 131                        | 71                              | 25                                  |
| 26      | 119                        | 49                              | 16                                  | 79                         | 58                              | 12                                  | 124                        | 59                              | 20                                  |
| 27      | 102                        | 61                              | 17                                  | 84                         | 55                              | 12                                  | 148                        | 39                              | 16                                  |
| 28      | 98                         | 77                              | 20                                  | 78                         | 52                              | 11                                  | 135                        | 33                              | 12                                  |
| 29      | 86                         | 74                              | 17                                  | ---                        | ---                             | ---                                 | 374                        | 188                             | 425                                 |
| 30      | 85                         | 66                              | 15                                  | ---                        | ---                             | ---                                 | 464                        | 363                             | 869                                 |
| 31      | 80                         | 60                              | 13                                  | ---                        | ---                             | ---                                 | 409                        | 328                             | 577                                 |
| TOTAL   | 8322                       | ---                             | 16365.5                             | 6599                       | ---                             | 15477.9                             | 8040                       | ---                             | 44643.8                             |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 171                        | 67                              | 32                                  | 83                         | 34                              | 7.7                                 | 78                         | 53                              | 11                                  |
| 2       | 204                        | 53                              | 100                                 | 85                         | 35                              | 8.1                                 | 68                         | 37                              | 6.9                                 |
| 3       | 217                        | 84                              | 96                                  | 92                         | 37                              | 9.2                                 | 67                         | 28                              | 5.0                                 |
| 4       | 139                        | 100                             | 38                                  | 100                        | 39                              | 11                                  | 68                         | 40                              | 7.6                                 |
| 5       | 147                        | 105                             | 44                                  | 95                         | 40                              | 10                                  | 81                         | 45                              | 13                                  |
| 6       | 139                        | 87                              | 34                                  | 86                         | 40                              | 9.4                                 | 103                        | 97                              | 27                                  |
| 7       | 139                        | 94                              | 38                                  | 84                         | 36                              | 8.0                                 | 73                         | 90                              | 18                                  |
| 8       | 143                        | 157                             | 61                                  | 293                        | 273                             | 656                                 | 71                         | 80                              | 15                                  |
| 9       | 116                        | 121                             | 38                                  | 197                        | 187                             | 113                                 | 74                         | 57                              | 11                                  |
| 10      | 107                        | 100                             | 29                                  | 109                        | 76                              | 23                                  | 74                         | 41                              | 8.2                                 |
| 11      | 105                        | 86                              | 24                                  | 79                         | 50                              | 11                                  | 59                         | 40                              | 6.3                                 |
| 12      | 275                        | 109                             | 169                                 | 70                         | 37                              | 7.0                                 | 95                         | 161                             | 18                                  |
| 13      | 145                        | 75                              | 31                                  | 79                         | 40                              | 8.8                                 | 125                        | 113                             | 31                                  |
| 14      | 112                        | 41                              | 12                                  | 128                        | 77                              | 32                                  | 73                         | 53                              | 10                                  |
| 15      | 102                        | 30                              | 8.3                                 | 157                        | 83                              | 51                                  | 62                         | 38                              | 6.4                                 |
| 16      | 140                        | 41                              | 45                                  | 105                        | 79                              | 22                                  | 66                         | 36                              | 6.3                                 |
| 17      | 201                        | 87                              | 83                                  | 84                         | 66                              | 15                                  | 116                        | 80                              | 30                                  |
| 18      | 203                        | 186                             | 101                                 | 77                         | 56                              | 12                                  | e76                        | 56                              | e76                                 |
| 19      | e178                       | 134                             | e71                                 | 80                         | 56                              | 12                                  | e75                        | 51                              | e75                                 |
| 20      | 305                        | 121                             | 159                                 | 70                         | 40                              | 7.6                                 | 61                         | 46                              | 7.6                                 |
| 21      | 253                        | 163                             | 121                                 | 69                         | 39                              | 7.3                                 | 73                         | 49                              | 9.8                                 |
| 22      | 169                        | 169                             | 79                                  | 61                         | 41                              | 6.8                                 | 124                        | 60                              | 30                                  |
| 23      | 115                        | 125                             | 39                                  | 64                         | 41                              | 7.2                                 | 74                         | 56                              | 11                                  |
| 24      | 107                        | 97                              | 28                                  | 71                         | 41                              | 7.8                                 | 60                         | 43                              | 7.0                                 |
| 25      | 102                        | 75                              | 21                                  | 60                         | 40                              | 6.5                                 | 58                         | 38                              | 5.9                                 |
| 26      | 100                        | 59                              | 16                                  | 131                        | 68                              | 37                                  | 55                         | 42                              | 6.3                                 |
| 27      | 105                        | 47                              | 13                                  | 251                        | 211                             | 161                                 | 53                         | 46                              | 6.5                                 |
| 28      | 109                        | 41                              | 12                                  | 94                         | 67                              | 17                                  | 59                         | 42                              | 6.7                                 |
| 29      | e99                        | 37                              | 9.8                                 | 87                         | 51                              | 13                                  | 54                         | 40                              | 5.9                                 |
| 30      | 87                         | 35                              | 8.2                                 | 180                        | 78                              | 69                                  | 49                         | 53                              | 7.0                                 |
| 31      | ---                        | ---                             | ---                                 | 114                        | 81                              | 25                                  | ---                        | ---                             | ---                                 |
| TOTAL   | 4534                       | ---                             | 1560.3                              | 3335                       | ---                             | 1391.4                              | 2224                       | ---                             | 485.4                               |

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 42                         | 71                                   | 8.1                                 | 49                         | 86                                   | 11                                  | 154                        | 75                                   | 31                                  |
| 2     | 43                         | 75                                   | 8.7                                 | 46                         | 67                                   | 8.3                                 | 157                        | 94                                   | 42                                  |
| 3     | 44                         | 58                                   | 6.9                                 | 42                         | 54                                   | 6.1                                 | 261                        | 187                                  | 133                                 |
| 4     | 143                        | 38                                   | 46                                  | 41                         | 60                                   | 6.7                                 | 271                        | 171                                  | 128                                 |
| 5     | 120                        | 52                                   | 28                                  | 37                         | 70                                   | 7.0                                 | 161                        | 148                                  | 49                                  |
| 6     | 63                         | 95                                   | 16                                  | e51                        | 72                                   | e5.9                                | 188                        | 167                                  | 75                                  |
| 7     | 58                         | 93                                   | 14                                  | e155                       | 77                                   | e62                                 | 319                        | 188                                  | 199                                 |
| 8     | 61                         | 82                                   | 13                                  | 97                         | 82                                   | 19                                  | 628                        | 419                                  | 1080                                |
| 9     | 56                         | 77                                   | 12                                  | 180                        | 87                                   | 68                                  | 368                        | 314                                  | 282                                 |
| 10    | 54                         | 74                                   | 11                                  | 115                        | 71                                   | 22                                  | 345                        | 208                                  | 215                                 |
| 11    | 45                         | 78                                   | 9.5                                 | 82                         | 77                                   | 17                                  | 197                        | 131                                  | 70                                  |
| 12    | 45                         | 84                                   | 10                                  | 72                         | 90                                   | 17                                  | 168                        | 120                                  | 54                                  |
| 13    | 40                         | 87                                   | 9.3                                 | 59                         | 87                                   | 14                                  | 232                        | 163                                  | 118                                 |
| 14    | 43                         | 74                                   | 8.6                                 | 51                         | 82                                   | 11                                  | 283                        | 158                                  | 128                                 |
| 15    | 41                         | 64                                   | 7.1                                 | 54                         | 94                                   | 14                                  | 733                        | 197                                  | 1650                                |
| 16    | 45                         | 71                                   | 8.6                                 | 59                         | 111                                  | 18                                  | 314                        | 124                                  | 114                                 |
| 17    | 49                         | 71                                   | 9.5                                 | 241                        | 240                                  | 331                                 | 221                        | 71                                   | 42                                  |
| 18    | 61                         | 35                                   | 8.5                                 | 140                        | 126                                  | 50                                  | 190                        | 74                                   | 38                                  |
| 19    | 97                         | 44                                   | 18                                  | 74                         | 103                                  | 21                                  | 204                        | 78                                   | 43                                  |
| 20    | 418                        | 437                                  | 1200                                | 73                         | 89                                   | 18                                  | 192                        | 82                                   | 42                                  |
| 21    | 241                        | 236                                  | 179                                 | 137                        | 111                                  | 45                                  | e3490                      | 1830                                 | e98200                              |
| 22    | 85                         | 106                                  | 25                                  | 536                        | 565                                  | 1290                                | e8930                      | 6300                                 | e254000                             |
| 23    | 64                         | 60                                   | 10                                  | 210                        | 146                                  | 94                                  | 1150                       | 199                                  | 743                                 |
| 24    | 83                         | 53                                   | 12                                  | 1630                       | 780                                  | 8180                                | 575                        | 80                                   | 125                                 |
| 25    | 81                         | 52                                   | 11                                  | 2430                       | 1010                                 | 10200                               | 462                        | 47                                   | 59                                  |
| 26    | 59                         | 52                                   | 8.2                                 | 720                        | 188                                  | 368                                 | 399                        | 41                                   | 44                                  |
| 27    | 61                         | 51                                   | 8.5                                 | 339                        | 132                                  | 121                                 | 374                        | 55                                   | 67                                  |
| 28    | 98                         | 66                                   | 18                                  | 258                        | 96                                   | 67                                  | 456                        | 251                                  | 349                                 |
| 29    | 76                         | 69                                   | 14                                  | 269                        | 162                                  | 124                                 | 337                        | 150                                  | 137                                 |
| 30    | 54                         | 57                                   | 8.3                                 | 202                        | 124                                  | 68                                  | 292                        | 96                                   | 75                                  |
| 31    | 54                         | 71                                   | 10                                  | 165                        | 80                                   | 36                                  | ---                        | ---                                  | ---                                 |
| TOTAL | 2524                       | ---                                  | 1756.8                              | 8614                       | ---                                  | 21320.0                             | 22051                      | ---                                  | 358332                              |
| YEAR  | 87727                      |                                      | 604970.1                            |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 17... | 2215 | 1230                                                                  | 991                                                   | 3290                                                                      | 98                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 0800 | 2200                                                                  | 1490                                                  | 8850                                                                      | 99                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 06... | 1330 | 5740                                                                  | 2780                                                  | 43100                                                                     | 96                                                                       |
| 07... | 0630 | 2820                                                                  | 866                                                   | 6600                                                                      | 99                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 0300 | 1500                                                                  | 1590                                                  | 6440                                                                      | 99                                                                       |
| 05... | 1500 | 2660                                                                  | 1410                                                  | 10100                                                                     | 96                                                                       |
| 09... | 0045 | 1340                                                                  | 1390                                                  | 5030                                                                      | 100                                                                      |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 20... | 1745 | 1710                                                                  | 1110                                                  | 5100                                                                      | 100                                                                      |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 25... | 1255 | 1990                                                                  | 376                                                   | 2000                                                                      | 99                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 2115 | 20800                                                                 | 9070                                                  | 510000                                                                    | 97                                                                       |

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70326) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70327) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70328) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| FEB   |      |                                                                       |                                                                         |                                                                          |                                                              |                                                              |                                                              |
| 05... | 0730 | 6550                                                                  | 3830                                                                    | 67700                                                                    | 37                                                           | 52                                                           | 68                                                           |
| 05... | 1125 | 2780                                                                  | 1640                                                                    | 12300                                                                    | 45                                                           | 59                                                           | 73                                                           |
| SEP   |      |                                                                       |                                                                         |                                                                          |                                                              |                                                              |                                                              |
| 08... | 1215 | 841                                                                   | 818                                                                     | 1860                                                                     | 55                                                           | 68                                                           | 80                                                           |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|-------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| FEB   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 05... | 84                                                                      | 93                                                                      | 96                                                                       | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |
| 05... | 84                                                                      | 92                                                                      | 97                                                                       | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| SEP   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 08... | 87                                                                      | 96                                                                      | 98                                                                       | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGÜITAS NEAR AGUAS BUENAS, PR

LOCATION.--Lat 18°14'48", long 66°05'37", Hydrologic Unit 21010005, on right bank 450 ft (137 m) upstream from bridge on Highway 777, 1.0 mi (1.6 km) southeast from Aguas Buenas, 3.9 mi (6.3 km) northwest from Caguas, and 2.1 mi (3.4 km) southwest from Las Carolinas.

DRAINAGE AREA.--5.30 mi<sup>2</sup> (13.72 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1     | 2.7   | 5.4   | 4.4   | 3.4   | 2.4   | 2.3   | 3.9   | 2.7   | 2.7   | 4.4   | 6.2   | 7.2    |
| 2     | 2.6   | 4.3   | 4.3   | 3.6   | 2.3   | 2.1   | 3.3   | 2.6   | 2.9   | 7.9   | 6.5   | 10     |
| 3     | 2.0   | 4.7   | 4.2   | 3.5   | 2.3   | 2.2   | 3.0   | 3.1   | 3.1   | 9.0   | 5.6   | 11     |
| 4     | 1.7   | 4.7   | 4.4   | 3.6   | 12    | 2.2   | 2.8   | 2.9   | 5.8   | 6.2   | 5.6   | 14     |
| 5     | 1.7   | 4.5   | 4.4   | 4.2   | 73    | 12    | 3.0   | 2.8   | 4.0   | 4.7   | 5.6   | 11     |
| 6     | 3.0   | 4.7   | 4.4   | 14    | 8.3   | 6.4   | 3.5   | 2.6   | 3.6   | 6.5   | e6.4  | 11     |
| 7     | 3.1   | 4.0   | 4.4   | 27    | 4.8   | 17    | 5.4   | 2.7   | 3.3   | 6.3   | e10   | 9.5    |
| 8     | 2.5   | 4.1   | 4.4   | 7.3   | 39    | 9.4   | 4.2   | 4.0   | 3.2   | 4.4   | 9.1   | 18     |
| 9     | 2.3   | 4.4   | 4.4   | 4.2   | 22    | 4.8   | 3.3   | 3.8   | 4.2   | 4.0   | 9.3   | 11     |
| 10    | 2.1   | 7.5   | 4.4   | 4.0   | 8.1   | 3.9   | 3.2   | 3.3   | 4.0   | 4.0   | 7.0   | 9.5    |
| 11    | 2.5   | 4.8   | 4.4   | 3.4   | 6.0   | 3.6   | 3.9   | 3.3   | 3.1   | 3.9   | 6.2   | 8.1    |
| 12    | 5.2   | 4.4   | 4.2   | 3.4   | 4.6   | 3.4   | 5.1   | 3.3   | 7.8   | 3.9   | 6.4   | 7.4    |
| 13    | 22    | 4.4   | 4.1   | 6.7   | 4.1   | 3.4   | 5.1   | 3.4   | 6.3   | 4.1   | 5.7   | 7.0    |
| 14    | 200   | 4.3   | 4.0   | 6.4   | 8.2   | 3.7   | 3.9   | 5.9   | 4.3   | 4.2   | 5.0   | 7.0    |
| 15    | 19    | 4.6   | 4.0   | 3.1   | 5.5   | 3.4   | 3.9   | 4.1   | 3.0   | 4.5   | 5.5   | 9.0    |
| 16    | 17    | 5.7   | 3.9   | 2.8   | 4.5   | 3.3   | 8.6   | 2.7   | 2.7   | 5.1   | 5.3   | 7.3    |
| 17    | 18    | 6.2   | 4.1   | 2.9   | 3.7   | 3.1   | 4.7   | 2.6   | 8.2   | 4.5   | 7.1   | 6.8    |
| 18    | 13    | 5.4   | 4.3   | 2.8   | 3.5   | 3.1   | 3.6   | 2.7   | 4.7   | 11    | 11    | 7.4    |
| 19    | 8.7   | 5.0   | 4.1   | 3.1   | 3.2   | 2.8   | 3.5   | 4.1   | 3.1   | 5.7   | 7.4   | 8.2    |
| 20    | 6.9   | 4.4   | 4.2   | 3.3   | 3.1   | 20    | 4.8   | 5.6   | 2.9   | 30    | 10    | 8.1    |
| 21    | 6.1   | 4.4   | 5.4   | 3.8   | 3.0   | 9.4   | 4.2   | 3.3   | 5.5   | 7.4   | 18    | 262    |
| 22    | 5.5   | 4.5   | 4.2   | 3.2   | 2.6   | 4.1   | 3.6   | 2.7   | 5.9   | 5.1   | 28    | 663    |
| 23    | 5.2   | 4.8   | 4.0   | 3.0   | 2.6   | 3.4   | 3.3   | 2.8   | 3.3   | 7.0   | 14    | 43     |
| 24    | 5.0   | 4.7   | 3.9   | 2.8   | 2.7   | 2.7   | 3.1   | 2.6   | 12    | 5.8   | 71    | 22     |
| 25    | 5.0   | 4.7   | 3.7   | 3.6   | 2.4   | 2.7   | 3.1   | 2.8   | 6.5   | 5.6   | 46    | 17     |
| 26    | 4.8   | 5.9   | 3.5   | 3.1   | 2.5   | 2.3   | 3.1   | 4.3   | 5.4   | 4.2   | 14    | 22     |
| 27    | 4.3   | 5.4   | 3.4   | 2.8   | 2.4   | 3.7   | 3.4   | 5.3   | 4.9   | 9.2   | 25    | 19     |
| 28    | 4.0   | 4.4   | 3.4   | 2.7   | 2.4   | 2.4   | 2.9   | 3.0   | 4.5   | 12    | 13    | 19     |
| 29    | 4.0   | 5.2   | 3.4   | 2.6   | ---   | 23    | 2.7   | 3.2   | 4.3   | 7.5   | 9.4   | 17     |
| 30    | 4.1   | 4.9   | 3.4   | 2.4   | ---   | 10    | 2.6   | 2.8   | 4.1   | 6.3   | 7.8   | 14     |
| 31    | 4.1   | ---   | 3.4   | 2.4   | ---   | 5.2   | ---   | 2.8   | ---   | 6.3   | 7.0   | ---    |
| TOTAL | 388.1 | 146.4 | 126.7 | 145.1 | 241.2 | 181.0 | 114.7 | 103.8 | 139.3 | 210.7 | 394.1 | 1286.5 |
| MEAN  | 12.5  | 4.88  | 4.09  | 4.68  | 8.61  | 5.84  | 3.82  | 3.35  | 4.64  | 6.80  | 12.7  | 42.9   |
| MAX   | 200   | 7.5   | 5.4   | 27    | 73    | 23    | 8.6   | 5.9   | 12    | 30    | 71    | 663    |
| MIN   | 1.7   | 4.0   | 3.4   | 2.4   | 2.3   | 2.1   | 2.6   | 2.6   | 2.7   | 3.9   | 5.0   | 6.8    |
| AC-FT | 770   | 290   | 251   | 288   | 478   | 359   | 228   | 206   | 276   | 418   | 782   | 2550   |
| CFSM  | 2.36  | .92   | .77   | .88   | 1.63  | 1.10  | .72   | .63   | .88   | 1.28  | 2.40  | 8.09   |
| IN.   | 2.72  | 1.03  | .89   | 1.02  | 1.69  | 1.27  | .81   | .73   | .98   | 1.48  | 2.77  | 9.03   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

|      | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|------|------|------|------|------|------|------|------|------|------|
| MEAN | 8.50 | 6.92 | 6.13 | 8.05 | 5.23 | 4.70 | 4.50 | 5.13 | 4.27 |
| MAX  | 20.9 | 12.3 | 13.4 | 16.7 | 8.61 | 8.87 | 13.1 | 18.0 | 8.05 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1998 | 1990 | 1993 | 1993 | 1993 |
| MIN  | 3.17 | 2.66 | 2.34 | 2.48 | 2.96 | 2.09 | 1.84 | 2.00 | 1.84 |
| (WY) | 1996 | 1995 | 1995 | 1995 | 1995 | 1996 | 1995 | 1997 | 1997 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

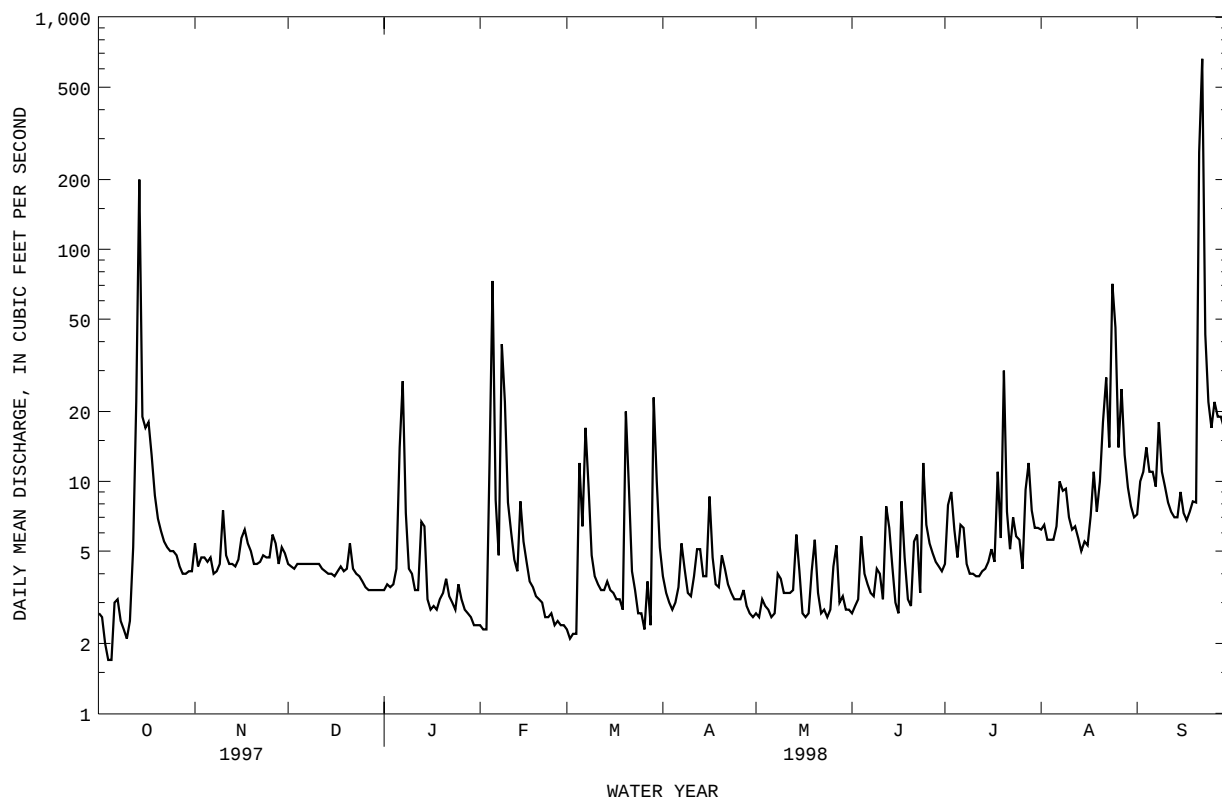
## FOR 1998 WATER YEAR

## WATER YEARS 1990 - 1998

|                          |        |        |       |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL             | 1631.4 | 3477.6 |       |
| ANNUAL MEAN              | 4.47   | 9.53   | 7.04  |
| HIGHEST ANNUAL MEAN      |        |        | 11.1  |
| LOWEST ANNUAL MEAN       |        |        | 4.31  |
| HIGHEST DAILY MEAN       | 200    | 663    | 1260  |
| LOWEST DAILY MEAN        | 1.0    | 1.7    | 1.0   |
| ANNUAL SEVEN-DAY MINIMUM | 1.3    | 2.3    | 1.2   |
| INSTANTANEOUS PEAK FLOW  |        | 2860   | 4490  |
| INSTANTANEOUS PEAK STAGE |        | 18.06  | 21.22 |
| INSTANTANEOUS LOW FLOW   |        | 1.2    | .82   |
| ANNUAL RUNOFF (AC-FT)    | 3240   | 6900   | 5100  |
| ANNUAL RUNOFF (CFSM)     | .84    | 1.80   | 1.33  |
| ANNUAL RUNOFF (INCHES)   | 11.45  | 24.41  | 18.04 |
| 10 PERCENT EXCEEDS       | 6.1    | 12     | 9.5   |
| 50 PERCENT EXCEEDS       | 2.6    | 4.4    | 4.2   |
| 90 PERCENT EXCEEDS       | 1.6    | 2.7    | 1.9   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50055100 RIO CAGÜITAS NEAR AGUAS BUENAS, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50055100 Río CAGÜITAS NEAR AGUAS BUENAS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by hydrologic technician and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 5,300 mg/L September 10, 1996; Minimum daily mean, 1 mg/L severals days during 1997-98.

SEDIMENT LOADS: Maximum daily mean, 24,500 tons (22,200 tonnes) September 10, 1996; Minimum daily mean, 0.01 ton (0.01 tonnes)several days during 1997-98 . .

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 4,000 mg/L September 22, 1998; Minimum daily mean, 1 mg/L January 4-5, 1998.

SEDIMENT LOADS: Maximum daily mean, 8,080 tons (7,340 tonnes) September 22, 1998; Minimum daily mean, 0.01 ton (0.01 tonnes) January 4-5, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 2.7                        | 15                              | .11                                 | 5.4                        | 11                              | .16                                 | 4.4                        | 8                               | .09                                 |
| 2       | 2.6                        | 18                              | .13                                 | 4.3                        | 12                              | .14                                 | 4.3                        | 10                              | .11                                 |
| 3       | 2.0                        | 20                              | .11                                 | 4.7                        | 9                               | .11                                 | 4.2                        | 12                              | .14                                 |
| 4       | 1.7                        | 18                              | .08                                 | 4.7                        | 6                               | .08                                 | 4.4                        | 10                              | .12                                 |
| 5       | 1.7                        | 16                              | .07                                 | 4.5                        | 4                               | .05                                 | 4.4                        | 8                               | .09                                 |
| 6       | 3.0                        | 33                              | .81                                 | 4.7                        | 4                               | .05                                 | 4.4                        | 6                               | .07                                 |
| 7       | 3.1                        | 17                              | .14                                 | 4.0                        | 4                               | .04                                 | 4.4                        | 5                               | .06                                 |
| 8       | 2.5                        | 19                              | .13                                 | 4.1                        | 4                               | .04                                 | 4.4                        | 4                               | .05                                 |
| 9       | 2.3                        | 26                              | .16                                 | 4.4                        | 4                               | .05                                 | 4.4                        | 4                               | .05                                 |
| 10      | 2.1                        | 36                              | .20                                 | 7.5                        | 40                              | 1.9                                 | 4.4                        | 4                               | .05                                 |
| 11      | 2.5                        | 48                              | .33                                 | 4.8                        | 38                              | .49                                 | 4.4                        | 4                               | .05                                 |
| 12      | 5.2                        | 50                              | .70                                 | 4.4                        | 31                              | .37                                 | 4.2                        | 4                               | .05                                 |
| 13      | 22                         | 1390                            | 1320                                | 4.4                        | 24                              | .29                                 | 4.1                        | 4                               | .05                                 |
| 14      | 200                        | 2500                            | 4930                                | 4.3                        | 19                              | .22                                 | 4.0                        | 5                               | .05                                 |
| 15      | 19                         | 88                              | 4.6                                 | 4.6                        | 14                              | .17                                 | 4.0                        | 5                               | .05                                 |
| 16      | 17                         | 77                              | 3.5                                 | 5.7                        | 29                              | .64                                 | 3.9                        | 5                               | .05                                 |
| 17      | 18                         | 290                             | 19                                  | 6.2                        | 14                              | .23                                 | 4.1                        | 6                               | .06                                 |
| 18      | 13                         | 41                              | 1.5                                 | 5.4                        | 16                              | .24                                 | 4.3                        | 6                               | .07                                 |
| 19      | 8.7                        | 27                              | .63                                 | 5.0                        | 20                              | .27                                 | 4.1                        | 7                               | .07                                 |
| 20      | 6.9                        | 17                              | .32                                 | 4.4                        | 24                              | .29                                 | 4.2                        | 7                               | .08                                 |
| 21      | 6.1                        | 11                              | .19                                 | 4.4                        | 18                              | .22                                 | 5.4                        | 8                               | .11                                 |
| 22      | 5.5                        | 9                               | .14                                 | 4.5                        | 12                              | .15                                 | 4.2                        | 10                              | .11                                 |
| 23      | 5.2                        | 13                              | .18                                 | 4.8                        | 8                               | .11                                 | 4.0                        | 12                              | .13                                 |
| 24      | 5.0                        | 19                              | .25                                 | 4.7                        | 6                               | .08                                 | 3.9                        | 15                              | .16                                 |
| 25      | 5.0                        | 22                              | .29                                 | 4.7                        | 6                               | .08                                 | 3.7                        | 11                              | .11                                 |
| 26      | 4.8                        | 14                              | .18                                 | 5.9                        | 23                              | .61                                 | 3.5                        | 7                               | .07                                 |
| 27      | 4.3                        | 9                               | .10                                 | 5.4                        | 9                               | .13                                 | 3.4                        | 5                               | .04                                 |
| 28      | 4.0                        | 8                               | .08                                 | 4.4                        | 8                               | .09                                 | 3.4                        | 4                               | .04                                 |
| 29      | 4.0                        | 7                               | .08                                 | 5.2                        | 7                               | .10                                 | 3.4                        | 5                               | .05                                 |
| 30      | 4.1                        | 7                               | .08                                 | 4.9                        | 6                               | .08                                 | 3.4                        | 6                               | .05                                 |
| 31      | 4.1                        | 9                               | .10                                 | ---                        | ---                             | ---                                 | 3.4                        | 7                               | .06                                 |
| TOTAL   | 388.1                      | ---                             | 6284.19                             | 146.4                      | ---                             | 7.48                                | 126.7                      | ---                             | 2.34                                |

## RIO GRANDE DE LOIZA BASIN

50055100 Río CAGÜITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 3.4                        | 5                               | .04                                 | 2.4                        | 11                              | .07                                 | 2.3                        | 4                               | .03                                 |
| 2       | 3.6                        | 3                               | .03                                 | 2.3                        | 13                              | .08                                 | 2.1                        | 4                               | .02                                 |
| 3       | 3.5                        | 2                               | .02                                 | 2.3                        | 14                              | .09                                 | 2.2                        | 3                               | .02                                 |
| 4       | 3.6                        | 1                               | .01                                 | 12                         | 309                             | 128                                 | 2.2                        | 3                               | .02                                 |
| 5       | 4.2                        | 1                               | .01                                 | 73                         | 1770                            | 756                                 | 12                         | 479                             | 63                                  |
| 6       | 14                         | 163                             | 11                                  | 8.3                        | 19                              | .43                                 | 6.4                        | 86                              | 1.6                                 |
| 7       | 27                         | 339                             | 27                                  | 4.8                        | 17                              | .22                                 | 17                         | 243                             | 22                                  |
| 8       | 7.3                        | 91                              | 2.0                                 | 39                         | 1120                            | 506                                 | 9.4                        | 285                             | 8.7                                 |
| 9       | 4.2                        | 26                              | .30                                 | 22                         | 379                             | 29                                  | 4.8                        | 38                              | .50                                 |
| 10      | 4.0                        | 17                              | .18                                 | 8.1                        | 90                              | 2.0                                 | 3.9                        | 19                              | .20                                 |
| 11      | 3.4                        | 16                              | .15                                 | 6.0                        | 57                              | .93                                 | 3.6                        | 11                              | .11                                 |
| 12      | 3.4                        | 16                              | .15                                 | 4.6                        | 43                              | .54                                 | 3.4                        | 12                              | .11                                 |
| 13      | 6.7                        | 62                              | 3.0                                 | 4.1                        | 37                              | .41                                 | 3.4                        | 14                              | .13                                 |
| 14      | 6.4                        | 78                              | 1.7                                 | 8.2                        | 70                              | 2.2                                 | 3.7                        | 16                              | .16                                 |
| 15      | 3.1                        | 25                              | .21                                 | 5.5                        | 58                              | .94                                 | 3.4                        | 12                              | .12                                 |
| 16      | 2.8                        | 12                              | .09                                 | 4.5                        | 28                              | .33                                 | 3.3                        | 9                               | .08                                 |
| 17      | 2.9                        | 7                               | .05                                 | 3.7                        | 16                              | .16                                 | 3.1                        | 7                               | .06                                 |
| 18      | 2.8                        | 8                               | .06                                 | 3.5                        | 10                              | .09                                 | 3.1                        | 7                               | .06                                 |
| 19      | 3.1                        | 10                              | .09                                 | 3.2                        | 7                               | .06                                 | 2.8                        | 7                               | .05                                 |
| 20      | 3.3                        | 11                              | .10                                 | 3.1                        | 5                               | .05                                 | 20                         | 594                             | 74                                  |
| 21      | 3.8                        | 6                               | .06                                 | 3.0                        | 4                               | .03                                 | 9.4                        | 234                             | 6.6                                 |
| 22      | 3.2                        | 5                               | .05                                 | 2.6                        | 4                               | .03                                 | 4.1                        | 53                              | .60                                 |
| 23      | 3.0                        | 5                               | .04                                 | 2.6                        | 5                               | .04                                 | 3.4                        | 19                              | .17                                 |
| 24      | 2.8                        | 4                               | .03                                 | 2.7                        | 6                               | .04                                 | 2.7                        | 11                              | .08                                 |
| 25      | 3.6                        | 19                              | .21                                 | 2.4                        | 6                               | .04                                 | 2.7                        | 11                              | .08                                 |
| 26      | 3.1                        | 18                              | .15                                 | 2.5                        | 7                               | .05                                 | 2.3                        | 10                              | .06                                 |
| 27      | 2.8                        | 8                               | .06                                 | 2.4                        | 6                               | .04                                 | 3.7                        | 30                              | .50                                 |
| 28      | 2.7                        | 4                               | .03                                 | 2.4                        | 5                               | .03                                 | 2.4                        | 21                              | .13                                 |
| 29      | 2.6                        | 5                               | .04                                 | ---                        | ---                             | ---                                 | 23                         | 494                             | 132                                 |
| 30      | 2.4                        | 7                               | .05                                 | ---                        | ---                             | ---                                 | 10                         | 171                             | 5.2                                 |
| 31      | 2.4                        | 9                               | .06                                 | ---                        | ---                             | ---                                 | 5.2                        | 65                              | .94                                 |
| TOTAL   | 145.1                      | ---                             | 46.97                               | 241.2                      | ---                             | 1427.90                             | 181.0                      | ---                             | 317.33                              |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 3.9                        | 37                              | .39                                 | 2.7                        | 4                               | .03                                 | 2.7                        | 16                              | .12                                 |
| 2       | 3.3                        | 23                              | .20                                 | 2.6                        | 4                               | .03                                 | 2.9                        | 11                              | .08                                 |
| 3       | 3.0                        | 15                              | .12                                 | 3.1                        | 5                               | .05                                 | 3.1                        | 4                               | .03                                 |
| 4       | 2.8                        | 10                              | .08                                 | 2.9                        | 8                               | .06                                 | 5.8                        | 45                              | 1.8                                 |
| 5       | 3.0                        | 8                               | .06                                 | 2.8                        | 9                               | .06                                 | 4.0                        | 9                               | .10                                 |
| 6       | 3.5                        | 9                               | .09                                 | 2.6                        | 5                               | .04                                 | 3.6                        | 8                               | .08                                 |
| 7       | 5.4                        | 39                              | 1.1                                 | 2.7                        | 4                               | .03                                 | 3.3                        | 11                              | .10                                 |
| 8       | 4.2                        | 48                              | .58                                 | 4.0                        | 7                               | .07                                 | 3.2                        | 15                              | .13                                 |
| 9       | 3.3                        | 23                              | .20                                 | 3.8                        | 7                               | .07                                 | 4.2                        | 14                              | .16                                 |
| 10      | 3.2                        | 16                              | .14                                 | 3.3                        | 7                               | .06                                 | 4.0                        | 13                              | .14                                 |
| 11      | 3.9                        | 11                              | .12                                 | 3.3                        | 7                               | .06                                 | 3.1                        | 11                              | .09                                 |
| 12      | 5.1                        | 23                              | .45                                 | 3.3                        | 6                               | .05                                 | 7.8                        | 84                              | 2.3                                 |
| 13      | 5.1                        | 26                              | .40                                 | 3.4                        | 6                               | .05                                 | 6.3                        | 45                              | 1.1                                 |
| 14      | 3.9                        | 11                              | .12                                 | 5.9                        | 41                              | 1.6                                 | 4.3                        | 13                              | .15                                 |
| 15      | 3.9                        | 10                              | .11                                 | 4.1                        | 44                              | .49                                 | 3.0                        | 12                              | .10                                 |
| 16      | 8.6                        | 49                              | 1.9                                 | 2.7                        | 29                              | .21                                 | 2.7                        | 11                              | .08                                 |
| 17      | 4.7                        | 3                               | .04                                 | 2.6                        | 22                              | .16                                 | 8.2                        | 92                              | 3.6                                 |
| 18      | 3.6                        | 4                               | .04                                 | 2.7                        | 19                              | .14                                 | 4.7                        | 36                              | .48                                 |
| 19      | 3.5                        | 6                               | .06                                 | 4.1                        | 44                              | .89                                 | 3.1                        | 20                              | .17                                 |
| 20      | 4.8                        | 11                              | .14                                 | 5.6                        | 62                              | 1.1                                 | 2.9                        | 12                              | .09                                 |
| 21      | 4.2                        | 13                              | .15                                 | 3.3                        | 25                              | .23                                 | 5.5                        | 32                              | .82                                 |
| 22      | 3.6                        | 16                              | .15                                 | 2.7                        | 14                              | .11                                 | 5.9                        | 48                              | .94                                 |
| 23      | 3.3                        | 17                              | .15                                 | 2.8                        | 11                              | .09                                 | 3.3                        | 17                              | .15                                 |
| 24      | 3.1                        | 14                              | .12                                 | 2.6                        | 9                               | .06                                 | 12                         | 501                             | 62                                  |
| 25      | 3.1                        | 11                              | .09                                 | 2.8                        | 7                               | .05                                 | 6.5                        | 19                              | .34                                 |
| 26      | 3.1                        | 9                               | .08                                 | 4.3                        | 6                               | .07                                 | 5.4                        | 17                              | .25                                 |
| 27      | 3.4                        | 7                               | .06                                 | 5.3                        | 59                              | .95                                 | 4.9                        | 16                              | .21                                 |
| 28      | 2.9                        | 5                               | .04                                 | 3.0                        | 48                              | .39                                 | 4.5                        | 15                              | .19                                 |
| 29      | 2.7                        | 4                               | .03                                 | 3.2                        | 33                              | .29                                 | 4.3                        | 14                              | .16                                 |
| 30      | 2.6                        | 4                               | .03                                 | 2.8                        | 23                              | .18                                 | 4.1                        | 9                               | .10                                 |
| 31      | ---                        | ---                             | ---                                 | 2.8                        | 19                              | .15                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 114.7                      | ---                             | 7.24                                | 103.8                      | ---                             | 7.82                                | 139.3                      | ---                             | 76.06                               |

## RIO GRANDE DE LOIZA BASIN

50055100 Río CAGÜITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 4.4                        | 7                                    | .08                                 | 6.2                        | 27                                   | .45                                 | 7.2                        | 29                                   | .57                                 |
| 2     | 7.9                        | 90                                   | 5.0                                 | 6.5                        | 20                                   | .34                                 | 10                         | 88                                   | 3.3                                 |
| 3     | 9.0                        | 108                                  | 4.4                                 | 5.6                        | 14                                   | .22                                 | 11                         | 152                                  | 4.6                                 |
| 4     | 6.2                        | 50                                   | .87                                 | 5.6                        | 11                                   | .16                                 | 14                         | 304                                  | 20                                  |
| 5     | 4.7                        | 35                                   | .44                                 | 5.6                        | 10                                   | .15                                 | 11                         | 162                                  | 5.7                                 |
| 6     | 6.5                        | 58                                   | 1.6                                 | e6.4                       | 10                                   | e.18                                | 11                         | 130                                  | 4.0                                 |
| 7     | 6.3                        | 13                                   | .22                                 | e10                        | 102                                  | e5.9                                | 9.5                        | 116                                  | 3.0                                 |
| 8     | 4.4                        | 12                                   | .15                                 | 9.1                        | 108                                  | 3.3                                 | 18                         | 432                                  | 36                                  |
| 9     | 4.0                        | 15                                   | .16                                 | 9.3                        | 29                                   | .73                                 | 11                         | 98                                   | 3.1                                 |
| 10    | 4.0                        | 17                                   | .18                                 | 7.0                        | 28                                   | .53                                 | 9.5                        | 27                                   | .70                                 |
| 11    | 3.9                        | 18                                   | .19                                 | 6.2                        | 26                                   | .43                                 | 8.1                        | 24                                   | .53                                 |
| 12    | 3.9                        | 14                                   | .15                                 | 6.4                        | 22                                   | .37                                 | 7.4                        | 25                                   | .49                                 |
| 13    | 4.1                        | 10                                   | .10                                 | 5.7                        | 19                                   | .30                                 | 7.0                        | 24                                   | .45                                 |
| 14    | 4.2                        | 7                                    | .07                                 | 5.0                        | 20                                   | .26                                 | 7.0                        | 17                                   | .33                                 |
| 15    | 4.5                        | 4                                    | .05                                 | 5.5                        | 20                                   | .30                                 | 9.0                        | 14                                   | .34                                 |
| 16    | 5.1                        | 3                                    | .04                                 | 5.3                        | 20                                   | .28                                 | 7.3                        | 16                                   | .31                                 |
| 17    | 4.5                        | 3                                    | .04                                 | 7.1                        | 20                                   | .39                                 | 6.8                        | 18                                   | .32                                 |
| 18    | 11                         | 27                                   | 1.5                                 | 11                         | 190                                  | 11                                  | 7.4                        | 17                                   | .34                                 |
| 19    | 5.7                        | 10                                   | .15                                 | 7.4                        | 107                                  | 2.2                                 | 8.2                        | 16                                   | .36                                 |
| 20    | 30                         | 1750                                 | 380                                 | 10                         | 147                                  | 4.9                                 | 8.1                        | 16                                   | .34                                 |
| 21    | 7.4                        | 214                                  | 5.0                                 | 18                         | 142                                  | 6.8                                 | 262                        | 1710                                 | 6610                                |
| 22    | 5.1                        | 45                                   | .60                                 | 28                         | 193                                  | 15                                  | 663                        | 4000                                 | 8080                                |
| 23    | 7.0                        | 52                                   | 1.2                                 | 14                         | 175                                  | 6.8                                 | 43                         | 655                                  | 95                                  |
| 24    | 5.8                        | 19                                   | .29                                 | 71                         | 739                                  | 229                                 | 22                         | 43                                   | 2.7                                 |
| 25    | 5.6                        | 17                                   | .25                                 | 46                         | 331                                  | 50                                  | 17                         | 16                                   | .77                                 |
| 26    | 4.2                        | 17                                   | .19                                 | 14                         | 58                                   | 2.4                                 | 22                         | 151                                  | 22                                  |
| 27    | 9.2                        | 106                                  | 4.9                                 | 25                         | 1470                                 | 190                                 | 19                         | 298                                  | 16                                  |
| 28    | 12                         | 162                                  | 5.9                                 | 13                         | 248                                  | 9.4                                 | 19                         | 290                                  | 18                                  |
| 29    | 7.5                        | 88                                   | 1.8                                 | 9.4                        | 38                                   | .97                                 | 17                         | 178                                  | 8.5                                 |
| 30    | 6.3                        | 59                                   | 1.0                                 | 7.8                        | 32                                   | .69                                 | 14                         | 206                                  | 7.9                                 |
| 31    | 6.3                        | 40                                   | .67                                 | 7.0                        | 31                                   | .59                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 210.7                      | ---                                  | 417.19                              | 394.1                      | ---                                  | 544.04                              | 1286.5                     | ---                                  | 14945.65                            |
| YEAR  | 3477.6                     |                                      | 24084.21                            |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 29... | 2045 | 46                                                                    | 1300                                                  | 161                                                                       | 96                                                                       |
| 30... | 0626 | 11                                                                    | 237                                                   | 7.0                                                                       | 99                                                                       |
| JUL   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 20... | 1530 | 35                                                                    | 3120                                                  | 295                                                                       | 98                                                                       |
| 21... | 1630 | 4.4                                                                   | 181                                                   | 2.2                                                                       | 98                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 18... | 1638 | 24                                                                    | 865                                                   | 56                                                                        | 99                                                                       |
| 24... | 1400 | 191                                                                   | 1160                                                  | 598                                                                       | 98                                                                       |
| 27... | 1645 | 81                                                                    | 2350                                                  | 514                                                                       | 95                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 03... | 0620 | 9.6                                                                   | 852                                                   | 22                                                                        | 99                                                                       |
| 22... | 0330 | 1660                                                                  | 3460                                                  | 15500                                                                     | 74                                                                       |

## RIO GRANDE DE LOIZA BASIN

50055100 Río CAGÜITAS NEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| JAN<br>07... | 0530 | 94                                                                      | 1110                                                                    | 282                                                                      | 71                                                                       | 81                                                                       | 90                                                                       |                                                                          |
| MAR<br>20... | 1815 | 75                                                                      | 3060                                                                    | 620                                                                      | 55                                                                       | 69                                                                       | 82                                                                       |                                                                          |
| JUL<br>20... | 1830 | 130                                                                     | 10400                                                                   | 3650                                                                     | 51                                                                       | 63                                                                       | 76                                                                       |                                                                          |
| SEP<br>21... | 1915 | 268                                                                     | 5290                                                                    | 3830                                                                     | 37                                                                       | 52                                                                       | 69                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| JAN<br>07... | 95   | 97                                                                      | 97                                                                      | 98                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| MAR<br>20... | 92   | 95                                                                      | 97                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| JUL<br>20... | 86   | 93                                                                      | 95                                                                      | 98                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| SEP<br>21... | 80   | 84                                                                      | 90                                                                      | 96                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR

LOCATION.--Lat 18°14'55", long 66°01'40", Hydrologic Unit 21010005, on left bank, at C. 4 street Villa Blanca housing area at Caguas, 1.8 mi (2.9 km) upstream from Rio Grande de Loiza, and 0.95 mi (1.53 km) northeast from Caguas Plaza.

DRAINAGE AREA.--11.71 mi<sup>2</sup> (30.33 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Low-flow affected by pluvial discharges above 50 ft (15.24 m), upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC   | JAN    | FEB    | MAR    | APR   | MAY   | JUN   | JUL    | AUG    | SEP   |
|-------|------|------|-------|--------|--------|--------|-------|-------|-------|--------|--------|-------|
| 1     | e16  | 24   | 14    | 7.7    | 6.0    | 9.3    | e16   | 7.1   | 7.1   | 6.2    | 6.3    | 43    |
| 2     | e54  | 16   | 13    | 9.7    | 6.0    | 8.6    | e19   | 7.2   | 7.5   | 6.1    | 5.0    | 95    |
| 3     | e23  | 26   | 12    | 10     | 6.0    | 14     | e20   | 12    | 7.7   | 40     | 4.5    | 53    |
| 4     | e18  | e19  | 12    | 12     | 99     | 9.4    | e12   | 11    | 99    | 22     | 4.2    | 145   |
| 5     | e14  | e16  | 10    | 15     | 663    | 186    | e13   | 6.9   | 53    | 9.1    | 4.7    | 32    |
| 6     | e12  | e15  | 9.7   | 313    | 60     | 37     | e12   | 7.3   | 15    | 20     | e30    | 47    |
| 7     | e11  | e14  | 9.5   | 282    | 26     | 428    | e11   | 5.9   | 6.4   | 12     | e137   | 26    |
| 8     | e16  | e13  | 9.8   | 57     | 291    | 141    | e12   | 62    | 5.5   | 5.9    | 103    | 123   |
| 9     | 12   | e14  | 12    | 49     | 234    | 37     | e10   | 7.2   | 8.2   | 4.8    | 53     | 58    |
| 10    | 10   | e190 | 9.9   | 17     | 47     | 26     | e9.4  | 5.8   | 7.5   | 4.6    | 16     | 27    |
| 11    | 62   | e18  | 8.3   | 12     | 29     | 18     | e9.2  | 5.5   | 7.2   | 5.8    | 10     | 17    |
| 12    | 64   | e15  | 7.7   | 50     | 24     | 16     | e25   | 6.3   | 113   | 4.5    | 7.9    | 16    |
| 13    | 159  | e13  | 8.0   | 90     | 19     | 16     | e12   | 6.5   | 38    | 4.7    | 5.9    | 63    |
| 14    | 698  | e12  | 8.8   | 53     | 168    | 22     | e10   | 45    | 5.8   | 5.3    | 5.7    | 19    |
| 15    | 158  | 44   | 10    | 19     | 56     | 15     | e9.1  | 11    | 5.3   | 8.9    | 5.3    | 88    |
| 16    | 121  | 16   | 11    | 13     | 21     | 11     | e14   | 6.8   | 7.1   | 7.8    | 5.0    | 26    |
| 17    | 197  | 12   | 14    | 10     | 19     | 9.0    | e18   | 87    | 246   | 8.7    | 61     | 23    |
| 18    | 116  | 12   | 10    | 9.5    | 15     | e8.9   | 11    | 11    | 28    | 163    | 86     | 21    |
| 19    | 54   | 12   | 9.3   | 8.9    | 12     | e8.8   | 11    | 6.9   | 9.7   | 25     | 13     | 29    |
| 20    | 43   | 13   | 11    | 8.5    | 12     | e68    | 28    | 14    | 8.0   | 420    | 53     | 54    |
| 21    | 31   | 14   | 31    | 7.9    | 11     | e27    | 12    | 27    | 54    | 107    | 109    | e1210 |
| 22    | 25   | 17   | 10    | 7.3    | 11     | e15    | e10   | 7.0   | 36    | 17     | 337    | e3970 |
| 23    | 21   | 16   | 9.6   | 6.7    | 10     | e13    | e9.0  | 6.3   | 9.3   | 13     | 94     | 880   |
| 24    | 20   | 14   | 10    | 7.3    | 10     | e11    | e8.2  | 7.1   | 81    | 15     | 866    | 567   |
| 25    | 20   | 14   | 9.1   | 10     | 11     | e14    | e8.2  | 6.0   | 15    | 10     | 821    | 469   |
| 26    | 22   | 42   | 9.6   | 8.3    | 13     | e12    | e9.0  | 28    | 9.6   | 7.1    | e149   | 433   |
| 27    | 18   | 17   | 9.2   | 8.0    | 11     | e14    | e10   | 30    | 8.0   | 92     | 195    | 321   |
| 28    | 15   | 14   | 9.1   | 7.6    | 10     | e13    | e8.6  | 8.6   | 7.4   | 103    | 94     | 386   |
| 29    | 14   | 14   | 9.3   | 7.1    | ---    | e36    | 8.1   | 7.6   | 6.6   | 10     | 39     | 233   |
| 30    | 13   | 14   | 8.4   | 6.8    | ---    | e42    | 8.6   | 9.7   | 7.0   | 5.5    | 28     | 123   |
| 31    | 18   | ---  | 8.3   | 6.5    | ---    | e36    | ---   | 9.0   | ---   | 5.0    | 24     | ---   |
| TOTAL | 2075 | 690  | 333.6 | 1129.8 | 1900.0 | 1322.0 | 373.4 | 478.7 | 918.9 | 1169.0 | 3372.5 | 9597  |
| MEAN  | 66.9 | 23.0 | 10.8  | 36.4   | 67.9   | 42.6   | 12.4  | 15.4  | 30.6  | 37.7   | 109    | 320   |
| MAX   | 698  | 190  | 31    | 313    | 663    | 428    | 28    | 87    | 246   | 420    | 866    | 3970  |
| MIN   | 10   | 12   | 7.7   | 6.5    | 6.0    | 8.6    | 8.1   | 5.5   | 5.3   | 4.5    | 4.2    | 16    |
| MED   | 21   | 15   | 9.8   | 10     | 17     | 15     | 11    | 7.3   | 8.1   | 9.1    | 30     | 61    |
| AC-FT | 4120 | 1370 | 662   | 2240   | 3770   | 2620   | 741   | 950   | 1820  | 2320   | 6690   | 19040 |
| CFSM  | 5.72 | 1.96 | .92   | 3.11   | 5.79   | 3.64   | 1.06  | 1.32  | 2.62  | 3.22   | 9.29   | 27.3  |
| IN.   | 6.59 | 2.19 | 1.06  | 3.59   | 6.04   | 4.20   | 1.19  | 1.52  | 2.92  | 3.71   | 10.71  | 30.49 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

| MEAN | 30.8 | 32.4 | 20.6 | 37.8 | 24.9 | 18.3 | 16.0 | 23.1 | 23.6 | 30.7 | 42.5 | 115  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 66.9 | 56.8 | 58.4 | 120  | 67.9 | 42.6 | 39.8 | 59.8 | 45.6 | 74.6 | 109  | 364  |
| (WY) | 1998 | 1993 | 1993 | 1992 | 1998 | 1998 | 1993 | 1993 | 1996 | 1993 | 1998 | 1996 |
| MIN  | 18.7 | 12.2 | 8.87 | 14.2 | 10.8 | 7.54 | 5.49 | 3.35 | 2.86 | 4.13 | 3.82 | 8.82 |
| (WY) | 1996 | 1995 | 1995 | 1995 | 1992 | 1994 | 1994 | 1994 | 1994 | 1994 | 1994 | 1994 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

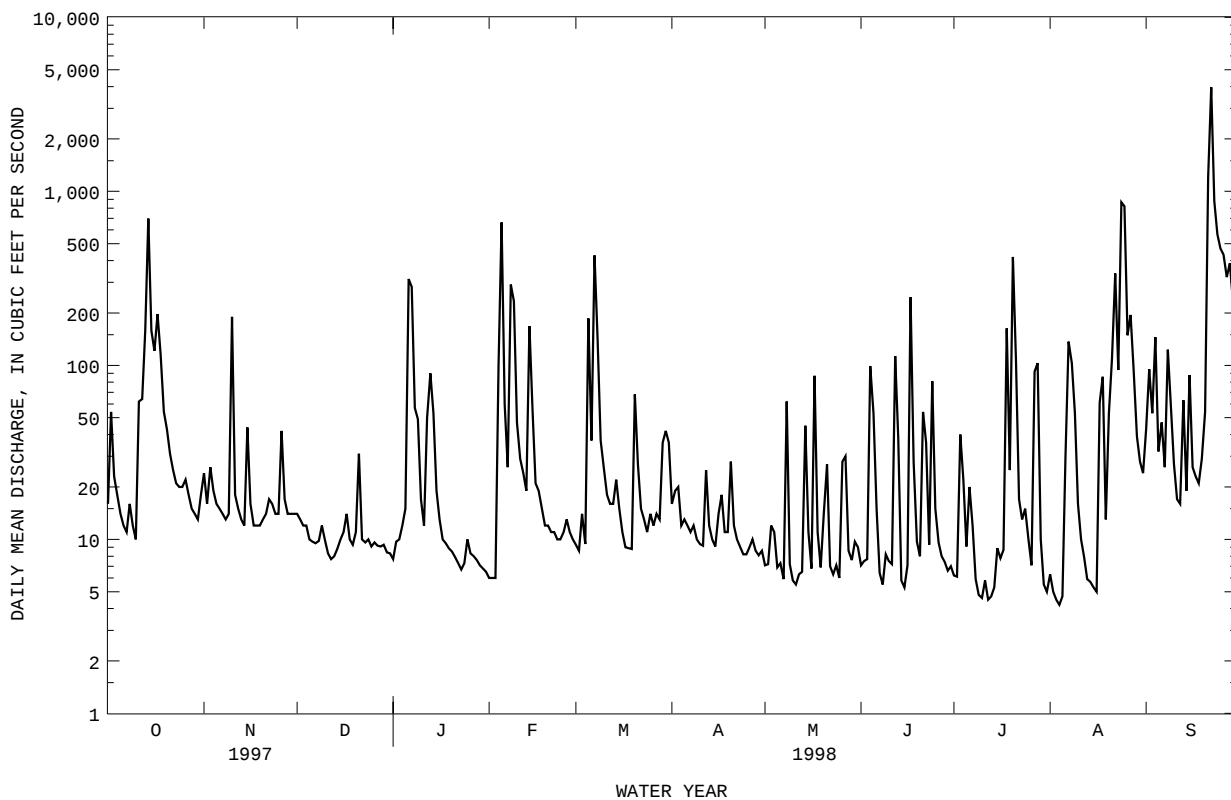
## FOR 1998 WATER YEAR

## WATER YEARS 1991 - 1998

|                          |        |         |       |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL             | 9765.6 | 23359.9 |       |
| ANNUAL MEAN              | 26.8   | 64.0    | 36.7  |
| HIGHEST ANNUAL MEAN      |        |         | 64.0  |
| LOWEST ANNUAL MEAN       |        |         | 11.9  |
| HIGHEST DAILY MEAN       | 698    | Oct 14  | 3970  |
| LOWEST DAILY MEAN        | 7.7    | Dec 12  | 4.2   |
| ANNUAL SEVEN-DAY MINIMUM | 9.0    | Dec 25  | 5.0   |
| INSTANTANEOUS PEAK FLOW  |        |         | 11200 |
| INSTANTANEOUS PEAK STAGE |        |         | 18.87 |
| ANNUAL RUNOFF (AC-FT)    | 19370  | 46330   | 25000 |
| ANNUAL RUNOFF (CFSM)     | 2.28   | 5.47    | 23.89 |
| ANNUAL RUNOFF (INCHES)   | 31.02  | 74.21   | 26550 |
| 10 PERCENT EXCEEDS       | 43     | 118     | 3.13  |
| 50 PERCENT EXCEEDS       | 18     | 13      | 42.53 |
| 90 PERCENT EXCEEDS       | 10     | 6.7     | 47    |
|                          |        |         | 15    |
|                          |        |         | 6.0   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: December 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1991.

REMARKS.-- Sediment samples collected by local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 5,940 mg/L September 22, 1998; Minimum daily mean, 3 mg/L August 2, 1997.

SEDIMENT LOADS: Maximum daily mean, e110,000 tons (e99,900 tonnes) September 22, 1998; Minimum daily mean, e0.03 ton (e0.02 tonne) June 15, 1994.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 5,940 mg/L September 22, 1998; Minimum daily mean, 8 mg/L August 15, 1998.

SEDIMENT LOADS: Maximum daily mean, e110,000 tons (e99,900 tonnes) September 22, 1998; Minimum daily mean, 0.21 tons (0.19 tonne), August 2, 3 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | e16                        | 60                              | e1.1                                | 24                         | 41                              | 4.3                                 | 14                         | 27                              | 1.1                                 |
| 2       | e54                        | 62                              | e18                                 | 16                         | 24                              | 1.0                                 | 13                         | 23                              | .76                                 |
| 3       | e23                        | 63                              | e2.2                                | 26                         | 55                              | 6.3                                 | 12                         | 19                              | .61                                 |
| 4       | e18                        | 63                              | e1.6                                | e19                        | 50                              | e1.6                                | 12                         | 17                              | .55                                 |
| 5       | e14                        | 58                              | e1.1                                | e16                        | 32                              | e1.1                                | 10                         | 17                              | .47                                 |
| 6       | e12                        | 51                              | e.82                                | e15                        | 24                              | e1.7                                | 9.7                        | 16                              | .43                                 |
| 7       | e11                        | 46                              | e.59                                | e14                        | 19                              | e1.1                                | 9.5                        | 19                              | .48                                 |
| 8       | e16                        | 54                              | e1.1                                | e13                        | 16                              | e.96                                | 9.8                        | 21                              | .57                                 |
| 9       | 12                         | 27                              | .91                                 | e14                        | 19                              | e1.1                                | 12                         | 24                              | .75                                 |
| 10      | 10                         | 23                              | .62                                 | e190                       | 25                              | e512                                | 9.9                        | 21                              | .56                                 |
| 11      | 62                         | 74                              | 38                                  | e18                        | 31                              | e1.6                                | 8.3                        | 17                              | .38                                 |
| 12      | 64                         | 103                             | 38                                  | e15                        | 30                              | e1.7                                | 7.7                        | 14                              | .29                                 |
| 13      | 159                        | 259                             | 627                                 | e13                        | 27                              | e.96                                | 8.0                        | 12                              | .25                                 |
| 14      | 698                        | 773                             | 2860                                | e12                        | 24                              | e.82                                | 8.8                        | 14                              | .32                                 |
| 15      | 158                        | 144                             | 62                                  | 44                         | 37                              | 7.3                                 | 10                         | 17                              | .47                                 |
| 16      | 121                        | 47                              | 17                                  | 16                         | 35                              | 1.5                                 | 11                         | 19                              | .61                                 |
| 17      | 197                        | 643                             | 901                                 | 12                         | 28                              | .93                                 | 14                         | 31                              | 1.3                                 |
| 18      | 116                        | 170                             | 79                                  | 12                         | 26                              | .86                                 | 10                         | 23                              | .62                                 |
| 19      | 54                         | 24                              | 3.5                                 | 12                         | 24                              | .80                                 | 9.3                        | 21                              | .53                                 |
| 20      | 43                         | 24                              | 2.8                                 | 13                         | 22                              | .76                                 | 11                         | 21                              | .78                                 |
| 21      | 31                         | 24                              | 2.0                                 | 14                         | 21                              | .81                                 | 31                         | 28                              | 4.6                                 |
| 22      | 25                         | 23                              | 1.6                                 | 17                         | 23                              | 1.2                                 | 10                         | 19                              | .51                                 |
| 23      | 21                         | 20                              | 1.2                                 | 16                         | 29                              | 1.3                                 | 9.6                        | 19                              | .50                                 |
| 24      | 20                         | 18                              | .95                                 | 14                         | 17                              | .68                                 | 10                         | 20                              | .56                                 |
| 25      | 20                         | 17                              | .91                                 | 14                         | 27                              | 1.1                                 | 9.1                        | 18                              | .45                                 |
| 26      | 22                         | 18                              | 1.1                                 | 42                         | 50                              | 17                                  | 9.6                        | 16                              | .43                                 |
| 27      | 18                         | 21                              | 1.0                                 | 17                         | 28                              | 1.4                                 | 9.2                        | 15                              | .37                                 |
| 28      | 15                         | 21                              | .84                                 | 14                         | 20                              | .77                                 | 9.1                        | 13                              | .33                                 |
| 29      | 14                         | 20                              | .78                                 | 14                         | 26                              | .95                                 | 9.3                        | 12                              | .30                                 |
| 30      | 13                         | 19                              | .67                                 | 14                         | 31                              | 1.1                                 | 8.4                        | 11                              | .25                                 |
| 31      | 18                         | 34                              | 2.2                                 | ---                        | ---                             | ---                                 | 8.3                        | 12                              | .27                                 |
| TOTAL   | 2075                       | ---                             | 4669.59                             | 690                        | ---                             | 574.70                              | 333.6                      | ---                             | 20.40                               |

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 7.7                        | 13                              | .26                                 | 6.0                        | 20                              | .32                                 | 9.3                        | 12                              | .29                                 |
| 2       | 9.7                        | 13                              | .35                                 | 6.0                        | 26                              | .42                                 | 8.6                        | 13                              | .31                                 |
| 3       | 10                         | 14                              | .39                                 | 6.0                        | 33                              | .53                                 | 14                         | 15                              | .60                                 |
| 4       | 12                         | 23                              | 1.2                                 | 99                         | 119                             | 316                                 | 9.4                        | 19                              | .49                                 |
| 5       | 15                         | 64                              | 1.9                                 | 663                        | 1480                            | 4000                                | 186                        | 949                             | 1870                                |
| 6       | 313                        | 366                             | 557                                 | 60                         | 134                             | 26                                  | 37                         | 130                             | 10                                  |
| 7       | 282                        | 264                             | 210                                 | 26                         | 36                              | 2.7                                 | 428                        | 681                             | 2050                                |
| 8       | 57                         | 153                             | 29                                  | 291                        | 613                             | 1860                                | 141                        | 213                             | 137                                 |
| 9       | 49                         | 60                              | 9.5                                 | 234                        | 386                             | 356                                 | 37                         | 49                              | 5.0                                 |
| 10      | 17                         | 35                              | 1.7                                 | 47                         | 75                              | 9.9                                 | 26                         | 26                              | 1.9                                 |
| 11      | 12                         | 25                              | .80                                 | 29                         | 27                              | 2.1                                 | 18                         | 14                              | .74                                 |
| 12      | 50                         | 52                              | 20                                  | 24                         | 27                              | 1.7                                 | 16                         | 11                              | .49                                 |
| 13      | 90                         | 81                              | 32                                  | 19                         | 29                              | 1.5                                 | 16                         | 10                              | .44                                 |
| 14      | 53                         | 75                              | 12                                  | 168                        | 114                             | 94                                  | 22                         | 28                              | 2.5                                 |
| 15      | 19                         | 47                              | 2.4                                 | 56                         | 42                              | 7.4                                 | 15                         | 36                              | 1.4                                 |
| 16      | 13                         | 33                              | 1.2                                 | 21                         | 29                              | 1.7                                 | 11                         | 29                              | .90                                 |
| 17      | 10                         | 25                              | .69                                 | 19                         | 22                              | 1.1                                 | 9.0                        | 26                              | .63                                 |
| 18      | 9.5                        | 20                              | .50                                 | 15                         | 18                              | .70                                 | e8.9                       | 24                              | e.48                                |
| 19      | 8.9                        | 16                              | .38                                 | 12                         | 15                              | .47                                 | e8.8                       | 38                              | e.48                                |
| 20      | 8.5                        | 14                              | .32                                 | 12                         | 12                              | .39                                 | e68                        | 59                              | e36                                 |
| 21      | 7.9                        | 17                              | .35                                 | 11                         | 11                              | .33                                 | e27                        | 86                              | e4.2                                |
| 22      | 7.3                        | 18                              | .35                                 | 11                         | 13                              | .40                                 | e15                        | 65                              | e1.7                                |
| 23      | 6.7                        | 18                              | .32                                 | 10                         | 18                              | .49                                 | e13                        | 39                              | e.96                                |
| 24      | 7.3                        | 19                              | .37                                 | 10                         | 18                              | .51                                 | e11                        | 29                              | e.59                                |
| 25      | 10                         | 19                              | .53                                 | 11                         | 18                              | .53                                 | e14                        | 39                              | e1.1                                |
| 26      | 8.3                        | 15                              | .34                                 | 13                         | 18                              | .62                                 | e12                        | 54                              | e.82                                |
| 27      | 8.0                        | 15                              | .32                                 | 11                         | 15                              | .46                                 | e14                        | 75                              | e1.1                                |
| 28      | 7.6                        | 15                              | .31                                 | 10                         | 13                              | .36                                 | e13                        | 105                             | e.96                                |
| 29      | 7.1                        | 15                              | .29                                 | ---                        | ---                             | ---                                 | e36                        | 145                             | e6.8                                |
| 30      | 6.8                        | 15                              | .27                                 | ---                        | ---                             | ---                                 | e42                        | 183                             | e8.4                                |
| 31      | 6.5                        | 16                              | .28                                 | ---                        | ---                             | ---                                 | e36                        | 89                              | e6.8                                |
| TOTAL   | 1129.8                     | ---                             | 885.32                              | 1900.0                     | ---                             | 6686.63                             | 1322.0                     | ---                             | 4153.08                             |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | e16                        | 33                              | e1.1                                | 7.1                        | 19                              | .37                                 | 7.1                        | 20                              | .39                                 |
| 2       | e19                        | 14                              | e1.6                                | 7.2                        | 18                              | .36                                 | 7.5                        | 20                              | .40                                 |
| 3       | e20                        | 15                              | e1.6                                | 12                         | 24                              | 1.3                                 | 7.7                        | 19                              | .39                                 |
| 4       | e12                        | 18                              | e.82                                | 11                         | 25                              | .92                                 | 99                         | 48                              | 51                                  |
| 5       | e13                        | 22                              | e.96                                | 6.9                        | 19                              | .35                                 | 53                         | 54                              | 24                                  |
| 6       | e12                        | 22                              | e.82                                | 7.3                        | 21                              | .45                                 | 15                         | 21                              | 1.4                                 |
| 7       | e11                        | 22                              | e.59                                | 5.9                        | 19                              | .31                                 | 6.4                        | 13                              | .22                                 |
| 8       | e12                        | 22                              | e.82                                | 62                         | 53                              | 25                                  | 5.5                        | 16                              | .23                                 |
| 9       | e10                        | 22                              | e.62                                | 7.2                        | 21                              | .41                                 | 8.2                        | 18                              | .67                                 |
| 10      | e9.4                       | 22                              | e.61                                | 5.8                        | 18                              | .29                                 | 7.5                        | 21                              | .43                                 |
| 11      | e9.2                       | 22                              | e.47                                | 5.5                        | 22                              | .33                                 | 7.2                        | 23                              | .45                                 |
| 12      | e25                        | 22                              | e3.0                                | 6.3                        | 22                              | .38                                 | 113                        | 59                              | 34                                  |
| 13      | e12                        | 22                              | e.82                                | 6.5                        | 23                              | .40                                 | 38                         | 35                              | 5.8                                 |
| 14      | e10                        | 21                              | e.62                                | 45                         | 43                              | 18                                  | 5.8                        | 20                              | .31                                 |
| 15      | e9.1                       | 17                              | e.49                                | 11                         | 34                              | .82                                 | 5.3                        | 18                              | .25                                 |
| 16      | e14                        | 14                              | e1.1                                | 6.8                        | 16                              | .29                                 | 7.1                        | 16                              | .30                                 |
| 17      | e18                        | 11                              | e1.6                                | 87                         | 57                              | 56                                  | 246                        | 271                             | 579                                 |
| 18      | 11                         | 11                              | .31                                 | 11                         | 35                              | .88                                 | 28                         | 34                              | 3.0                                 |
| 19      | 11                         | 10                              | .30                                 | 6.9                        | 20                              | .38                                 | 9.7                        | 30                              | .77                                 |
| 20      | 28                         | 23                              | 3.6                                 | 14                         | 22                              | 2.8                                 | 8.0                        | 30                              | .65                                 |
| 21      | 12                         | 24                              | .92                                 | 27                         | 37                              | 4.8                                 | 54                         | 70                              | 23                                  |
| 22      | e10                        | 36                              | e.62                                | 7.0                        | 29                              | .55                                 | 36                         | 45                              | 6.2                                 |
| 23      | e9.0                       | 27                              | e.53                                | 6.3                        | 27                              | .46                                 | 9.3                        | 31                              | .79                                 |
| 24      | e8.2                       | 21                              | e.43                                | 7.1                        | 18                              | .36                                 | 81                         | 74                              | 39                                  |
| 25      | e8.2                       | 17                              | e.43                                | 6.0                        | 19                              | .35                                 | 15                         | 88                              | 3.8                                 |
| 26      | e9.0                       | 14                              | e.53                                | 28                         | 59                              | 8.8                                 | 9.6                        | 60                              | 1.5                                 |
| 27      | e10                        | 16                              | e.62                                | 30                         | 41                              | 8.6                                 | 8.0                        | 42                              | .91                                 |
| 28      | e8.6                       | 22                              | e.55                                | 8.6                        | 23                              | .55                                 | 7.4                        | 34                              | .69                                 |
| 29      | 8.1                        | 23                              | .50                                 | 7.6                        | 22                              | .45                                 | 6.6                        | 28                              | .50                                 |
| 30      | 8.6                        | 21                              | .49                                 | 9.7                        | 24                              | .77                                 | 7.0                        | 21                              | .40                                 |
| 31      | ---                        | ---                             | ---                                 | 9.0                        | 19                              | .62                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 373.4                      | ---                             | 27.47                               | 478.7                      | ---                             | 136.35                              | 918.9                      | ---                             | 780.45                              |

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 6.2                        | 17                                   | .28                                 | 6.3                        | 22                                   | .41                                 | 43                         | 43                                   | 6.9                                 |
| 2     | 6.1                        | 18                                   | .33                                 | 5.0                        | 15                                   | .21                                 | 95                         | 53                                   | 19                                  |
| 3     | 40                         | 56                                   | 7.9                                 | 4.5                        | 14                                   | .21                                 | 53                         | 61                                   | 10                                  |
| 4     | 22                         | 32                                   | 2.2                                 | 4.2                        | 19                                   | .22                                 | 145                        | 96                                   | 64                                  |
| 5     | 9.1                        | 22                                   | .60                                 | 4.7                        | 17                                   | .22                                 | 32                         | 37                                   | 3.2                                 |
| 6     | 20                         | 25                                   | 3.3                                 | e30                        | 25                                   | e4.5                                | 47                         | 42                                   | 6.7                                 |
| 7     | 12                         | 28                                   | .97                                 | e137                       | 49                                   | e70                                 | 26                         | 37                                   | 2.6                                 |
| 8     | 5.9                        | 22                                   | .35                                 | 103                        | 71                                   | 33                                  | 123                        | 105                                  | 61                                  |
| 9     | 4.8                        | 24                                   | .31                                 | 53                         | 69                                   | 11                                  | 58                         | 74                                   | 13                                  |
| 10    | 4.6                        | 21                                   | .26                                 | 16                         | 33                                   | 1.5                                 | 27                         | 47                                   | 3.7                                 |
| 11    | 5.8                        | 19                                   | .29                                 | 10                         | 18                                   | .50                                 | 17                         | 37                                   | 1.8                                 |
| 12    | 4.5                        | 21                                   | .25                                 | 7.9                        | 14                                   | .29                                 | 16                         | 37                                   | 1.6                                 |
| 13    | 4.7                        | 25                                   | .32                                 | 5.9                        | 11                                   | .18                                 | 63                         | 50                                   | 12                                  |
| 14    | 5.3                        | 23                                   | .34                                 | 5.7                        | 10                                   | .15                                 | 19                         | 31                                   | 2.2                                 |
| 15    | 8.9                        | 19                                   | .72                                 | 5.3                        | 8                                    | .12                                 | 88                         | 98                                   | 46                                  |
| 16    | 7.8                        | 63                                   | 1.3                                 | 5.0                        | 10                                   | .13                                 | 26                         | 42                                   | 3.0                                 |
| 17    | 8.7                        | 47                                   | 1.1                                 | 61                         | 41                                   | 24                                  | 23                         | 22                                   | 1.3                                 |
| 18    | 163                        | 63                                   | 47                                  | 86                         | 75                                   | 52                                  | 21                         | 38                                   | 2.2                                 |
| 19    | 25                         | 49                                   | 3.7                                 | 13                         | 24                                   | 1.9                                 | 29                         | 59                                   | 6.3                                 |
| 20    | 420                        | 800                                  | 1990                                | 53                         | 49                                   | 16                                  | 54                         | 78                                   | 38                                  |
| 21    | 107                        | 165                                  | 110                                 | 109                        | 83                                   | 34                                  | e1210                      | 4590                                 | e61300                              |
| 22    | 17                         | 42                                   | 2.2                                 | 337                        | 195                                  | 276                                 | e3970                      | 5940                                 | e110000                             |
| 23    | 13                         | 39                                   | 1.4                                 | 94                         | 128                                  | 36                                  | 880                        | 52                                   | 134                                 |
| 24    | 15                         | 36                                   | 1.6                                 | 866                        | 1490                                 | 6650                                | 567                        | 35                                   | 53                                  |
| 25    | 10                         | 28                                   | .86                                 | 821                        | 512                                  | 1490                                | 469                        | 33                                   | 42                                  |
| 26    | 7.1                        | 20                                   | .39                                 | e149                       | 70                                   | e31                                 | 433                        | 56                                   | 81                                  |
| 27    | 92                         | 102                                  | 45                                  | 195                        | 123                                  | 123                                 | 321                        | 92                                   | 111                                 |
| 28    | 103                        | 99                                   | 51                                  | 94                         | 89                                   | 24                                  | 386                        | 199                                  | 539                                 |
| 29    | 10                         | 58                                   | 1.5                                 | 39                         | 50                                   | 5.2                                 | 233                        | 43                                   | 30                                  |
| 30    | 5.5                        | 47                                   | .68                                 | 28                         | 41                                   | 3.1                                 | 123                        | 24                                   | 8.0                                 |
| 31    | 5.0                        | 31                                   | .42                                 | 24                         | 35                                   | 2.3                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 1169.0                     | ---                                  | 2276.57                             | 3372.5                     | ---                                  | 8891.14                             | 9597                       | ---                                  | 172602.5                            |
| YEAR  | 23359.9                    |                                      | 201704.20                           |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 11... | 1550 | 113                                                                   | 117                                                   | 36                                                                        | 97                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 0645 | 461                                                                   | 146                                                   | 182                                                                       | 96                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 0515 | 1430                                                                  | 2020                                                  | 7800                                                                      | 96                                                                       |
| 05... | 1115 | 581                                                                   | 1080                                                  | 1690                                                                      | 98                                                                       |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 1945 | 254                                                                   | 385                                                   | 264                                                                       | 99                                                                       |
| 21... | 1635 | 27                                                                    | 98                                                    | 7.1                                                                       | 98                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 25... | 1200 | 809                                                                   | 324                                                   | 708                                                                       | 99                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 1900 | 1670                                                                  | 11000                                                 | 49600                                                                     | 99                                                                       |
| 22... | 0645 | 3520                                                                  | 9610                                                  | 91300                                                                     | 99                                                                       |

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>17... | 1800 | 813                                                                     | 2930                                                                    | 6430                                                                     | 38                                                                       | 54                                                                       | 75                                                                       |                                                                          |
| JAN<br>06... | 1545 | 279                                                                     | 524                                                                     | 395                                                                      | 74                                                                       | 89                                                                       | 99                                                                       |                                                                          |
| FEB<br>05... | 0030 | 1150                                                                    | 4600                                                                    | 14300                                                                    | 51                                                                       | 68                                                                       | 87                                                                       |                                                                          |
| SEP<br>22... | 0200 | 9820                                                                    | 17700                                                                   | 469000                                                                   | 24                                                                       | 38                                                                       | 63                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>17... | 90   | 96                                                                      | 97                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| JAN<br>06... | 99   | 99                                                                      | 99                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| FEB<br>05... | 95   | 97                                                                      | 97                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| SEP<br>22... | 86   | 96                                                                      | 97                                                                      | 99                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50055250 RIO CAGÜITAS AT HIGHWAY 30 AT CAGUAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'11", Long 66°01'26", at Highway 30 bridge, and 0.8 mi (1.3 km) east of Caguas plaza.

DRAINAGE AREA.--14.1 mi<sup>2</sup> (36.5 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1972 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 21... | 0830 | 14                                              | 563                                     | 7.2                                            | 26.0                               | 5.2                       | 4.2                               | 52                                                | <10                                                  | 44000                                               | 3000                                             |
| FEB 20... | 0800 | 10                                              | 551                                     | 7.1                                            | 24.0                               | 2.0                       | 4.9                               | 58                                                | <10                                                  | 24000                                               | K1400                                            |
| MAY 26... | 0825 | 12                                              | 432                                     | 7.0                                            | 28.0                               | 62                        | 3.0                               | 38                                                | 19                                                   | 58000                                               | 42000                                            |
| AUG 17... | 0915 | 5.8                                             | 583                                     | 6.8                                            | 28.7                               | 4.7                       | 2.8                               | 36                                                | <10                                                  | 35000                                               | K1500                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS SO4) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 21... | 210                                     | 54                                      | 17                                          | 30                                      | .9                                | 3.4                                        | 200                                                 | <1.0                              | 48                                       | 40                                         |
| FEB 20... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 180                                                 | --                                | --                                       | --                                         |
| MAY 26... | 130                                     | 35                                      | 11                                          | 30                                      | 1                                 | 3.5                                        | 140                                                 | --                                | 26                                       | 32                                         |
| AUG 17... | 200                                     | 52                                      | 16                                          | 36                                      | 1                                 | 3.5                                        | 190                                                 | <1.0                              | 50                                       | 44                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 21... | .17                                       | 37                                        | 350                                                     | 13.6                                      | 5                                                      | .450                                         | .010                                         | .460                                         | .020                                         | .20                                          |
| FEB 20... | --                                        | --                                        | --                                                      | --                                        | 2                                                      | .350                                         | .220                                         | .570                                         | 2.00                                         | .40                                          |
| MAY 26... | .10                                       | 27                                        | 249                                                     | 7.87                                      | 16                                                     | .067                                         | .033                                         | .100                                         | 2.90                                         | .40                                          |
| AUG 17... | .15                                       | 41                                        | 357                                                     | 5.61                                      | 14                                                     | .043                                         | .037                                         | .080                                         | 2.90                                         | .00                                          |

## RIO GRANDE DE LOIZA BASIN

50055250 RIO CAGÜITAS AT HIGHWAY 30 AT CAGUAS, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

| DATE         | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002) | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027) | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034) | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) |
|--------------|--------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|
|              |                                                                                |                                                      |                                                        |                                                       |                                                |                                                                    |                                                                  |                                                                    |                                                                           |                                                                    |
| OCT<br>21... | .24                                                                            | .68                                                  | 3.0                                                    | .030                                                  | <1                                             | <100                                                               | 30                                                               | <1                                                                 | 3                                                                         | <10                                                                |
| FEB<br>20... | 2.4                                                                            | 3.0                                                  | 13                                                     | .350                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |
| MAY<br>26... | 3.3                                                                            | 3.4                                                  | 15                                                     | .390                                                  | 2                                              | <100                                                               | 50                                                               | <1                                                                 | 1                                                                         | <10                                                                |
| AUG<br>17... | 2.9                                                                            | 3.0                                                  | 13                                                     | .580                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |

[illegible]

## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR

LOCATION.--Lat 18°15'32", long 66°02'24", Hydrologic Unit 21010005, on left bank, in the Bairoa Housing Area, 1.6 mi (2.6 km) northwest of Plaza de Caguas, 4.1 mi (6.6 km) east of Plaza de Aguas Buenas, and 0.9 mi (1.4 km) northwest of Escuela Pepita Garriga.

DRAINAGE AREA.--5.08 mi<sup>2</sup> (13.15 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Mean daily discharge affected by domestic discharge from school nearby station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1     | e4.3  | e4.9  | e3.0 | e3.0  | e3.5  | 4.1   | 3.3   | 3.6   | 3.7   | 2.9   | 2.9   | 3.5   |
| 2     | e4.8  | e3.9  | e2.9 | e3.2  | e3.4  | 4.0   | 3.5   | 4.3   | 3.4   | 11    | 3.1   | 5.4   |
| 3     | e3.6  | e4.6  | e2.7 | e3.0  | e3.4  | 4.7   | 3.3   | 4.8   | 3.5   | 5.9   | 2.8   | 6.0   |
| 4     | e3.6  | e4.6  | e2.8 | e3.1  | e15   | 4.2   | 3.2   | 4.6   | 8.6   | 4.1   | 2.7   | 14    |
| 5     | e3.6  | e4.3  | e2.7 | e3.4  | e60   | 6.1   | 3.2   | 4.2   | 3.5   | 3.3   | 2.9   | 9.5   |
| 6     | e4.6  | e4.1  | e2.7 | e14   | 6.2   | 4.8   | 3.1   | 4.1   | 3.4   | 15    | e3.2  | 5.3   |
| 7     | e4.8  | e3.9  | e2.8 | e24   | 5.0   | 19    | 4.2   | 4.2   | 3.2   | 5.3   | 15    | 3.6   |
| 8     | e3.9  | e3.8  | e2.9 | e10   | 30    | 7.1   | 4.1   | 6.0   | 3.1   | 3.5   | 31    | 9.2   |
| 9     | e3.6  | e3.8  | e2.8 | e6.0  | 13    | 4.8   | 3.3   | 4.9   | 3.0   | 3.3   | 5.6   | 4.3   |
| 10    | e3.3  | e5.4  | e2.8 | e5.6  | 6.4   | 4.3   | 3.2   | 4.2   | 3.0   | 3.3   | 3.3   | 3.6   |
| 11    | e4.0  | e3.8  | e2.8 | e5.0  | 5.6   | 4.0   | 3.2   | 3.6   | 3.5   | 3.5   | 2.8   | 3.4   |
| 12    | e5.2  | e3.9  | e2.7 | e5.0  | 5.1   | 4.1   | 3.6   | 3.6   | 4.3   | 2.9   | 3.7   | 3.3   |
| 13    | e30   | e3.8  | e2.6 | e10   | 4.8   | 4.1   | 4.6   | 3.6   | 5.1   | 3.1   | 3.1   | 3.8   |
| 14    | e180  | e3.7  | e2.6 | e9.0  | 10    | 4.2   | 3.3   | 14    | 4.0   | 2.6   | 2.9   | 3.5   |
| 15    | e17   | e3.8  | e2.6 | e4.5  | 6.5   | 4.4   | 3.7   | 6.1   | 3.7   | 3.0   | 3.0   | 4.5   |
| 16    | e15   | e3.7  | e2.6 | e4.1  | 4.8   | 4.4   | 8.4   | 3.4   | 4.7   | 3.2   | 3.0   | 3.6   |
| 17    | e16   | e3.7  | e2.8 | e4.3  | 4.7   | 4.0   | 4.2   | 6.6   | e5.6  | 3.0   | 4.3   | 3.6   |
| 18    | e11   | e3.6  | e2.7 | e4.2  | 4.5   | 4.1   | 3.6   | 3.3   | e4.0  | 14    | 11    | 3.2   |
| 19    | e7.8  | e3.6  | e2.8 | e4.6  | 4.3   | 4.1   | 3.5   | 3.1   | e3.0  | 3.8   | 3.8   | 3.4   |
| 20    | e6.2  | e3.4  | e3.8 | e4.9  | 4.1   | 8.7   | 3.8   | 6.7   | e2.8  | 25    | 3.8   | 5.2   |
| 21    | e5.4  | e3.3  | e5.0 | e5.6  | 4.4   | 5.6   | 4.6   | 4.4   | e4.1  | 5.0   | 12    | 139   |
| 22    | e4.9  | e3.2  | e4.0 | e5.0  | 4.2   | 4.2   | 3.8   | 3.1   | e4.2  | 3.2   | 14    | 532   |
| 23    | e4.6  | e3.0  | e3.8 | e4.5  | 4.5   | 3.8   | 3.9   | 3.1   | 3.2   | 13    | 4.9   | e35   |
| 24    | e4.4  | e3.0  | e3.6 | e4.2  | 4.2   | 4.0   | 3.6   | 3.5   | 19    | 4.3   | 80    | e17   |
| 25    | e4.5  | e3.1  | e3.4 | e5.4  | 4.3   | 6.3   | 3.6   | 3.2   | 4.4   | 2.9   | 60    | e14   |
| 26    | e4.3  | e4.2  | e3.3 | e4.6  | 4.4   | 4.3   | 3.7   | 5.5   | 3.0   | 2.8   | 7.7   | e17   |
| 27    | e3.8  | e3.1  | e3.2 | e4.1  | 4.3   | 5.0   | 4.2   | 4.6   | 3.0   | 11    | 36    | e15   |
| 28    | e3.6  | e2.8  | e3.2 | e4.0  | 4.2   | 4.5   | 3.7   | 3.8   | 3.3   | 5.8   | 9.7   | e15   |
| 29    | e3.6  | e3.1  | e3.2 | e3.8  | ---   | 28    | 3.6   | 3.9   | 3.0   | 3.0   | 5.4   | e13   |
| 30    | e3.7  | e3.1  | e3.2 | e3.5  | ---   | 5.8   | 3.6   | 4.0   | 2.7   | 2.7   | 4.3   | e11   |
| 31    | e3.6  | ---   | e3.2 | e3.5  | ---   | 3.5   | ---   | 4.0   | ---   | 2.9   | 3.8   | ---   |
| TOTAL | 378.7 | 112.2 | 95.2 | 179.1 | 234.8 | 184.2 | 114.6 | 142.0 | 129.0 | 178.3 | 351.7 | 909.9 |
| MEAN  | 12.2  | 3.74  | 3.07 | 5.78  | 8.39  | 5.94  | 3.82  | 4.58  | 4.30  | 5.75  | 11.3  | 30.3  |
| MAX   | 180   | 5.4   | 5.0  | 24    | 60    | 28    | 8.4   | 14    | 19    | 25    | 80    | 532   |
| MIN   | 3.3   | 2.8   | 2.6  | 3.0   | 3.4   | 3.5   | 3.1   | 3.1   | 2.7   | 2.6   | 2.7   | 3.2   |
| AC-FT | 751   | 223   | 189  | 355   | 466   | 365   | 227   | 282   | 256   | 354   | 698   | 1800  |
| CFSM  | 2.40  | .74   | .60  | 1.14  | 1.65  | 1.17  | .75   | .90   | .85   | 1.13  | 2.23  | 5.97  |
| IN.   | 2.77  | .82   | .70  | 1.31  | 1.72  | 1.35  | .84   | 1.04  | .94   | 1.31  | 2.58  | 6.66  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 9.94 | 9.27 | 8.12 | 8.68 | 5.97 | 4.51 | 4.79 | 5.86 | 5.16 | 7.77 | 9.10 | 21.6 |
| MAX  | 25.3 | 22.2 | 19.7 | 14.7 | 8.81 | 5.94 | 9.23 | 12.5 | 8.64 | 16.5 | 17.7 | 76.9 |
| (WY) | 1991 | 1993 | 1993 | 1996 | 1997 | 1998 | 1996 | 1993 | 1993 | 1991 | 1996 | 1996 |
| MIN  | 4.30 | 3.74 | 3.07 | 4.12 | 3.42 | 2.87 | 2.61 | 2.91 | 2.72 | 4.35 | 4.09 | 4.50 |
| (WY) | 1992 | 1998 | 1998 | 1995 | 1994 | 1994 | 1992 | 1994 | 1995 | 1994 | 1991 | 1991 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

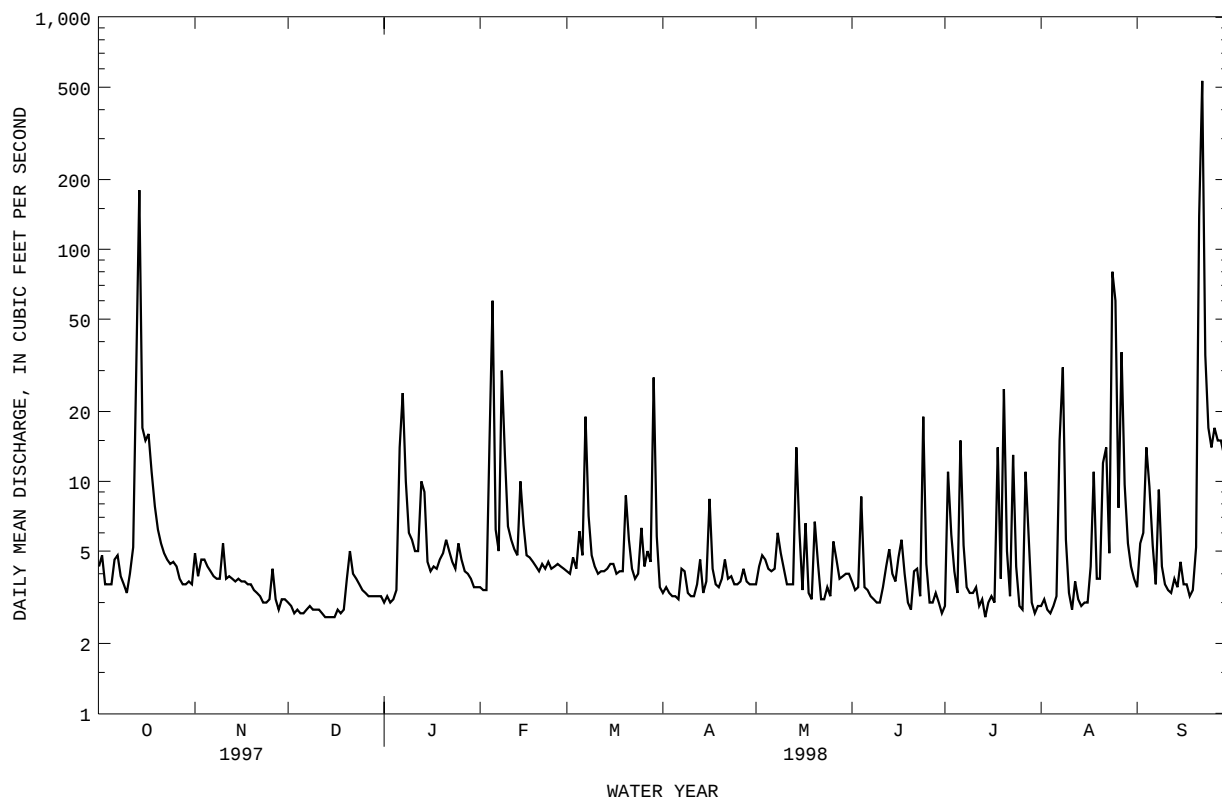
## FOR 1998 WATER YEAR

## WATER YEARS 1991 - 1998

|                          |        |        |             |
|--------------------------|--------|--------|-------------|
| ANNUAL TOTAL             | 2526.0 | 3009.7 | 8.39        |
| ANNUAL MEAN              | 6.92   | 8.25   | 14.5        |
| HIGHEST ANNUAL MEAN      |        |        | 4.52        |
| LOWEST ANNUAL MEAN       |        |        | 1700        |
| HIGHEST DAILY MEAN       | 180    | Oct 14 | Sep 10 1996 |
| LOWEST DAILY MEAN        | 2.6    | Dec 13 | Jul 2 1995  |
| ANNUAL SEVEN-DAY MINIMUM | 2.7    | Dec 12 | Jun 30 1995 |
| INSTANTANEOUS PEAK FLOW  |        | 1610   | Sep 22 1996 |
| INSTANTANEOUS PEAK STAGE |        | 12.39  | Sep 22 1996 |
| ANNUAL RUNOFF (AC-FT)    | 5010   | 5970   | 6080        |
| ANNUAL RUNOFF (CFSM)     | 1.36   | 1.62   | 1.65        |
| ANNUAL RUNOFF (INCHES)   | 18.50  | 22.04  | 22.45       |
| 10 PERCENT EXCEEDS       | 9.8    | 11     | 12          |
| 50 PERCENT EXCEEDS       | 4.7    | 4.0    | 4.5         |
| 90 PERCENT EXCEEDS       | 3.3    | 3.0    | 2.8         |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50055390 RIO BAIRAO AT BAIRAO, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1994 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1991.

REMARKS:-- Sediment samples were collected by a local observer on a weekly. During high flows events sediment samples were collected and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,040 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several days 1998.

SEDIMENT LOADS: Maximum daily mean, 37,900 tons (34,300 tonnes) September 10, 1996; Minimum daily mean, 0.02 ton (0.01 tonne) Several years.

EXTREME FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,610 mg/L September 22, 1998; Minimum daily mean, 1 several days.

SEDIMENT LOADS: Maximum daily mean, 2,970 tons (2,700 tonnes) September 22, 1998; Minimum daily mean, 0.02 ton (0.01 tonne) March 18-19, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | e4.3                       | 40                              | e.16                                | e4.9                       | 13                              | e.19                                | e3.0                       | 13                              | e.09                                |
| 2       | e4.8                       | 15                              | e.18                                | e3.9                       | 14                              | e.13                                | e2.9                       | 13                              | e.07                                |
| 3       | e3.6                       | 2                               | e.11                                | e4.6                       | 14                              | e.17                                | e2.7                       | 10                              | e.06                                |
| 4       | e3.6                       | 2                               | e.08                                | e4.6                       | 14                              | e.17                                | e2.8                       | 11                              | e.07                                |
| 5       | e3.6                       | 4                               | e.08                                | e4.3                       | 8                               | e.16                                | e2.7                       | 13                              | e.06                                |
| 6       | e4.6                       | 8                               | e.18                                | e4.1                       | 4                               | e.15                                | e2.7                       | 8                               | e.06                                |
| 7       | e4.8                       | 14                              | e.18                                | e3.9                       | 2                               | e.13                                | e2.8                       | 4                               | e.07                                |
| 8       | e3.9                       | 22                              | e.13                                | e3.8                       | 3                               | e.11                                | e2.9                       | 2                               | e.07                                |
| 9       | e3.6                       | 18                              | e.08                                | e3.8                       | 8                               | e.11                                | e2.8                       | 2                               | e.07                                |
| 10      | e3.3                       | 12                              | e.10                                | e5.4                       | 12                              | e.28                                | e2.8                       | 1                               | e.07                                |
| 11      | e4.0                       | 11                              | e.14                                | e3.8                       | 14                              | e.11                                | e2.8                       | 1                               | e.06                                |
| 12      | e5.2                       | 10                              | e.28                                | e3.9                       | 7                               | e.13                                | e2.7                       | 2                               | e.06                                |
| 13      | e30                        | 10                              | e57                                 | e3.8                       | 3                               | e.11                                | e2.6                       | 2                               | e.06                                |
| 14      | e180                       | 16                              | e1000                               | e3.7                       | 2                               | e.11                                | e2.6                       | 2                               | e.06                                |
| 15      | e17                        | 29                              | e20                                 | e3.8                       | 3                               | e.11                                | e2.6                       | 2                               | e.06                                |
| 16      | e15                        | 24                              | e9.0                                | e3.7                       | 3                               | e.11                                | e2.6                       | 3                               | e.06                                |
| 17      | e16                        | 14                              | e15                                 | e3.7                       | 4                               | e.11                                | e2.8                       | 4                               | e.07                                |
| 18      | e11                        | 9                               | e2.9                                | e3.6                       | 6                               | e.08                                | e2.7                       | 6                               | e.06                                |
| 19      | e7.8                       | 5                               | e.58                                | e3.6                       | 10                              | e.08                                | e2.8                       | 8                               | e.07                                |
| 20      | e6.2                       | 3                               | e.31                                | e3.4                       | 5                               | e.09                                | e3.8                       | 7                               | e.11                                |
| 21      | e5.4                       | 5                               | e.28                                | e3.3                       | 1                               | e.10                                | e5.0                       | 4                               | e.25                                |
| 22      | e4.9                       | 8                               | e.19                                | e3.2                       | 2                               | e.10                                | e4.0                       | 3                               | e.14                                |
| 23      | e4.6                       | 12                              | e.17                                | e3.0                       | 6                               | e.09                                | e3.8                       | 5                               | e.11                                |
| 24      | e4.4                       | 15                              | e.16                                | e3.0                       | 16                              | e.09                                | e3.6                       | 8                               | e.08                                |
| 25      | e4.5                       | 15                              | e.17                                | e3.1                       | 29                              | e.10                                | e3.4                       | 15                              | e.09                                |
| 26      | e4.3                       | 13                              | e.16                                | e4.2                       | 43                              | e.16                                | e3.3                       | 23                              | e.10                                |
| 27      | e3.8                       | 12                              | e.11                                | e3.1                       | 13                              | e.10                                | e3.2                       | 8                               | e.10                                |
| 28      | e3.6                       | 12                              | e.08                                | e2.8                       | 2                               | e.07                                | e3.2                       | 3                               | e.10                                |
| 29      | e3.6                       | 12                              | e.08                                | e3.1                       | 2                               | e.10                                | e3.2                       | 2                               | e.10                                |
| 30      | e3.7                       | 12                              | e.11                                | e3.1                       | 5                               | e.10                                | e3.2                       | 2                               | e.10                                |
| 31      | e3.6                       | 13                              | e.08                                | ---                        | ---                             | ---                                 | e3.2                       | 6                               | e.10                                |
| TOTAL   | 378.7                      | ---                             | 1108.08                             | 112.2                      | ---                             | 3.65                                | 95.2                       | ---                             | 2.63                                |

## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | e3.0                       | 16                              | e.09                                | e3.5                       | 5                               | e.10                                | 4.1                        | 7                               | .08                                 |
| 2       | e3.2                       | 15                              | e.10                                | e3.4                       | 5                               | e.09                                | 4.0                        | 5                               | .05                                 |
| 3       | e3.0                       | 11                              | e.09                                | e3.4                       | 3                               | e.09                                | 4.7                        | 3                               | .04                                 |
| 4       | e3.1                       | 8                               | e.10                                | e15                        | 2                               | e9.0                                | 4.2                        | 2                               | .03                                 |
| 5       | e3.4                       | 7                               | e.09                                | e60                        | 19                              | e82                                 | 6.1                        | 14                              | .38                                 |
| 6       | e14                        | 10                              | e4.3                                | 6.2                        | 13                              | .24                                 | 4.8                        | 10                              | .13                                 |
| 7       | e24                        | 17                              | e33                                 | 5.0                        | 12                              | .17                                 | 19                         | 88                              | 20                                  |
| 8       | e10                        | 19                              | e2.5                                | 30                         | 66                              | 44                                  | 7.1                        | 28                              | .60                                 |
| 9       | e6.0                       | 18                              | e.30                                | 13                         | 68                              | 3.0                                 | 4.8                        | 17                              | .22                                 |
| 10      | e5.6                       | 12                              | e.28                                | 6.4                        | 27                              | .47                                 | 4.3                        | 13                              | .14                                 |
| 11      | e5.0                       | 7                               | e.25                                | 5.6                        | 16                              | .25                                 | 4.0                        | 9                               | .10                                 |
| 12      | e5.0                       | 5                               | e.25                                | 5.1                        | 5                               | .07                                 | 4.1                        | 7                               | .08                                 |
| 13      | e10                        | 10                              | e2.5                                | 4.8                        | 3                               | .04                                 | 4.1                        | 5                               | .06                                 |
| 14      | e9.0                       | 21                              | e1.7                                | 10                         | 34                              | 1.6                                 | 4.2                        | 4                               | .05                                 |
| 15      | e4.5                       | 22                              | e.17                                | 6.5                        | 25                              | .47                                 | 4.4                        | 4                               | .04                                 |
| 16      | e4.1                       | 19                              | e.15                                | 4.8                        | 15                              | .20                                 | 4.4                        | 3                               | .04                                 |
| 17      | e4.3                       | 35                              | e.16                                | 4.7                        | 11                              | .14                                 | 4.0                        | 3                               | .03                                 |
| 18      | e4.2                       | 58                              | e.16                                | 4.5                        | 8                               | .10                                 | 4.1                        | 2                               | .02                                 |
| 19      | e4.6                       | 19                              | e.17                                | 4.3                        | 6                               | .07                                 | 4.1                        | 2                               | .02                                 |
| 20      | e4.9                       | 5                               | e.19                                | 4.1                        | 4                               | .05                                 | 8.7                        | 27                              | 1.1                                 |
| 21      | e5.6                       | 11                              | e.28                                | 4.4                        | 6                               | .07                                 | 5.6                        | 19                              | .31                                 |
| 22      | e5.0                       | 3                               | e.25                                | 4.2                        | 9                               | .10                                 | 4.2                        | 8                               | .09                                 |
| 23      | e4.5                       | 3                               | e.17                                | 4.5                        | 11                              | .14                                 | 3.8                        | 4                               | .04                                 |
| 24      | e4.2                       | 3                               | e.16                                | 4.2                        | 7                               | .08                                 | 4.0                        | 11                              | .13                                 |
| 25      | e5.4                       | 5                               | e.28                                | 4.3                        | 6                               | .08                                 | 6.3                        | 17                              | .33                                 |
| 26      | e4.6                       | 6                               | e.17                                | 4.4                        | 14                              | .16                                 | 4.3                        | 4                               | .05                                 |
| 27      | e4.1                       | 6                               | e.15                                | 4.3                        | 11                              | .13                                 | 5.0                        | 8                               | .12                                 |
| 28      | e4.0                       | 7                               | e.14                                | 4.2                        | 9                               | .10                                 | 4.5                        | 6                               | .07                                 |
| 29      | e3.8                       | 6                               | e.11                                | ---                        | ---                             | ---                                 | 28                         | 144                             | 40                                  |
| 30      | e3.5                       | 5                               | e.10                                | ---                        | ---                             | ---                                 | 5.8                        | 70                              | 1.2                                 |
| 31      | e3.5                       | 5                               | e.10                                | ---                        | ---                             | ---                                 | 3.5                        | 24                              | .23                                 |
| TOTAL   | 179.1                      | ---                             | 48.46                               | 234.8                      | ---                             | 143.01                              | 184.2                      | ---                             | 65.78                               |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 3.3                        | 15                              | .13                                 | 3.6                        | 12                              | .12                                 | 3.7                        | 11                              | .11                                 |
| 2       | 3.5                        | 10                              | .09                                 | 4.3                        | 14                              | .17                                 | 3.4                        | 7                               | .07                                 |
| 3       | 3.3                        | 7                               | .06                                 | 4.8                        | 15                              | .25                                 | 3.5                        | 4                               | .04                                 |
| 4       | 3.2                        | 7                               | .06                                 | 4.6                        | 9                               | .11                                 | 8.6                        | 23                              | 1.9                                 |
| 5       | 3.2                        | 7                               | .06                                 | 4.2                        | 5                               | .06                                 | 3.5                        | 9                               | .08                                 |
| 6       | 3.1                        | 8                               | .07                                 | 4.1                        | 4                               | .05                                 | 3.4                        | 10                              | .09                                 |
| 7       | 4.2                        | 13                              | .22                                 | 4.2                        | 4                               | .04                                 | 3.2                        | 14                              | .12                                 |
| 8       | 4.1                        | 14                              | .16                                 | 6.0                        | 17                              | .36                                 | 3.1                        | 17                              | .14                                 |
| 9       | 3.3                        | 11                              | .10                                 | 4.9                        | 17                              | .23                                 | 3.0                        | 14                              | .11                                 |
| 10      | 3.2                        | 9                               | .08                                 | 4.2                        | 8                               | .09                                 | 3.0                        | 11                              | .09                                 |
| 11      | 3.2                        | 11                              | .09                                 | 3.6                        | 4                               | .04                                 | 3.5                        | 9                               | .09                                 |
| 12      | 3.6                        | 13                              | .13                                 | 3.6                        | 4                               | .04                                 | 4.3                        | 7                               | .09                                 |
| 13      | 4.6                        | 16                              | .23                                 | 3.6                        | 5                               | .05                                 | 5.1                        | 8                               | .12                                 |
| 14      | 3.3                        | 8                               | .07                                 | 14                         | 34                              | 4.6                                 | 4.0                        | 10                              | .11                                 |
| 15      | 3.7                        | 10                              | .17                                 | 6.1                        | 83                              | .49                                 | 3.7                        | 16                              | .16                                 |
| 16      | 8.4                        | 17                              | .87                                 | 3.4                        | 52                              | .11                                 | 4.7                        | 104                             | 1.4                                 |
| 17      | 4.2                        | 14                              | .16                                 | 6.6                        | 33                              | 1.9                                 | e5.6                       | 401                             | e.28                                |
| 18      | 3.6                        | 10                              | .10                                 | 3.3                        | 20                              | .10                                 | e4.0                       | 245                             | e.14                                |
| 19      | 3.5                        | 8                               | .08                                 | 3.1                        | 13                              | .09                                 | e3.0                       | 41                              | e.09                                |
| 20      | 3.8                        | 12                              | .12                                 | 6.7                        | 23                              | 1.4                                 | e2.8                       | 21                              | e.07                                |
| 21      | 4.6                        | 15                              | .28                                 | 4.4                        | 26                              | .32                                 | e4.1                       | 17                              | e.15                                |
| 22      | 3.8                        | 12                              | .13                                 | 3.1                        | 16                              | .14                                 | e4.2                       | 13                              | e.16                                |
| 23      | 3.9                        | 8                               | .09                                 | 3.1                        | 10                              | .09                                 | 3.2                        | 13                              | .11                                 |
| 24      | 3.6                        | 5                               | .05                                 | 3.5                        | 6                               | .06                                 | 19                         | 82                              | 18                                  |
| 25      | 3.6                        | 5                               | .05                                 | 3.2                        | 4                               | .03                                 | 4.4                        | 25                              | .30                                 |
| 26      | 3.7                        | 4                               | .04                                 | 5.5                        | 19                              | .40                                 | 3.0                        | 17                              | .13                                 |
| 27      | 4.2                        | 15                              | .17                                 | 4.6                        | 7                               | .09                                 | 3.0                        | 13                              | .11                                 |
| 28      | 3.7                        | 11                              | .11                                 | 3.8                        | 8                               | .09                                 | 3.3                        | 17                              | .15                                 |
| 29      | 3.6                        | 8                               | .08                                 | 3.9                        | 15                              | .16                                 | 3.0                        | 22                              | .18                                 |
| 30      | 3.6                        | 9                               | .09                                 | 4.0                        | 14                              | .15                                 | 2.7                        | 19                              | .14                                 |
| 31      | ---                        | ---                             | ---                                 | 4.0                        | 13                              | .14                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 114.6                      | ---                             | 4.14                                | 142.0                      | ---                             | 11.97                               | 129.0                      | ---                             | 24.73                               |

## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 2.9                        | 16                                   | .13                                 | 2.9                        | 9                                    | .07                                 | 3.5                        | 11                                   | .10                                 |
| 2     | 11                         | 11                                   | 4.7                                 | 3.1                        | 11                                   | .10                                 | 5.4                        | 18                                   | .39                                 |
| 3     | 5.9                        | 10                                   | .40                                 | 2.8                        | 5                                    | .04                                 | 6.0                        | 20                                   | .41                                 |
| 4     | 4.1                        | 10                                   | .17                                 | 2.7                        | 4                                    | .03                                 | 14                         | 222                                  | 11                                  |
| 5     | 3.3                        | 9                                    | .11                                 | 2.9                        | 3                                    | .03                                 | 9.5                        | 25                                   | 1.4                                 |
| 6     | 15                         | 104                                  | 22                                  | e3.2                       | 3                                    | e.10                                | 5.3                        | 19                                   | .28                                 |
| 7     | 5.3                        | 29                                   | .45                                 | 15                         | 30                                   | 3.3                                 | 3.6                        | 14                                   | .13                                 |
| 8     | 3.5                        | 20                                   | .19                                 | 31                         | 26                                   | 70                                  | 9.2                        | 58                                   | 2.7                                 |
| 9     | 3.3                        | 15                                   | .13                                 | 5.6                        | 17                                   | .33                                 | 4.3                        | 20                                   | .24                                 |
| 10    | 3.3                        | 11                                   | .10                                 | 3.3                        | 12                                   | .10                                 | 3.6                        | 15                                   | .15                                 |
| 11    | 3.5                        | 11                                   | .13                                 | 2.8                        | 10                                   | .08                                 | 3.4                        | 11                                   | .10                                 |
| 12    | 2.9                        | 10                                   | .08                                 | 3.7                        | 9                                    | .09                                 | 3.3                        | 7                                    | .06                                 |
| 13    | 3.1                        | 9                                    | .08                                 | 3.1                        | 7                                    | .06                                 | 3.8                        | 14                                   | .16                                 |
| 14    | 2.6                        | 11                                   | .08                                 | 2.9                        | 5                                    | .04                                 | 3.5                        | 7                                    | .07                                 |
| 15    | 3.0                        | 12                                   | .10                                 | 3.0                        | 6                                    | .05                                 | 4.5                        | 14                                   | .19                                 |
| 16    | 3.2                        | 15                                   | .14                                 | 3.0                        | 7                                    | .06                                 | 3.6                        | 10                                   | .10                                 |
| 17    | 3.0                        | 24                                   | .19                                 | 4.3                        | 24                                   | .41                                 | 3.6                        | 10                                   | .09                                 |
| 18    | 14                         | 52                                   | 3.9                                 | 11                         | 42                                   | 3.5                                 | 3.2                        | 10                                   | .09                                 |
| 19    | 3.8                        | 20                                   | .21                                 | 3.8                        | 16                                   | .18                                 | 3.4                        | 15                                   | .12                                 |
| 20    | 25                         | 127                                  | 26                                  | 3.8                        | 13                                   | .17                                 | 5.2                        | 41                                   | .55                                 |
| 21    | 5.0                        | 36                                   | .52                                 | 12                         | 53                                   | 2.1                                 | 139                        | 348                                  | 794                                 |
| 22    | 3.2                        | 19                                   | .16                                 | 14                         | 19                                   | 3.1                                 | 532                        | 1610                                 | 2970                                |
| 23    | 13                         | 55                                   | 4.7                                 | 4.9                        | 13                                   | .25                                 | e35                        | 311                                  | e150                                |
| 24    | 4.3                        | 23                                   | .30                                 | 80                         | 445                                  | 229                                 | e17                        | 53                                   | e20                                 |
| 25    | 2.9                        | 10                                   | .08                                 | 60                         | 308                                  | 82                                  | e14                        | 24                                   | e4.3                                |
| 26    | 2.8                        | 10                                   | .09                                 | 7.7                        | 27                                   | .57                                 | e17                        | 16                                   | e20                                 |
| 27    | 11                         | 43                                   | 2.6                                 | 36                         | 387                                  | 150                                 | e15                        | 11                                   | e9.0                                |
| 28    | 5.8                        | 23                                   | .40                                 | 9.7                        | 146                                  | 4.0                                 | e15                        | 8                                    | e9.0                                |
| 29    | 3.0                        | 14                                   | .11                                 | 5.4                        | 65                                   | .95                                 | e13                        | 7                                    | e6.0                                |
| 30    | 2.7                        | 12                                   | .09                                 | 4.3                        | 27                                   | .31                                 | e11                        | 6                                    | e2.9                                |
| 31    | 2.9                        | 10                                   | .08                                 | 3.8                        | 12                                   | .13                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 178.3                      | ---                                  | 68.42                               | 351.7                      | ---                                  | 551.15                              | 909.9                      | ---                                  | 4003.53                             |
| YEAR  | 3009.7                     |                                      | 6035.55                             |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>D (MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>D (T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|
| AUG   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 18... | 1520 | 102                                                                   | 206                                                    | 57                                                                         | 97                                                                       |
| 24... | 2055 | 170                                                                   | 947                                                    | 435                                                                        | 99                                                                       |
| 25... | 1045 | 64                                                                    | 493                                                    | 85                                                                         | 99                                                                       |
| 27... | 1955 | 63                                                                    | 1390                                                   | 236                                                                        | 99                                                                       |
| SEP   |      |                                                                       |                                                        |                                                                            |                                                                          |
| 21... | 1830 | 91                                                                    | 274                                                    | 67                                                                         | 98                                                                       |
| 22... | 0300 | 1180                                                                  | 2920                                                   | 9300                                                                       | 74                                                                       |

## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued  
 WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| AUG<br>24... | 1640 | 252                                                                     | 2340                                                                    | 1590                                                                     | 56                                                                       | 71                                                                       | 85                                                                       |                                                                          |
| SEP<br>21... | 2210 | 653                                                                     | 1790                                                                    | 3160                                                                     | 50                                                                       | 63                                                                       | 74                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| AUG<br>24... | 93   | 97                                                                      | 97                                                                      | 99                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| SEP<br>21... | 84   | 91                                                                      | 93                                                                      | 98                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50055400 RIO BAIROA NEAR CAGUAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'28", Long 66°02'13", at bridge on Highway 1, about 2.5 mi (4.0 km) upstream from Río Grande de Loíza, and 1.4 mi (2.3 km) north of Caguas plaza.

DRAINAGE AREA.--5.4 mi<sup>2</sup> (14.0 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958, 1962-66, 1973-74, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 21... | 1115 | 5.4                                             | 469                                     | 7.2                                      | 26.0                               | 1.6                       | 4.9                               | 61                                                | 22                                                   | 18000                                               | 500                                             |
| FEB 20... | 0935 | 5.0                                             | 461                                     | 7.2                                      | 24.0                               | 1.0                       | 3.8                               | 45                                                | <10                                                  | 26000                                               | 2400                                            |
| MAY 26... | 1100 | 3.2                                             | 449                                     | 7.2                                      | 28.5                               | 2.3                       | 2.2                               | 28                                                | 17                                                   | 67000                                               | 28000                                           |
| AUG 20... | 0755 | 4.4                                             | 389                                     | 6.9                                      | 26.0                               | 3.8                       | 3.5                               | 44                                                | <10                                                  | 12000                                               | 6400                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 21... | 180                                     | 49                                      | 13                                          | 30                                      | 1                                 | 3.4                                        | 180                                                 | <1.0                              | 17                                       | 39                                         |
| FEB 20... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 160                                                 | --                                | --                                       | --                                         |
| MAY 26... | 150                                     | 36                                      | 14                                          | 28                                      | 1                                 | 5.1                                        | 160                                                 | --                                | 14                                       | 38                                         |
| AUG 20... | 140                                     | 34                                      | 13                                          | 22                                      | .8                                | 4.8                                        | 130                                                 | <1.0                              | 13                                       | 29                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+N03 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 21... | .10                                       | 33                                        | 274                                                     | 3.99                                      | 5                                                      | .440                                         | .030                                         | .470                                         | .110                                         | .89                                          |
| FEB 20... | --                                        | --                                        | --                                                      | --                                        | 3                                                      | 1.46                                         | .340                                         | 1.80                                         | .570                                         | .40                                          |
| MAY 26... | .15                                       | 28                                        | 260                                                     | 2.27                                      | 11                                                     | .074                                         | .036                                         | .110                                         | 2.00                                         | .50                                          |
| AUG 20... | .14                                       | 28                                        | 222                                                     | 2.61                                      | 9                                                      | 1.75                                         | .150                                         | 1.90                                         | .220                                         | .40                                          |

## RIO GRANDE DE LOIZA BASIN

50055400 RIO BAIROA NEAR CAGUAS, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR

LOCATION.--Lat 18°14'02", long 65°53'07", Hydrologic Unit 21010005, on left bank, 2.43 mi (3.91 km) northeast of Plaza de Juncos, 1.3 mi (2.1 km) southeast of Escuela La Placita and 0.35 mi (0.56 km) southwest of El Mango.

DRAINAGE AREA.--22.3 mi<sup>2</sup> (57.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Low-flow is affected by sewage discharges from a water treatment plant, 0.60 mi (0.96 m) upstream from gaging station since 1990.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV    | DEC   | JAN    | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG    | SEP    |
|-------|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|--------|
| 1     | 13     | 12     | 22    | 6.8    | 6.9   | 6.9   | 7.6   | 5.0   | 25    | 4.8   | 7.1    | 17     |
| 2     | 359    | 11     | 15    | 8.9    | 7.0   | 6.8   | 11    | 4.9   | 12    | 4.7   | 6.6    | 104    |
| 3     | 58     | 10     | 12    | 10     | 6.6   | 7.1   | 13    | 5.1   | 9.9   | 6.0   | 6.0    | 90     |
| 4     | 17     | 9.3    | 11    | 13     | 6.6   | 6.7   | 8.1   | 10    | 8.7   | 45    | 5.8    | 31     |
| 5     | 12     | 9.5    | 10    | 18     | 254   | 6.3   | 7.0   | 9.4   | 8.1   | 16    | 5.8    | 17     |
| 6     | 8.8    | 10     | 9.6   | 227    | 29    | 6.3   | 6.8   | 6.2   | 8.6   | 7.7   | 6.1    | 55     |
| 7     | 7.0    | 9.1    | 9.2   | 430    | 16    | 7.4   | 6.6   | 5.7   | 11    | 16    | 35     | 54     |
| 8     | 47     | 9.1    | 8.6   | 64     | 51    | 8.0   | 6.4   | 21    | 25    | 10    | 21     | 68     |
| 9     | 18     | 17     | 8.3   | 69     | 132   | 6.0   | 6.2   | 26    | 16    | 7.1   | 36     | 52     |
| 10    | 8.3    | 408    | 8.2   | 78     | 22    | 5.5   | 6.0   | 15    | 12    | 6.4   | 25     | 19     |
| 11    | 9.9    | 29     | 7.6   | 133    | 15    | 4.9   | 6.5   | 8.7   | 8.5   | 6.1   | 9.9    | 12     |
| 12    | 79     | 16     | 7.3   | 39     | 15    | 5.0   | 7.5   | 6.9   | 48    | 11    | 9.5    | 9.6    |
| 13    | 319    | 15     | 7.6   | 29     | 13    | 5.1   | 9.9   | 8.5   | 58    | 5.9   | 7.6    | 13     |
| 14    | 1680   | 12     | 6.9   | 24     | 24    | 5.4   | 8.1   | 22    | 13    | 5.6   | 6.5    | 77     |
| 15    | 95     | 13     | 7.9   | 16     | 31    | 7.4   | 7.2   | 14    | 9.1   | 19    | 6.0    | 128    |
| 16    | 74     | 12     | 7.8   | 14     | 15    | 7.8   | 18    | 15    | 9.4   | 80    | 30     | 56     |
| 17    | 61     | 12     | 12    | 12     | 14    | 6.0   | 15    | 20    | 11    | 19    | 152    | 19     |
| 18    | 38     | 12     | 15    | 11     | 11    | 5.2   | 8.6   | 9.8   | 17    | 25    | 29     | 90     |
| 19    | 30     | 16     | 11    | 11     | 10    | 4.5   | 7.4   | 7.1   | 23    | 59    | 71     | 108    |
| 20    | 24     | 11     | 8.2   | 11     | 9.6   | 6.0   | 6.9   | 6.5   | 9.8   | 234   | 76     | 26     |
| 21    | 21     | 11     | 12    | 10     | 9.0   | 7.6   | 7.0   | 12    | 29    | 83    | 136    | 2250   |
| 22    | 19     | 13     | 10    | 9.4    | 8.6   | 7.8   | 8.3   | 9.4   | 26    | 32    | 159    | e2260  |
| 23    | 16     | 11     | 34    | 8.5    | 8.1   | 7.1   | 6.5   | 13    | 9.8   | 42    | 34     | e93    |
| 24    | 15     | 11     | 16    | 8.3    | 8.0   | 5.5   | 5.8   | 11    | 7.5   | 115   | 914    | e46    |
| 25    | 14     | 10     | 9.7   | 7.8    | 7.8   | 6.1   | 6.7   | 8.9   | 6.9   | 32    | 792    | e35    |
| 26    | 14     | 462    | 8.4   | 7.6    | 7.7   | 5.5   | 6.4   | 30    | 7.1   | 13    | 325    | e37    |
| 27    | 13     | 43     | 8.0   | 7.5    | 7.3   | 7.0   | 6.1   | 99    | 5.8   | 11    | 125    | e27    |
| 28    | 12     | 20     | 7.7   | 7.1    | 7.0   | 7.5   | 6.0   | 16    | 5.4   | 40    | 56     | e34    |
| 29    | 11     | 21     | 7.2   | 7.1    | ---   | 13    | 5.7   | 13    | 5.2   | 18    | 230    | e34    |
| 30    | 11     | 32     | 6.6   | 7.0    | ---   | 15    | 5.2   | 74    | 5.3   | 9.9   | 48     | e31    |
| 31    | 11     | ---    | 6.8   | 6.9    | ---   | 16    | ---   | 84    | ---   | 8.1   | 26     | ---    |
| TOTAL | 3115.0 | 1287.0 | 331.6 | 1311.9 | 752.2 | 222.4 | 237.5 | 597.1 | 451.1 | 992.3 | 3396.9 | 5892.6 |
| MEAN  | 100    | 42.9   | 10.7  | 42.3   | 26.9  | 7.17  | 7.92  | 19.3  | 15.0  | 32.0  | 110    | 196    |
| MAX   | 1680   | 462    | 34    | 430    | 254   | 16    | 18    | 99    | 58    | 234   | 914    | 2260   |
| MIN   | 7.0    | 9.1    | 6.6   | 6.8    | 6.6   | 4.5   | 5.2   | 4.9   | 5.2   | 4.7   | 5.8    | 9.6    |
| AC-FT | 6180   | 2550   | 658   | 2600   | 1490  | 441   | 471   | 1180  | 895   | 1970  | 6740   | 11690  |
| CFSM  | 4.51   | 1.92   | .48   | 1.90   | 1.20  | .32   | .36   | .86   | .67   | 1.44  | 4.91   | 8.81   |
| IN.   | 5.20   | 2.15   | .55   | 2.19   | 1.25  | .37   | .40   | 1.00  | .75   | 1.66  | 5.67   | 9.83   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 50.8 | 63.8 | 27.4 | 39.3 | 31.6 | 11.4 | 8.54 | 25.9 | 45.2 | 47.0 | 44.0 | 90.4 |
| MAX  | 161  | 109  | 59.0 | 103  | 66.7 | 18.1 | 11.0 | 123  | 117  | 147  | 110  | 196  |
| (WY) | 1991 | 1992 | 1991 | 1996 | 1995 | 1991 | 1993 | 1992 | 1992 | 1993 | 1998 | 1998 |
| MIN  | 4.01 | 13.6 | 10.7 | 6.34 | 10.4 | 5.63 | 5.29 | 4.83 | 14.7 | 6.74 | 10.2 | 21.4 |
| (WY) | 1993 | 1996 | 1998 | 1995 | 1993 | 1993 | 1995 | 1990 | 1991 | 1994 | 1993 | 1997 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

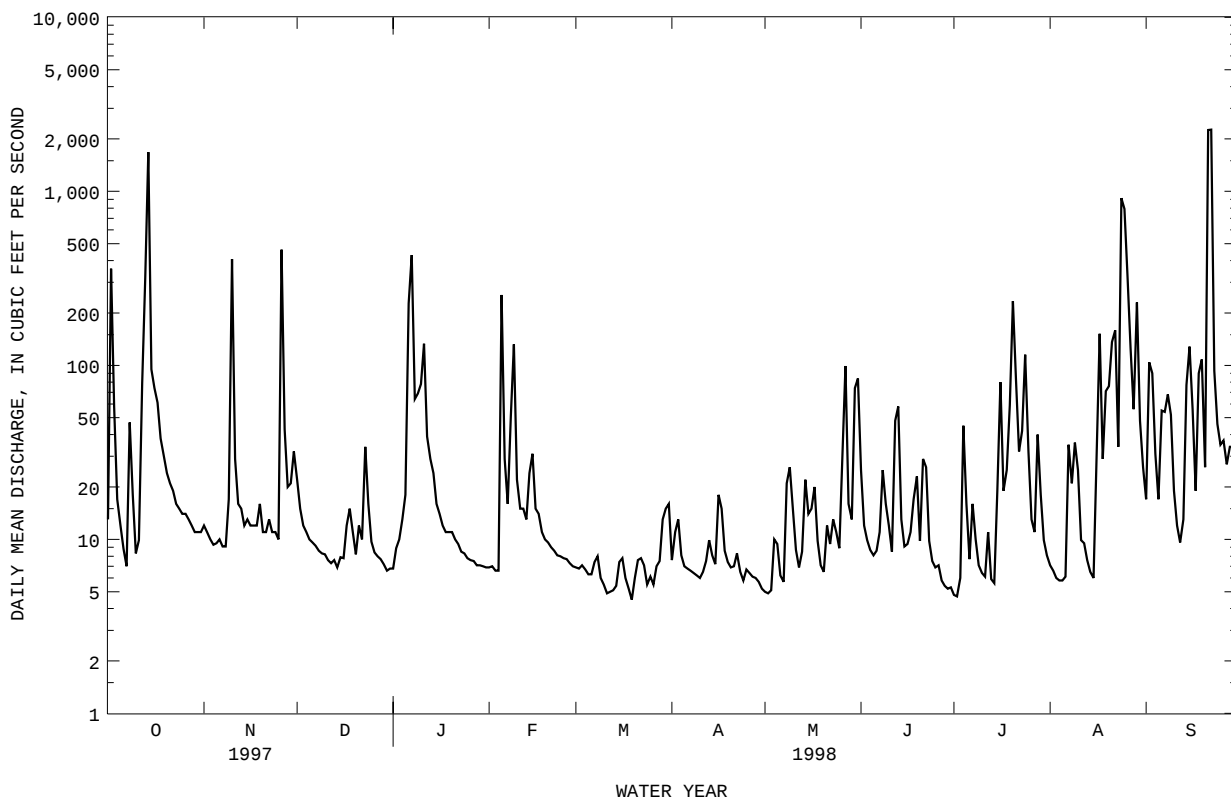
## FOR 1998 WATER YEAR

## WATER YEARS 1990 - 1998

|                          |         |         |       |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL             | 11223.9 | 18587.6 |       |
| ANNUAL MEAN              | 30.8    | 50.9    | 41.6  |
| HIGHEST ANNUAL MEAN      |         |         | 52.3  |
| LOWEST ANNUAL MEAN       |         |         | 22.0  |
| HIGHEST DAILY MEAN       | 1680    | Oct 14  | 4040  |
| LOWEST DAILY MEAN        | 4.1     | May 4   | 1.1   |
| ANNUAL SEVEN-DAY MINIMUM | 4.5     | Apr 30  | 5.3   |
| INSTANTANEOUS PEAK FLOW  |         |         | 15400 |
| INSTANTANEOUS PEAK STAGE |         |         | 22.72 |
| ANNUAL RUNOFF (AC-FT)    | 22260   | 36870   | 30160 |
| ANNUAL RUNOFF (CFSM)     | 1.38    | 2.28    | 1.87  |
| ANNUAL RUNOFF (INCHES)   | 18.72   | 31.01   | 25.36 |
| 10 PERCENT EXCEEDS       | 44      | 76      | 69    |
| 50 PERCENT EXCEEDS       | 11      | 11      | 11    |
| 90 PERCENT EXCEEDS       | 5.6     | 6.1     | 4.6   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50055750 RIO GURABO BELOW EL MANGO, PR



## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

PERIOD OF RECORDS.-- Water Year 1990 to current year.

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to current year.

INSTRUMENTATION.--USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,400 mg/L September 22, 1998; Minimum daily mean, 2 mg/L May 5, 1997.

SEDIMENT LOADS: Maximum daily mean, 51,000 tons (46,300 tonnes) September 21, 1998; Minimum daily mean, 0.05 ton (0.3 tonne) several days.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,400 mg/L September 22, 1998; Minimum daily mean, 5 mg/L April 25, 1998.

SEDIMENT LOADS: Maximum daily mean, 51,000 tons (46,300 tonnes) September 21, 1998; Minimum daily mean, 0.10 ton (0.09 tonne) April 25, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 13                         | 32                                   | 1.2                                 | 12                         | 44                                   | 1.5                                 | 22                         | 60                                   | 3.7                                 |
| 2       | 359                        | 512                                  | 1260                                | 11                         | 53                                   | 1.6                                 | 15                         | 57                                   | 2.3                                 |
| 3       | 58                         | 200                                  | 42                                  | 10                         | 59                                   | 1.6                                 | 12                         | 57                                   | 1.9                                 |
| 4       | 17                         | 63                                   | 2.9                                 | 9.3                        | 65                                   | 1.6                                 | 11                         | 72                                   | 2.1                                 |
| 5       | 12                         | 63                                   | 2.0                                 | 9.5                        | 76                                   | 2.0                                 | 10                         | 88                                   | 2.4                                 |
| 6       | 8.8                        | 62                                   | 1.5                                 | 10                         | 88                                   | 2.5                                 | 9.6                        | 80                                   | 2.1                                 |
| 7       | 7.0                        | 62                                   | 1.2                                 | 9.1                        | 70                                   | 1.7                                 | 9.2                        | 70                                   | 1.7                                 |
| 8       | 47                         | 170                                  | 57                                  | 9.1                        | 45                                   | 1.1                                 | 8.6                        | 61                                   | 1.4                                 |
| 9       | 18                         | 64                                   | 3.6                                 | 17                         | 56                                   | 2.8                                 | 8.3                        | 58                                   | 1.3                                 |
| 10      | 8.3                        | 27                                   | .61                                 | 408                        | 642                                  | 2710                                | 8.2                        | 55                                   | 1.2                                 |
| 11      | 9.9                        | 36                                   | 1.2                                 | 29                         | 79                                   | 6.6                                 | 7.6                        | 53                                   | 1.1                                 |
| 12      | 79                         | 198                                  | 139                                 | 16                         | 58                                   | 2.5                                 | 7.3                        | 51                                   | 1.0                                 |
| 13      | 319                        | 275                                  | 1810                                | 15                         | 56                                   | 2.3                                 | 7.6                        | 50                                   | 1.0                                 |
| 14      | 1680                       | 1540                                 | 19700                               | 12                         | 32                                   | 1.1                                 | 6.9                        | 49                                   | .91                                 |
| 15      | 95                         | 72                                   | 18                                  | 13                         | 27                                   | 1.1                                 | 7.9                        | 49                                   | 1.0                                 |
| 16      | 74                         | 105                                  | 21                                  | 12                         | 32                                   | 1.1                                 | 7.8                        | 55                                   | 1.1                                 |
| 17      | 61                         | 166                                  | 32                                  | 12                         | 21                                   | .69                                 | 12                         | 60                                   | 1.9                                 |
| 18      | 38                         | 245                                  | 25                                  | 12                         | 13                                   | .43                                 | 15                         | 55                                   | 2.2                                 |
| 19      | 30                         | 173                                  | 14                                  | 16                         | 76                                   | 3.3                                 | 11                         | 49                                   | 1.5                                 |
| 20      | 24                         | 127                                  | 8.1                                 | 11                         | 88                                   | 2.7                                 | 8.2                        | 51                                   | 1.1                                 |
| 21      | 21                         | 94                                   | 5.3                                 | 11                         | 91                                   | 2.6                                 | 12                         | 54                                   | 1.8                                 |
| 22      | 19                         | 86                                   | 4.4                                 | 13                         | 74                                   | 2.6                                 | 10                         | 55                                   | 1.5                                 |
| 23      | 16                         | 81                                   | 3.6                                 | 11                         | 58                                   | 1.7                                 | 34                         | 111                                  | 17                                  |
| 24      | 15                         | 59                                   | 2.4                                 | 11                         | 46                                   | 1.3                                 | 16                         | 59                                   | 2.9                                 |
| 25      | 14                         | 43                                   | 1.6                                 | 10                         | 34                                   | .96                                 | 9.7                        | 30                                   | .78                                 |
| 26      | 14                         | 38                                   | 1.4                                 | 462                        | 812                                  | 2320                                | 8.4                        | 27                                   | .61                                 |
| 27      | 13                         | 34                                   | 1.2                                 | 43                         | 121                                  | 15                                  | 8.0                        | 27                                   | .58                                 |
| 28      | 12                         | 26                                   | .85                                 | 20                         | 66                                   | 3.7                                 | 7.7                        | 27                                   | .55                                 |
| 29      | 11                         | 19                                   | .57                                 | 21                         | 62                                   | 4.4                                 | 7.2                        | 27                                   | .51                                 |
| 30      | 11                         | 15                                   | .43                                 | 32                         | 84                                   | 7.3                                 | 6.6                        | 26                                   | .43                                 |
| 31      | 11                         | 24                                   | .69                                 | ---                        | ---                                  | ---                                 | 6.8                        | 26                                   | .48                                 |
| TOTAL   | 3115.0                     | ---                                  | 23162.75                            | 1287.0                     | ---                                  | 5107.78                             | 331.6                      | ---                                  | 60.05                               |

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 6.8                        | 26                              | .48                                 | 6.9                        | 43                              | .80                                 | 6.9                        | 7                               | .13                                 |
| 2       | 8.9                        | 26                              | .63                                 | 7.0                        | 38                              | .71                                 | 6.8                        | 7                               | .13                                 |
| 3       | 10                         | 35                              | 1.0                                 | 6.6                        | 30                              | .54                                 | 7.1                        | 9                               | .18                                 |
| 4       | 13                         | 46                              | 1.7                                 | 6.6                        | 23                              | .41                                 | 6.7                        | 13                              | .24                                 |
| 5       | 18                         | 58                              | 3.0                                 | 254                        | 385                             | 595                                 | 6.3                        | 13                              | .23                                 |
| 6       | 227                        | 522                             | 693                                 | 29                         | 44                              | 3.4                                 | 6.3                        | 12                              | .20                                 |
| 7       | 430                        | 853                             | 2420                                | 16                         | 52                              | 2.3                                 | 7.4                        | 14                              | .34                                 |
| 8       | 64                         | 173                             | 36                                  | 51                         | 103                             | 112                                 | 8.0                        | 45                              | .98                                 |
| 9       | 69                         | 152                             | 52                                  | 132                        | 354                             | 287                                 | 6.0                        | 41                              | .66                                 |
| 10      | 78                         | 184                             | 81                                  | 22                         | 47                              | 2.8                                 | 5.5                        | 39                              | .58                                 |
| 11      | 133                        | 166                             | 144                                 | 15                         | 44                              | 1.9                                 | 4.9                        | 37                              | .49                                 |
| 12      | 39                         | 27                              | 3.3                                 | 15                         | 46                              | 1.8                                 | 5.0                        | 35                              | .48                                 |
| 13      | 29                         | 18                              | 1.7                                 | 13                         | 50                              | 1.7                                 | 5.1                        | 33                              | .46                                 |
| 14      | 24                         | 9                               | .56                                 | 24                         | 81                              | 8.5                                 | 5.4                        | 31                              | .45                                 |
| 15      | 16                         | 11                              | .46                                 | 31                         | 92                              | 8.9                                 | 7.4                        | 29                              | .58                                 |
| 16      | 14                         | 10                              | .38                                 | 15                         | 47                              | 1.9                                 | 7.8                        | 26                              | .54                                 |
| 17      | 12                         | 9                               | .31                                 | 14                         | 49                              | 1.9                                 | 6.0                        | 19                              | .31                                 |
| 18      | 11                         | 9                               | .26                                 | 11                         | 58                              | 1.7                                 | 5.2                        | 14                              | .20                                 |
| 19      | 11                         | 8                               | .24                                 | 10                         | 51                              | 1.4                                 | 4.5                        | 11                              | .13                                 |
| 20      | 11                         | 8                               | .24                                 | 9.6                        | 40                              | 1.0                                 | 6.0                        | 8                               | .13                                 |
| 21      | 10                         | 9                               | .24                                 | 9.0                        | 31                              | .75                                 | 7.6                        | 6                               | .13                                 |
| 22      | 9.4                        | 9                               | .24                                 | 8.6                        | 28                              | .65                                 | 7.8                        | 7                               | .14                                 |
| 23      | 8.5                        | 10                              | .23                                 | 8.1                        | 27                              | .59                                 | 7.1                        | 8                               | .15                                 |
| 24      | 8.3                        | 11                              | .24                                 | 8.0                        | 31                              | .68                                 | 5.5                        | 8                               | .11                                 |
| 25      | 7.8                        | 12                              | .25                                 | 7.8                        | 38                              | .79                                 | 6.1                        | 7                               | .12                                 |
| 26      | 7.6                        | 13                              | .27                                 | 7.7                        | 32                              | .66                                 | 5.5                        | 8                               | .12                                 |
| 27      | 7.5                        | 20                              | .41                                 | 7.3                        | 23                              | .46                                 | 7.0                        | 10                              | .19                                 |
| 28      | 7.1                        | 35                              | .68                                 | 7.0                        | 10                              | .19                                 | 7.5                        | 12                              | .23                                 |
| 29      | 7.1                        | 43                              | .82                                 | ---                        | ---                             | ---                                 | 13                         | 12                              | .40                                 |
| 30      | 7.0                        | 45                              | .86                                 | ---                        | ---                             | ---                                 | 15                         | 25                              | 2.6                                 |
| 31      | 6.9                        | 47                              | .88                                 | ---                        | ---                             | ---                                 | 16                         | 52                              | 2.8                                 |
| TOTAL   | 1311.9                     | ---                             | 3445.38                             | 752.2                      | ---                             | 1040.43                             | 222.4                      | ---                             | 14.43                               |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 7.6                        | 17                              | .35                                 | 5.0                        | 17                              | .23                                 | 25                         | 78                              | 5.7                                 |
| 2       | 11                         | 21                              | .84                                 | 4.9                        | 16                              | .22                                 | 12                         | 36                              | 1.2                                 |
| 3       | 13                         | 29                              | 1.0                                 | 5.1                        | 15                              | .20                                 | 9.9                        | 30                              | .80                                 |
| 4       | 8.1                        | 18                              | .39                                 | 10                         | 16                              | 1.0                                 | 8.7                        | 28                              | .65                                 |
| 5       | 7.0                        | 18                              | .34                                 | 9.4                        | 20                              | .79                                 | 8.1                        | 26                              | .57                                 |
| 6       | 6.8                        | 20                              | .36                                 | 6.2                        | 22                              | .37                                 | 8.6                        | 24                              | .56                                 |
| 7       | 6.6                        | 15                              | .26                                 | 5.7                        | 20                              | .31                                 | 11                         | 28                              | 1.1                                 |
| 8       | 6.4                        | 10                              | .18                                 | 21                         | 74                              | 13                                  | 25                         | 41                              | 4.9                                 |
| 9       | 6.2                        | 8                               | .14                                 | 26                         | 93                              | 8.1                                 | 16                         | 44                              | 1.9                                 |
| 10      | 6.0                        | 7                               | .12                                 | 15                         | 67                              | 1.9                                 | 12                         | 35                              | 1.1                                 |
| 11      | 6.5                        | 6                               | .11                                 | 8.7                        | 60                              | .67                                 | 8.5                        | 27                              | .63                                 |
| 12      | 7.5                        | 5                               | .11                                 | 6.9                        | 54                              | .43                                 | 48                         | 111                             | 35                                  |
| 13      | 9.9                        | 12                              | .37                                 | 8.5                        | 48                              | .72                                 | 58                         | 192                             | 43                                  |
| 14      | 8.1                        | 10                              | .21                                 | 22                         | 43                              | 4.1                                 | 13                         | 49                              | 1.7                                 |
| 15      | 7.2                        | 7                               | .13                                 | 14                         | 38                              | 1.7                                 | 9.1                        | 46                              | 1.1                                 |
| 16      | 18                         | 45                              | 4.7                                 | 15                         | 34                              | 1.9                                 | 9.4                        | 44                              | 1.1                                 |
| 17      | 15                         | 52                              | 2.3                                 | 20                         | 31                              | 3.3                                 | 11                         | 41                              | 1.3                                 |
| 18      | 8.6                        | 28                              | .64                                 | 9.8                        | 27                              | .84                                 | 17                         | 46                              | 2.2                                 |
| 19      | 7.4                        | 23                              | .47                                 | 7.1                        | 25                              | .47                                 | 23                         | 56                              | 4.2                                 |
| 20      | 6.9                        | 20                              | .37                                 | 6.5                        | 24                              | .42                                 | 9.8                        | 25                              | .66                                 |
| 21      | 7.0                        | 19                              | .35                                 | 12                         | 31                              | 1.0                                 | 29                         | 74                              | 11                                  |
| 22      | 8.3                        | 18                              | .40                                 | 9.4                        | 13                              | .33                                 | 26                         | 100                             | 7.4                                 |
| 23      | 6.5                        | 13                              | .22                                 | 13                         | 10                              | 1.5                                 | 9.8                        | 60                              | 1.6                                 |
| 24      | 5.8                        | 8                               | .13                                 | 11                         | 10                              | 1.1                                 | 7.5                        | 36                              | .74                                 |
| 25      | 6.7                        | 6                               | .10                                 | 8.9                        | 10                              | .70                                 | 6.9                        | 30                              | .56                                 |
| 26      | 6.4                        | 8                               | .13                                 | 30                         | 61                              | 18                                  | 7.1                        | 28                              | .55                                 |
| 27      | 6.1                        | 12                              | .19                                 | 99                         | 328                             | 144                                 | 5.8                        | 27                              | .42                                 |
| 28      | 6.0                        | 13                              | .20                                 | 16                         | 52                              | 2.3                                 | 5.4                        | 25                              | .37                                 |
| 29      | 5.7                        | 12                              | .19                                 | 13                         | 38                              | 1.3                                 | 5.2                        | 26                              | .37                                 |
| 30      | 5.2                        | 14                              | .20                                 | 74                         | 188                             | 61                                  | 5.3                        | 28                              | .40                                 |
| 31      | ---                        | ---                             | ---                                 | 84                         | 241                             | 72                                  | ---                        | ---                             | ---                                 |
| TOTAL   | 237.5                      | ---                             | 15.50                               | 597.1                      | ---                             | 343.90                              | 451.1                      | ---                             | 132.78                              |

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 4.8                        | 29                                   | .38                                 | 7.1                        | 10                                   | .19                                 | 17                         | 63                                   | 3.0                                 |
| 2     | 4.7                        | 28                                   | .35                                 | 6.6                        | 10                                   | .18                                 | 104                        | 279                                  | 160                                 |
| 3     | 6.0                        | 25                                   | .40                                 | 6.0                        | 10                                   | .16                                 | 90                         | 227                                  | 60                                  |
| 4     | 45                         | 161                                  | 25                                  | 5.8                        | 10                                   | .16                                 | 31                         | 108                                  | 9.2                                 |
| 5     | 16                         | 64                                   | 3.0                                 | 5.8                        | 11                                   | .17                                 | 17                         | 66                                   | 3.2                                 |
| 6     | 7.7                        | 33                                   | .70                                 | 6.1                        | 12                                   | .20                                 | 55                         | 153                                  | 44                                  |
| 7     | 16                         | 41                                   | 2.3                                 | 35                         | 85                                   | 32                                  | 54                         | 168                                  | 24                                  |
| 8     | 10                         | 18                                   | .56                                 | 21                         | 102                                  | 7.5                                 | 68                         | 112                                  | 20                                  |
| 9     | 7.1                        | 9                                    | .18                                 | 36                         | 101                                  | 15                                  | 52                         | 75                                   | 11                                  |
| 10    | 6.4                        | 8                                    | .14                                 | 25                         | 87                                   | 7.5                                 | 19                         | 55                                   | 2.8                                 |
| 11    | 6.1                        | 9                                    | .14                                 | 9.9                        | 32                                   | .87                                 | 12                         | 45                                   | 1.5                                 |
| 12    | 11                         | 42                                   | 1.3                                 | 9.5                        | 30                                   | .76                                 | 9.6                        | 37                                   | .96                                 |
| 13    | 5.9                        | 28                                   | .45                                 | 7.6                        | 27                                   | .55                                 | 13                         | 41                                   | 2.1                                 |
| 14    | 5.6                        | 16                                   | .24                                 | 6.5                        | 25                                   | .43                                 | 77                         | 185                                  | 72                                  |
| 15    | 19                         | 36                                   | 7.3                                 | 6.0                        | 22                                   | .36                                 | 128                        | 296                                  | 131                                 |
| 16    | 80                         | 186                                  | 45                                  | 30                         | 68                                   | 24                                  | 56                         | 85                                   | 13                                  |
| 17    | 19                         | 30                                   | 2.0                                 | 152                        | 415                                  | 306                                 | 19                         | 53                                   | 2.8                                 |
| 18    | 25                         | 41                                   | 6.2                                 | 29                         | 85                                   | 8.9                                 | 90                         | 277                                  | 184                                 |
| 19    | 59                         | 160                                  | 27                                  | 71                         | 203                                  | 136                                 | 108                        | 170                                  | 54                                  |
| 20    | 234                        | 568                                  | 677                                 | 76                         | 224                                  | 59                                  | 26                         | 85                                   | 6.1                                 |
| 21    | 83                         | 186                                  | 56                                  | 136                        | 159                                  | 63                                  | 2250                       | 1850                                 | 51000                               |
| 22    | 32                         | 70                                   | 18                                  | 159                        | 355                                  | 166                                 | e2260                      | 2400                                 | e32000                              |
| 23    | 42                         | 113                                  | 18                                  | 34                         | 156                                  | 17                                  | e93                        | 250                                  | e64                                 |
| 24    | 115                        | 161                                  | 96                                  | 914                        | 1220                                 | 6990                                | e46                        | 167                                  | e21                                 |
| 25    | 32                         | 11                                   | .95                                 | 792                        | 1430                                 | 3970                                | e35                        | 112                                  | e11                                 |
| 26    | 13                         | 11                                   | .39                                 | 325                        | 656                                  | 924                                 | e37                        | 90                                   | e9.1                                |
| 27    | 11                         | 11                                   | .34                                 | 125                        | 353                                  | 136                                 | e27                        | 89                                   | e8.1                                |
| 28    | 40                         | 93                                   | 12                                  | 56                         | 196                                  | 32                                  | e34                        | 88                                   | e8.1                                |
| 29    | 18                         | 27                                   | 1.6                                 | 230                        | 643                                  | 681                                 | e34                        | 87                                   | e8.0                                |
| 30    | 9.9                        | 10                                   | .27                                 | 48                         | 158                                  | 21                                  | e31                        | 87                                   | e7.4                                |
| 31    | 8.1                        | 10                                   | .22                                 | 26                         | 99                                   | 7.2                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 992.3                      | ---                                  | 1003.41                             | 3396.9                     | ---                                  | 13607.13                            | 5892.6                     | ---                                  | 83941.36                            |
| YEAR  | 18587.6                    |                                      | 131874.90                           |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 11... | 1315 | 9.0                                                                   | 96                                                    | 2.3                                                                       | 95                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 0743 | 324                                                                   | 427                                                   | 374                                                                       | 99                                                                       |
| 26... | 0658 | 1260                                                                  | 1120                                                  | 3810                                                                      | 96                                                                       |
| DEC   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 1200 | 82                                                                    | 51                                                    | 11                                                                        | 92                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 1800 | 10                                                                    | 78                                                    | 2.1                                                                       | 71                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 1448 | 176                                                                   | 123                                                   | 58                                                                        | 99                                                                       |
| 22... | 0731 | 258                                                                   | 488                                                   | 340                                                                       | 99                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 18... | 1832 | 217                                                                   | 298                                                   | 175                                                                       | 98                                                                       |
| 19... | 0511 | 140                                                                   | 11900                                                 | 4500                                                                      | 100                                                                      |

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| NOV<br>10... | 0230 | 484                                                                     | 1470                                                                    | 1920                                                                     | 68                                                                       | 79                                                                       | 91                                                                       |                                                                          |
| MAY<br>27... | 0515 | 333                                                                     | 1530                                                                    | 1380                                                                     | 57                                                                       | 71                                                                       | 83                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| NOV<br>10... | 95   | 96                                                                      | 99                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| MAY<br>27... | 91   | 97                                                                      | 98                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR

LOCATION.--Lat 18°12'58", long 65°55'34", Hydrologic Unit 21010005, on left bank at Highway 919, 0.5 mi (0.8 km) upstream from Quebrada Don Víctor, 1.7 mi (2.7 km) upstream from Río Gurabo and 1.0 mi (1.6 km) south of Juncos.

DRAINAGE AREA.--16.4 mi<sup>2</sup> (42.5 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft (98 m), from topographic map.

REMARKS.--Records poor. Minor diversion from public water supply tank, 0.5 mi (0.80 km) upstream, during low flow. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges (no stages were recorded) of major floods are as follows: Sept. 6, 1960, 37,100 ft<sup>3</sup>/s (1,050 m<sup>3</sup>/s), Oct. 9, 1970, 18,200 ft<sup>3</sup>/s (515 m<sup>3</sup>/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR   | APR   | MAY    | JUN   | JUL   | AUG    | SEP   |
|-------|------|------|------|------|------|-------|-------|--------|-------|-------|--------|-------|
| 1     | 41   | e18  | e35  | 21   | 13   | 11    | 24    | 8.7    | 27    | 7.8   | 8.6    | 18    |
| 2     | 263  | e17  | e29  | 46   | 13   | 10    | 21    | 8.8    | 15    | 8.2   | 7.7    | 24    |
| 3     | 32   | e15  | e19  | 34   | 12   | 12    | 15    | 9.1    | 13    | 8.4   | 7.7    | 51    |
| 4     | 19   | e14  | e17  | 35   | 18   | 11    | 12    | 25     | 11    | 77    | 7.2    | 54    |
| 5     | 14   | e15  | e16  | 39   | 234  | 9.8   | 13    | 19     | 14    | 21    | 6.8    | 20    |
| 6     | 12   | e15  | e15  | 580  | 42   | 9.5   | e12   | 8.2    | 19    | 10    | e7.7   | 198   |
| 7     | 10   | e14  | e14  | 739  | 28   | 220   | e11   | 7.4    | 9.9   | 18    | 8.4    | 58    |
| 8     | 11   | e14  | e14  | 137  | 147  | 69    | e11   | 14     | 24    | 10    | 9.0    | 355   |
| 9     | 12   | e30  | e13  | 186  | 92   | 21    | e11   | 18     | 13    | 13    | 51     | 80    |
| 10    | 12   | e680 | 12   | 100  | 39   | 14    | e10   | 11     | 10    | 8.3   | 38     | 46    |
| 11    | 23   | e35  | 12   | 79   | 31   | 13    | e11   | 8.2    | 8.4   | 7.1   | 12     | 26    |
| 12    | 54   | e25  | 12   | 41   | 29   | 12    | e13   | 8.2    | 23    | 10    | 16     | 21    |
| 13    | 493  | e24  | 12   | 43   | 25   | 11    | e17   | 13     | 13    | 7.2   | 12     | 78    |
| 14    | 2480 | e19  | 13   | 46   | 99   | 19    | e14   | 15     | 9.6   | 11    | 8.3    | 75    |
| 15    | 151  | e20  | 12   | 30   | 70   | 17    | e12   | 7.3    | 8.2   | 14    | 8.6    | 157   |
| 16    | 113  | e19  | 15   | 27   | 36   | 10    | e42   | 7.8    | 14    | 23    | 9.6    | 82    |
| 17    | e77  | e19  | 30   | 24   | 29   | 10    | 36    | 7.5    | 11    | 12    | 37     | 49    |
| 18    | e56  | e19  | 31   | 23   | 21   | 8.7   | 14    | 6.4    | e34   | 57    | 16     | 76    |
| 19    | e42  | e25  | 17   | 21   | 17   | 9.1   | 9.8   | 6.0    | 40    | 39    | 11     | e92   |
| 20    | e33  | e17  | 16   | 20   | 15   | 14    | 12    | 7.4    | 12    | 298   | 37     | 53    |
| 21    | e29  | e17  | 30   | 19   | 15   | 11    | 36    | 7.9    | 32    | 67    | 90     | e1410 |
| 22    | e26  | e20  | 17   | 20   | 13   | 11    | 34    | 5.8    | 43    | 21    | 107    | e4680 |
| 23    | e23  | e17  | 37   | 21   | 14   | 9.0   | 15    | 9.7    | 11    | 17    | 20     | e351  |
| 24    | e21  | e17  | 24   | 20   | 12   | 8.3   | 13    | 20     | 9.3   | 28    | 856    | e115  |
| 25    | e20  | e16  | 19   | 20   | 11   | 21    | 12    | 9.4    | 34    | 19    | 752    | e82   |
| 26    | e18  | e720 | 18   | 17   | 11   | 12    | 14    | 25     | 25    | 13    | 141    | e76   |
| 27    | e18  | e100 | 17   | 17   | 11   | 24    | 13    | 90     | 10    | 15    | 72     | e64   |
| 28    | e17  | e31  | 17   | 16   | 11   | 18    | 16    | 14     | 9.8   | 30    | 41     | e59   |
| 29    | e16  | e33  | 18   | 16   | ---  | 64    | 10    | 20     | 9.2   | 13    | 123    | e54   |
| 30    | e16  | e50  | 21   | 17   | ---  | 197   | 9.3   | 546    | 8.4   | 11    | 27     | e49   |
| 31    | e14  | ---  | 22   | 13   | ---  | 73    | ---   | 73     | ---   | 10    | 20     | ---   |
| TOTAL | 4166 | 2075 | 594  | 2467 | 1108 | 959.4 | 493.1 | 1036.8 | 520.8 | 904.0 | 2568.6 | 8553  |
| MEAN  | 134  | 69.2 | 19.2 | 79.6 | 39.6 | 30.9  | 16.4  | 33.4   | 17.4  | 29.2  | 82.9   | 285   |
| MAX   | 2480 | 720  | 37   | 739  | 234  | 220   | 42    | 546    | 43    | 298   | 856    | 4680  |
| MIN   | 10   | 14   | 12   | 13   | 11   | 8.3   | 9.3   | 5.8    | 8.2   | 7.1   | 6.8    | 18    |
| AC-FT | 8260 | 4120 | 1180 | 4890 | 2200 | 1900  | 978   | 2060   | 1030  | 1790  | 5090   | 16960 |
| CFSM  | 8.19 | 4.22 | 1.17 | 4.85 | 2.41 | 1.89  | 1.00  | 2.04   | 1.06  | 1.78  | 5.05   | 17.4  |
| IN.   | 9.45 | 4.71 | 1.35 | 5.60 | 2.51 | 2.18  | 1.12  | 2.35   | 1.18  | 2.05  | 5.83   | 19.40 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

|      | MEAN | 73.9 | 86.3 | 51.4 | 26.6 | 20.2 | 19.0 | 15.2 | 46.8 | 50.3 | 47.1 | 62.5 | 90.8 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 293  | 461  | 550  | 79.6 | 47.9 | 39.7 | 41.7 | 268  | 188  | 163  | 231  | 285  |      |
| (WY) | 1986 | 1988 | 1988 | 1988 | 1984 | 1973 | 1985 | 1985 | 1979 | 1981 | 1979 | 1998 |      |
| MIN  | 19.9 | 16.8 | 11.0 | 11.4 | 7.21 | 7.01 | 5.17 | 5.02 | 4.95 | 4.61 | 4.71 | 10.8 |      |
| (WY) | 1993 | 1996 | 1990 | 1976 | 1974 | 1977 | 1995 | 1990 | 1994 | 1994 | 1994 | 1987 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

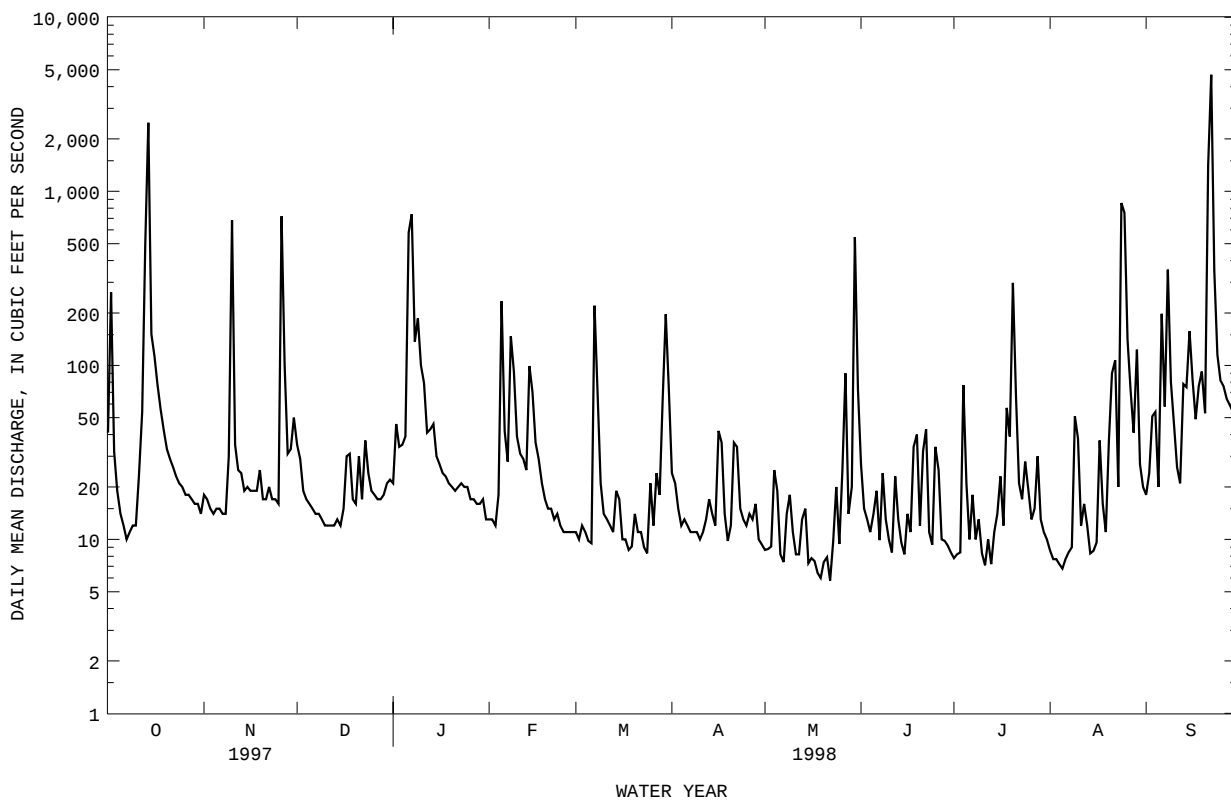
## FOR 1998 WATER YEAR

## WATER YEARS 1971 - 1998

|                          |         |         |       |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL             | 14767.8 | 25445.7 |       |
| ANNUAL MEAN              | 40.5    | 69.7    | 49.4  |
| HIGHEST ANNUAL MEAN      |         |         | 121   |
| LOWEST ANNUAL MEAN       |         |         | 17.1  |
| HIGHEST DAILY MEAN       | 2480    | Oct 14  | 9100  |
| LOWEST DAILY MEAN        | 3.9     | Jun 18  | 1.4   |
| ANNUAL SEVEN-DAY MINIMUM | 4.6     | Jun 29  | 1.7   |
| INSTANTANEOUS PEAK FLOW  |         |         | 40000 |
| INSTANTANEOUS PEAK STAGE |         |         | 25.63 |
| ANNUAL RUNOFF (AC-FT)    | 29290   | 50470   | 35770 |
| ANNUAL RUNOFF (CFSM)     | 2.47    | 4.25    | 3.01  |
| ANNUAL RUNOFF (INCHES)   | 33.50   | 57.72   | 40.91 |
| 10 PERCENT EXCEEDS       | 49      | 85      | 72    |
| 50 PERCENT EXCEEDS       | 15      | 18      | 18    |
| 90 PERCENT EXCEEDS       | 6.5     | 9.1     | 7.0   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1983 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1994 to current year.

INSTRUMENTATION.-- Automatic sediment sampler since 1984.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow event sediment samples were collected by a local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 8,340 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 263,000 tons (238,000 tonnes) September 10, 1996; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 5,310 mg/L September 21, 1998; Minimum daily mean, 6 mg/L March 19-21, 1998.

SEDIMENT LOADS: Maximum daily mean, 65,400 tons (59,400 tonnes) October 14, 1997; Minimum daily mean, 0.15 tons (0.14 tonne) March 19, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 41                         | 199                             | 39                                  | e18                        | 208                             | e4.4                                | e35                        | 36                              | e14                                 |
| 2       | 263                        | 492                             | 915                                 | e17                        | 40                              | e3.6                                | e29                        | 47                              | e14                                 |
| 3       | 32                         | 59                              | 5.7                                 | e15                        | 12                              | e3.4                                | e19                        | 62                              | e5.1                                |
| 4       | 19                         | 15                              | .81                                 | e14                        | 18                              | e3.2                                | e17                        | 75                              | e3.6                                |
| 5       | 14                         | 10                              | .38                                 | e15                        | 29                              | e3.4                                | e16                        | 73                              | e3.5                                |
| 6       | 12                         | 9                               | .29                                 | e15                        | 47                              | e3.4                                | e15                        | 69                              | e3.4                                |
| 7       | 10                         | 8                               | .22                                 | e14                        | 75                              | e3.2                                | e14                        | 52                              | e3.2                                |
| 8       | 11                         | 17                              | .54                                 | e14                        | 113                             | e3.2                                | e14                        | 50                              | e3.2                                |
| 9       | 12                         | 76                              | 2.2                                 | e30                        | 112                             | e15                                 | e13                        | 66                              | e2.2                                |
| 10      | 12                         | 68                              | 2.4                                 | e680                       | 101                             | e5780                               | 12                         | 51                              | 1.7                                 |
| 11      | 23                         | 100                             | 11                                  | e35                        | 96                              | e19                                 | 12                         | 39                              | 1.3                                 |
| 12      | 54                         | 235                             | 80                                  | e25                        | 100                             | e8.5                                | 12                         | 28                              | .90                                 |
| 13      | 493                        | 2400                            | 17200                               | e24                        | 106                             | e8.2                                | 12                         | 22                              | .74                                 |
| 14      | 2480                       | 4380                            | 65400                               | e19                        | 112                             | e5.1                                | 13                         | 20                              | .72                                 |
| 15      | 151                        | 523                             | 221                                 | e20                        | 124                             | e5.8                                | 12                         | 18                              | .61                                 |
| 16      | 113                        | 300                             | 90                                  | e19                        | 139                             | e5.1                                | 15                         | 25                              | 1.2                                 |
| 17      | e77                        | 598                             | e94                                 | e19                        | 156                             | e5.1                                | 30                         | 95                              | 16                                  |
| 18      | e56                        | 473                             | e80                                 | e19                        | 153                             | e5.1                                | 31                         | 139                             | 18                                  |
| 19      | e42                        | 149                             | e31                                 | e25                        | 102                             | e8.5                                | 17                         | 108                             | 5.1                                 |
| 20      | e33                        | 47                              | e16                                 | e17                        | 67                              | e3.6                                | 16                         | 92                              | 5.6                                 |
| 21      | e29                        | 18                              | e14                                 | e17                        | 55                              | e3.6                                | 30                         | 160                             | 15                                  |
| 22      | e26                        | 14                              | e8.8                                | e20                        | 48                              | e5.8                                | 17                         | 66                              | 3.1                                 |
| 23      | e23                        | 12                              | e7.9                                | e17                        | 53                              | e3.6                                | 37                         | 167                             | 26                                  |
| 24      | e21                        | 9                               | e6.8                                | e17                        | 60                              | e3.6                                | 24                         | 137                             | 8.6                                 |
| 25      | e20                        | 8                               | e5.8                                | e16                        | 57                              | e3.5                                | 19                         | 78                              | 4.0                                 |
| 26      | e18                        | 9                               | e4.4                                | e720                       | 53                              | e7100                               | 18                         | 64                              | 3.2                                 |
| 27      | e18                        | 9                               | e4.4                                | e100                       | 49                              | e151                                | 17                         | 53                              | 2.5                                 |
| 28      | e17                        | 10                              | e3.6                                | e31                        | 44                              | e16                                 | 17                         | 48                              | 2.1                                 |
| 29      | e16                        | 16                              | e3.5                                | e33                        | 40                              | e16                                 | 18                         | 54                              | 2.6                                 |
| 30      | e16                        | 217                             | e3.5                                | e50                        | 36                              | e59                                 | 21                         | 63                              | 3.7                                 |
| 31      | e14                        | 861                             | e3.2                                | ---                        | ---                             | ---                                 | 22                         | 78                              | 4.7                                 |
| TOTAL   | 4166                       | ---                             | 84255.44                            | 2075                       | ---                             | 13258.9                             | 594                        | ---                             | 179.57                              |

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 21                         | 99                                   | 5.6                                 | 13                         | 65                                   | 2.3                                 | 11                         | 80                                   | 2.3                                 |
| 2       | 46                         | 133                                  | 35                                  | 13                         | 51                                   | 1.8                                 | 10                         | 76                                   | 2.1                                 |
| 3       | 34                         | 130                                  | 13                                  | 12                         | 59                                   | 2.0                                 | 12                         | 72                                   | 2.2                                 |
| 4       | 35                         | 62                                   | 5.7                                 | 18                         | 101                                  | 16                                  | 11                         | 68                                   | 2.0                                 |
| 5       | 39                         | 48                                   | 5.1                                 | 234                        | 3870                                 | 3290                                | 9.8                        | 65                                   | 1.7                                 |
| 6       | 580                        | 3580                                 | 7320                                | 42                         | 268                                  | 31                                  | 9.5                        | 61                                   | 1.6                                 |
| 7       | 739                        | 3320                                 | 10500                               | 28                         | 188                                  | 14                                  | 220                        | 1700                                 | 4690                                |
| 8       | 137                        | 602                                  | 243                                 | 147                        | 1630                                 | 2230                                | 69                         | 590                                  | 150                                 |
| 9       | 186                        | 710                                  | 640                                 | 92                         | 345                                  | 117                                 | 21                         | 87                                   | 5.3                                 |
| 10      | 100                        | 495                                  | 151                                 | 39                         | 154                                  | 16                                  | 14                         | 33                                   | 1.3                                 |
| 11      | 79                         | 358                                  | 83                                  | 31                         | 118                                  | 10                                  | 13                         | 37                                   | 1.3                                 |
| 12      | 41                         | 218                                  | 24                                  | 29                         | 94                                   | 7.4                                 | 12                         | 45                                   | 1.5                                 |
| 13      | 43                         | 193                                  | 30                                  | 25                         | 84                                   | 5.6                                 | 11                         | 53                                   | 1.6                                 |
| 14      | 46                         | 175                                  | 33                                  | 99                         | 1400                                 | 973                                 | 19                         | 105                                  | 7.0                                 |
| 15      | 30                         | 94                                   | 7.7                                 | 70                         | 380                                  | 83                                  | 17                         | 172                                  | 8.2                                 |
| 16      | 27                         | 35                                   | 2.5                                 | 36                         | 142                                  | 14                                  | 10                         | 90                                   | 2.5                                 |
| 17      | 24                         | 35                                   | 2.3                                 | 29                         | 89                                   | 7.0                                 | 10                         | 51                                   | 1.4                                 |
| 18      | 23                         | 37                                   | 2.3                                 | 21                         | 103                                  | 5.8                                 | 8.7                        | 17                                   | .41                                 |
| 19      | 21                         | 39                                   | 2.2                                 | 17                         | 118                                  | 5.5                                 | 9.1                        | 6                                    | .15                                 |
| 20      | 20                         | 39                                   | 2.1                                 | 15                         | 126                                  | 5.3                                 | 14                         | 6                                    | .23                                 |
| 21      | 19                         | 34                                   | 1.8                                 | 15                         | 130                                  | 5.1                                 | 11                         | 6                                    | .19                                 |
| 22      | 20                         | 31                                   | 1.6                                 | 13                         | 120                                  | 4.2                                 | 11                         | 7                                    | .21                                 |
| 23      | 21                         | 37                                   | 2.1                                 | 14                         | 110                                  | 4.1                                 | 9.0                        | 8                                    | .20                                 |
| 24      | 20                         | 47                                   | 2.5                                 | 12                         | 104                                  | 3.4                                 | 8.3                        | 9                                    | .21                                 |
| 25      | 20                         | 59                                   | 3.1                                 | 11                         | 99                                   | 2.9                                 | 21                         | 106                                  | 7.9                                 |
| 26      | 17                         | 75                                   | 3.4                                 | 11                         | 94                                   | 2.9                                 | 12                         | 78                                   | 2.5                                 |
| 27      | 17                         | 87                                   | 3.9                                 | 11                         | 89                                   | 2.7                                 | 24                         | 89                                   | 12                                  |
| 28      | 16                         | 80                                   | 3.5                                 | 11                         | 84                                   | 2.6                                 | 18                         | 164                                  | 5.5                                 |
| 29      | 16                         | 77                                   | 3.2                                 | ---                        | ---                                  | ---                                 | 64                         | 1670                                 | 1120                                |
| 30      | 17                         | 111                                  | 6.0                                 | ---                        | ---                                  | ---                                 | 197                        | 690                                  | 778                                 |
| 31      | 13                         | 92                                   | 3.2                                 | ---                        | ---                                  | ---                                 | 73                         | 362                                  | 89                                  |
| TOTAL   | 2467                       | ---                                  | 19141.8                             | 1108                       | ---                                  | 6864.6                              | 959.4                      | ---                                  | 6898.50                             |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 24                         | 107                                  | 7.1                                 | 8.7                        | 66                                   | 1.6                                 | 27                         | 82                                   | 6.6                                 |
| 2       | 21                         | 86                                   | 5.3                                 | 8.8                        | 65                                   | 1.6                                 | 15                         | 26                                   | 1.1                                 |
| 3       | 15                         | 90                                   | 3.4                                 | 9.1                        | 64                                   | 1.6                                 | 13                         | 34                                   | 1.2                                 |
| 4       | 12                         | 82                                   | 2.1                                 | 25                         | 76                                   | 12                                  | 11                         | 52                                   | 1.6                                 |
| 5       | 13                         | 74                                   | 2.9                                 | 19                         | 1240                                 | 69                                  | 14                         | 81                                   | 4.0                                 |
| 6       | e12                        | 68                                   | e1.7                                | 8.2                        | 534                                  | 12                                  | 19                         | 77                                   | 5.5                                 |
| 7       | e11                        | 281                                  | e2.1                                | 7.4                        | 227                                  | 4.5                                 | 9.9                        | 22                                   | .61                                 |
| 8       | e11                        | 74                                   | e2.1                                | 14                         | 157                                  | 7.6                                 | 24                         | 69                                   | 11                                  |
| 9       | e11                        | 16                                   | e2.1                                | 18                         | 194                                  | 10                                  | 13                         | 31                                   | 1.1                                 |
| 10      | e10                        | 13                                   | e1.7                                | 11                         | 146                                  | 4.2                                 | 10                         | 19                                   | .54                                 |
| 11      | e11                        | 12                                   | e2.1                                | 8.2                        | 88                                   | 1.9                                 | 8.4                        | 15                                   | .33                                 |
| 12      | e13                        | 12                                   | e2.6                                | 8.2                        | 53                                   | 1.2                                 | 23                         | 122                                  | 11                                  |
| 13      | e17                        | 12                                   | e3.6                                | 13                         | 72                                   | 4.0                                 | 13                         | 23                                   | .89                                 |
| 14      | e14                        | 17                                   | e3.2                                | 15                         | 77                                   | 3.8                                 | 9.6                        | 22                                   | .57                                 |
| 15      | e12                        | 55                                   | e2.1                                | 7.3                        | 34                                   | .68                                 | 8.2                        | 38                                   | .86                                 |
| 16      | e42                        | 234                                  | e31                                 | 7.8                        | 35                                   | .73                                 | 14                         | 60                                   | 3.0                                 |
| 17      | 36                         | 306                                  | 35                                  | 7.5                        | 35                                   | .70                                 | 11                         | 53                                   | 2.1                                 |
| 18      | 14                         | 125                                  | 4.9                                 | 6.4                        | 35                                   | .61                                 | e34                        | 96                                   | e18                                 |
| 19      | 9.8                        | 136                                  | 1.6                                 | 6.0                        | 36                                   | .58                                 | 40                         | 454                                  | 71                                  |
| 20      | 12                         | 186                                  | 3.6                                 | 7.4                        | 36                                   | .93                                 | 12                         | 113                                  | 3.7                                 |
| 21      | 36                         | 935                                  | 429                                 | 7.9                        | 36                                   | 1.0                                 | 32                         | 87                                   | 29                                  |
| 22      | 34                         | 195                                  | 21                                  | 5.8                        | 29                                   | .46                                 | 43                         | 82                                   | 36                                  |
| 23      | 15                         | 82                                   | 3.3                                 | 9.7                        | 35                                   | 1.8                                 | 11                         | 76                                   | 2.2                                 |
| 24      | 13                         | 77                                   | 2.7                                 | 20                         | 41                                   | 6.4                                 | 9.3                        | 67                                   | 1.7                                 |
| 25      | 12                         | 71                                   | 2.3                                 | 9.4                        | 48                                   | 1.4                                 | 34                         | 196                                  | 67                                  |
| 26      | 14                         | 69                                   | 3.2                                 | 25                         | 106                                  | 14                                  | 25                         | 566                                  | 45                                  |
| 27      | 13                         | 44                                   | 1.5                                 | 90                         | 605                                  | 173                                 | 10                         | 236                                  | 6.6                                 |
| 28      | 16                         | 68                                   | 3.9                                 | 14                         | 438                                  | 17                                  | 9.8                        | 155                                  | 4.1                                 |
| 29      | 10                         | 68                                   | 1.9                                 | 20                         | 377                                  | 20                                  | 9.2                        | 105                                  | 2.6                                 |
| 30      | 9.3                        | 67                                   | 1.7                                 | 546                        | 1620                                 | 4240                                | 8.4                        | 76                                   | 1.7                                 |
| 31      | ---                        | ---                                  | ---                                 | 73                         | 292                                  | 61                                  | ---                        | ---                                  | ---                                 |
| TOTAL   | 493.1                      | ---                                  | 590.7                               | 1036.8                     | ---                                  | 4675.29                             | 520.8                      | ---                                  | 340.60                              |

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 7.8                        | 70                              | 1.5                                 | 8.6                        | 37                              | .86                                 | 18                         | 44                              | 2.2                                 |
| 2     | 8.2                        | 65                              | 1.4                                 | 7.7                        | 19                              | .40                                 | 24                         | 92                              | 11                                  |
| 3     | 8.4                        | 61                              | 1.4                                 | 7.7                        | 13                              | .26                                 | 51                         | 276                             | 39                                  |
| 4     | 77                         | 328                             | 97                                  | 7.2                        | 19                              | .38                                 | 54                         | 451                             | 71                                  |
| 5     | 21                         | 117                             | 8.1                                 | 6.8                        | 31                              | .56                                 | 20                         | 200                             | 11                                  |
| 6     | 10                         | 131                             | 1.7                                 | e7.7                       | 41                              | e.82                                | 198                        | 1110                            | 1690                                |
| 7     | 18                         | 145                             | 6.3                                 | 8.4                        | 50                              | 1.1                                 | 58                         | 310                             | 59                                  |
| 8     | 10                         | 162                             | 1.6                                 | 9.0                        | 52                              | 1.3                                 | 355                        | 2800                            | 6010                                |
| 9     | 13                         | 180                             | 3.1                                 | 51                         | 315                             | 136                                 | 80                         | 559                             | 103                                 |
| 10    | 8.3                        | 200                             | 1.1                                 | 38                         | 276                             | 57                                  | 46                         | 245                             | 33                                  |
| 11    | 7.1                        | 223                             | .81                                 | 12                         | 39                              | 1.2                                 | 26                         | 63                              | 4.6                                 |
| 12    | 10                         | 248                             | 1.8                                 | 16                         | 72                              | 3.8                                 | 21                         | 38                              | 2.2                                 |
| 13    | 7.2                        | 276                             | .83                                 | 12                         | 80                              | 2.7                                 | 78                         | 339                             | 149                                 |
| 14    | 11                         | 307                             | 2.3                                 | 8.3                        | 30                              | .68                                 | 75                         | 371                             | 84                                  |
| 15    | 14                         | 342                             | 6.7                                 | 8.6                        | 14                              | .31                                 | 157                        | 807                             | 788                                 |
| 16    | 23                         | 90                              | 7.9                                 | 9.6                        | 13                              | .32                                 | 82                         | 246                             | 53                                  |
| 17    | 12                         | 78                              | 2.1                                 | 37                         | 172                             | 31                                  | 49                         | 131                             | 17                                  |
| 18    | 57                         | 86                              | 94                                  | 16                         | 154                             | 4.1                                 | 76                         | 352                             | 90                                  |
| 19    | 39                         | 95                              | 24                                  | 11                         | 147                             | 1.8                                 | e92                        | 142                             | e145                                |
| 20    | 298                        | 1600                            | 2620                                | 37                         | 140                             | 29                                  | 53                         | 50                              | 7.1                                 |
| 21    | 67                         | 152                             | 44                                  | 90                         | 134                             | 145                                 | e1410                      | 5310                            | e31000                              |
| 22    | 21                         | 65                              | 3.7                                 | 107                        | 430                             | 230                                 | e4680                      | 2300                            | e42100                              |
| 23    | 17                         | 51                              | 2.4                                 | 20                         | 126                             | 7.1                                 | e351                       | 88                              | e119                                |
| 24    | 28                         | 91                              | 14                                  | 856                        | 2430                            | 11800                               | e115                       | 21                              | e5.5                                |
| 25    | 19                         | 84                              | 5.5                                 | 752                        | 1130                            | 3700                                | e82                        | 20                              | e4.5                                |
| 26    | 13                         | 78                              | 2.5                                 | 141                        | 770                             | 383                                 | e76                        | 19                              | e3.7                                |
| 27    | 15                         | 72                              | 3.7                                 | 72                         | 260                             | 78                                  | e64                        | 17                              | e2.9                                |
| 28    | 30                         | 66                              | 16                                  | 41                         | 208                             | 25                                  | e59                        | 14                              | e2.2                                |
| 29    | 13                         | 61                              | 2.7                                 | 123                        | 166                             | 333                                 | e54                        | 12                              | e1.8                                |
| 30    | 11                         | 56                              | 1.9                                 | 27                         | 133                             | 11                                  | e49                        | ---                             | e1.7                                |
| 31    | 10                         | 52                              | 1.7                                 | 20                         | 107                             | 5.8                                 | ---                        | ---                             | ---                                 |
| TOTAL | 904.0                      | ---                             | 2981.74                             | 2568.6                     | ---                             | 16991.49                            | 8553                       | ---                             | 82610.4                             |
| YEAR  | 25445.7                    |                                 | 238789.03                           |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 02... | 0900 | 926                                                                   | 1300                                                  | 3250                                                                      | 95                                                                       |
| 17... | 1650 | 77                                                                    | 1110                                                  | 231                                                                       | 98                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 06... | 1345 | 695                                                                   | 1240                                                  | 2330                                                                      | 91                                                                       |
| 09... | 1835 | 287                                                                   | 1190                                                  | 922                                                                       | 86                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 0330 | 323                                                                   | 9550                                                  | 8330                                                                      | 85                                                                       |
| 05... | 1245 | 375                                                                   | 1200                                                  | 1220                                                                      | 68                                                                       |
| 08... | 2215 | 643                                                                   | 2940                                                  | 5100                                                                      | 57                                                                       |
| 14... | 1745 | 367                                                                   | 8830                                                  | 8750                                                                      | 87                                                                       |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 30... | 0600 | 2620                                                                  | 3820                                                  | 27000                                                                     | 84                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 22... | 0445 | 466                                                                   | 1430                                                  | 1800                                                                      | 94                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 22... | 0830 | 4530                                                                  | 4430                                                  | 54200                                                                     | 80                                                                       |

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SESPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154)                    | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>13... | 2100 | 302                                                                     | 12700                                                                   | 10400                                                                    | 34                                                                       | 43                                                                       | 55                                                                       |                                                                          |
| FEB<br>05... | 0700 | 437                                                                     | 6560                                                                    | 7740                                                                     | 39                                                                       | 49                                                                       | 63                                                                       |                                                                          |
| MAR<br>07... | 2115 | 519                                                                     | 2680                                                                    | 3760                                                                     | 52                                                                       | 64                                                                       | 79                                                                       |                                                                          |
| 29...        | 1700 | 233                                                                     | 7720                                                                    | 4860                                                                     | 14                                                                       | 18                                                                       | 26                                                                       |                                                                          |
| SEP<br>21... | 2200 | 5770                                                                    | 8930                                                                    | 139000                                                                   | 11                                                                       | 17                                                                       | 25                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>13... | 68   | 78                                                                      | 86                                                                      | 94                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| FEB<br>05... | 75   | 82                                                                      | 83                                                                      | 86                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| MAR<br>07... | 89   | 95                                                                      | 96                                                                      | 98                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| 29...        | 38   | 54                                                                      | 71                                                                      | 87                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| SEP<br>21... | 32   | 44                                                                      | 56                                                                      | 76                                                                       | 91                                                                       | 98                                                                       | 99                                                                       |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO, PR

LOCATION.--Lat 18°15'30", long 65°58'05", Hydrologic Unit 21010005, on left bank, at bridge on Highway 181, 0.3 mi (0.5 km) east of Gurabo, and 4.5 mi (7.6 km) upstream from Río Grande de Loíza.

DRAINAGE AREA.--60.2 mi<sup>2</sup> (155.9 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1958 (occasional low-flow measurements only), January to September 1959 (monthly measurements only), October 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 131.58 ft (40.106 m) above mean sea level. Prior to Oct. 1, 1989 datum 5.0 ft (1.5 m) higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Low flow affected by diversions for water supply about, 400 ft (121 m) upstream from station by PRASA.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG   | SEP   |
|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|
| 1     | 41    | e23  | 25   | 19   | 31   | 29   | 34   | 15   | e93  | 24   | 38    | 53    |
| 2     | 514   | e22  | 24   | 25   | 30   | 28   | 32   | 15   | e36  | 23   | 39    | 90    |
| 3     | 102   | e21  | 24   | 25   | 30   | 29   | 35   | 16   | e28  | 23   | 36    | 122   |
| 4     | 46    | e22  | 23   | 26   | 34   | 29   | 26   | 23   | e25  | 82   | 35    | 89    |
| 5     | 34    | e23  | 23   | 34   | e361 | 35   | 23   | 29   | e23  | 64   | 33    | 57    |
| 6     | 29    | e28  | 23   | e395 | 82   | 30   | 25   | 19   | e24  | 36   | 35    | 171   |
| 7     | 25    | e27  | 23   | 604  | 52   | 67   | 24   | 16   | e27  | 36   | 123   | 118   |
| 8     | 36    | e30  | 22   | e154 | e109 | 76   | 23   | 30   | e42  | 46   | 106   | 262   |
| 9     | 49    | e47  | 22   | 124  | e165 | 35   | 20   | 56   | e46  | 48   | 63    | 123   |
| 10    | 45    | e424 | 22   | 130  | 65   | 30   | 20   | 37   | e30  | 46   | 93    | 69    |
| 11    | 90    | e39  | 21   | e173 | 51   | 27   | 19   | 22   | e23  | 43   | 47    | 52    |
| 12    | 169   | e32  | 20   | 75   | 47   | 26   | 34   | 18   | e38  | 48   | 47    | 46    |
| 13    | 349   | e26  | 20   | 72   | 45   | 25   | 26   | 17   | e155 | 43   | 45    | 56    |
| 14    | 7580  | 33   | 21   | 76   | 86   | 26   | 24   | 32   | e43  | 43   | 38    | 109   |
| 15    | e199  | 47   | 21   | 51   | 96   | 33   | 21   | 23   | e29  | 47   | 36    | 209   |
| 16    | e130  | 29   | 22   | 45   | 52   | 32   | 30   | 24   | e28  | 92   | 36    | 116   |
| 17    | e149  | 25   | 31   | 42   | 49   | 27   | 63   | 26   | e35  | 67   | 150   | 74    |
| 18    | e70   | 24   | 33   | 40   | 44   | 25   | 28   | 20   | e49  | 62   | 83    | 100   |
| 19    | e46   | 23   | 29   | 38   | 41   | 24   | 28   | 16   | e62  | 95   | 61    | 162   |
| 20    | e36   | 22   | 22   | 37   | 39   | 25   | 38   | 14   | e40  | e405 | 113   | 81    |
| 21    | e31   | 22   | 32   | 36   | 37   | 29   | 69   | 18   | e38  | 178  | 179   | e1930 |
| 22    | e29   | 22   | 25   | 35   | 35   | 26   | 53   | 16   | e90  | 64   | 202   | 3520  |
| 23    | e27   | 20   | 48   | 35   | 35   | 26   | 21   | 15   | e43  | 73   | 84    | 356   |
| 24    | e26   | 20   | 40   | 35   | 33   | 23   | 18   | 21   | e36  | 115  | e1040 | 211   |
| 25    | e25   | 20   | 24   | 35   | 32   | 26   | 18   | 15   | 32   | 68   | e1520 | 171   |
| 26    | e24   | e347 | 22   | 35   | 33   | 27   | 18   | e19  | 51   | 52   | 552   | 158   |
| 27    | e23   | 78   | 20   | 33   | 31   | 28   | 18   | e139 | 30   | 50   | 148   | 146   |
| 28    | e22   | 28   | 20   | 34   | 30   | 31   | 17   | 29   | 28   | 67   | 96    | 134   |
| 29    | e21   | 25   | 19   | 33   | ---  | 61   | 18   | 26   | 26   | 59   | 319   | 123   |
| 30    | e20   | 34   | 18   | 33   | ---  | 82   | 15   | e122 | 25   | 44   | 84    | 117   |
| 31    | e19   | ---  | 18   | 30   | ---  | 87   | ---  | e157 | ---  | 40   | 61    | ---   |
| TOTAL | 10006 | 1583 | 757  | 2559 | 1775 | 1104 | 838  | 1045 | 1275 | 2183 | 5542  | 9025  |
| MEAN  | 323   | 52.8 | 24.4 | 82.5 | 63.4 | 35.6 | 27.9 | 33.7 | 42.5 | 70.4 | 179   | 301   |
| MAX   | 7580  | 424  | 48   | 604  | 361  | 87   | 69   | 157  | 155  | 405  | 1520  | 3520  |
| MIN   | 19    | 20   | 18   | 19   | 30   | 23   | 15   | 14   | 23   | 23   | 33    | 46    |
| AC-FT | 19850 | 3140 | 1500 | 5080 | 3520 | 2190 | 1660 | 2070 | 2530 | 4330 | 10990 | 17900 |
| CFSM  | 5.36  | .88  | .41  | 1.37 | 1.05 | .59  | .46  | .56  | .71  | 1.17 | 2.97  | 5.00  |
| IN.   | 6.18  | .98  | .47  | 1.58 | 1.10 | .68  | .52  | .65  | .79  | 1.35 | 3.42  | 5.58  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 214  | 207  | 144  | 62.1 | 47.6 | 38.6 | 41.0 | 138  | 127  | 113  | 163  | 237  |
| MAX  | 1414 | 1045 | 863  | 204  | 131  | 97.5 | 108  | 746  | 468  | 376  | 610  | 1225 |
| (WY) | 1971 | 1988 | 1988 | 1992 | 1989 | 1985 | 1978 | 1985 | 1970 | 1993 | 1979 | 1960 |
| MIN  | 16.0 | 23.7 | 10.7 | 16.4 | 12.6 | 11.2 | 13.1 | 12.7 | 16.8 | 20.7 | 24.8 | 8.76 |
| (WY) | 1968 | 1996 | 1968 | 1968 | 1968 | 1965 | 1995 | 1990 | 1972 | 1994 | 1967 | 1967 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

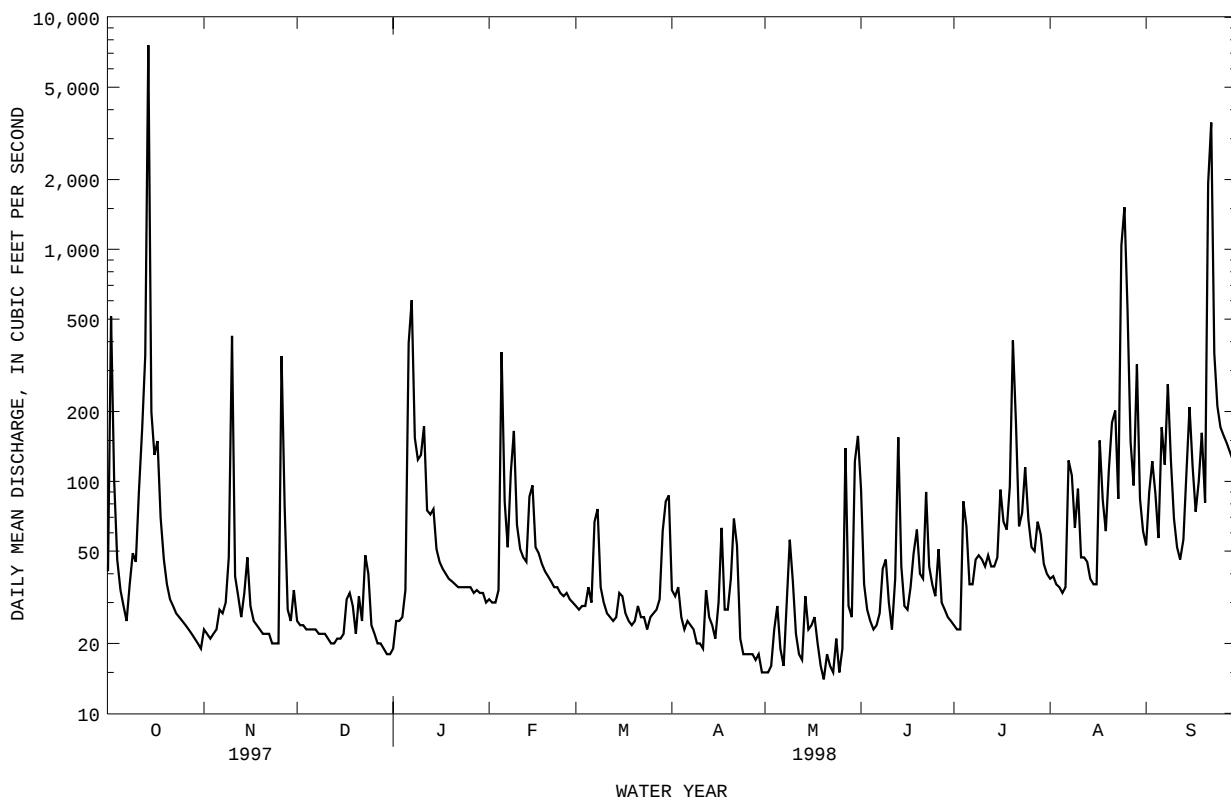
## FOR 1998 WATER YEAR

## WATER YEARS 1960 - 1998

|                          |         |        |       |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL             | 24916.4 | 37692  |       |
| ANNUAL MEAN              | 68.3    | 103    |       |
| HIGHEST ANNUAL MEAN      |         |        | 128   |
| LOWEST ANNUAL MEAN       |         |        | 286   |
| HIGHEST DAILY MEAN       | 7580    | Oct 14 | 42.2  |
| LOWEST DAILY MEAN        | 9.1     | Apr 26 | 26200 |
| ANNUAL SEVEN-DAY MINIMUM | 9.9     | May 1  | 3.7   |
| INSTANTANEOUS PEAK FLOW  |         |        | 5.2   |
| INSTANTANEOUS PEAK STAGE |         |        | 62100 |
| ANNUAL RUNOFF (AC-FT)    | 49420   | 74760  | 31.44 |
| ANNUAL RUNOFF (CFSM)     | 1.13    | 1.72   | 92760 |
| ANNUAL RUNOFF (INCHES)   | 15.40   | 23.29  | 2.13  |
| 10 PERCENT EXCEEDS       | 77      | 147    | 28.90 |
| 50 PERCENT EXCEEDS       | 24      | 35     | 200   |
| 90 PERCENT EXCEEDS       | 12      | 20     | 47    |
|                          |         |        | 16    |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50057000 RIO GURABO AT GURABO, PR--Continued



RIO GRANDE DE LOIZA BASIN  
50057000 RIO GURABO AT GURABO--Continued  
WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water year 1985 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to current year.

INSTRUMENTATION.-- USDH-48 and USD-77 sediment sampler, since 1984. Automatic sediment sampler, since 1984.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 9,220 mg/L Nov 27, 1987; Minimum daily mean, 3 mg/L August 09, 1994.

SEDIMENT LOADS: Maximum daily mean, 686,000 tons (622,340 tonnes) Nov 27, 1987; Minimum daily mean, 0.08 tons (0.07 tonne) August 09, 1994.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,510 mg/L November 26, 1997 ; minimum daily mean, 5 mg/L December 5, 1997.

SEDIMENT LOADS: Maximum daily mean, 32,300 tons (29,300 tonnes) October 14, 1997; minimum daily, 0.30 ton (0.27 tonne) December 21, 1997.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | 41                         | 67                              | 7.3                                 | e23                        | 20                              | e1.3                                | 25                         | 31                              | 2.1                                 |
| 2       | 514                        | 353                             | 977                                 | e22                        | 18                              | e1.1                                | 24                         | 21                              | 1.3                                 |
| 3       | 102                        | 164                             | 29                                  | e21                        | 17                              | e.97                                | 24                         | 13                              | .85                                 |
| 4       | 46                         | 87                              | 10                                  | e22                        | 15                              | e.92                                | 23                         | 10                              | .60                                 |
| 5       | 34                         | 41                              | 3.8                                 | e23                        | 16                              | e1.0                                | 23                         | 7                               | .47                                 |
| 6       | 29                         | 20                              | 1.5                                 | e28                        | 18                              | e1.3                                | 23                         | 7                               | .43                                 |
| 7       | 25                         | 12                              | .84                                 | e27                        | 19                              | e1.4                                | 23                         | 7                               | .43                                 |
| 8       | 36                         | 20                              | 3.7                                 | e30                        | 29                              | e2.9                                | 22                         | 7                               | .42                                 |
| 9       | 49                         | 45                              | 6.6                                 | e47                        | 34                              | e4.7                                | 22                         | 7                               | .44                                 |
| 10      | 45                         | 19                              | 2.3                                 | e424                       | 273                             | e542                                | 22                         | 8                               | .48                                 |
| 11      | 90                         | 59                              | 20                                  | e39                        | 117                             | e13                                 | 21                         | 10                              | .57                                 |
| 12      | 169                        | 157                             | 106                                 | e32                        | 88                              | e4.2                                | 20                         | 13                              | .70                                 |
| 13      | 349                        | 508                             | 1630                                | e26                        | 68                              | e4.6                                | 20                         | 11                              | .57                                 |
| 14      | 7580                       | 990                             | 32300                               | 33                         | 51                              | 4.5                                 | 21                         | 7                               | .41                                 |
| 15      | e199                       | 183                             | e105                                | 47                         | 51                              | 8.6                                 | 21                         | 5                               | .30                                 |
| 16      | e130                       | 116                             | e41                                 | 29                         | 49                              | 3.8                                 | 22                         | 6                               | .37                                 |
| 17      | e149                       | 111                             | e54                                 | 25                         | 43                              | 2.9                                 | 31                         | 13                              | 1.0                                 |
| 18      | e70                        | 77                              | e15                                 | 24                         | 37                              | 2.4                                 | 33                         | 17                              | 1.9                                 |
| 19      | e46                        | 44                              | e5.5                                | 23                         | 33                              | 2.1                                 | 29                         | 22                              | 1.8                                 |
| 20      | e36                        | 28                              | e2.7                                | 22                         | 34                              | 2.0                                 | 22                         | 11                              | .69                                 |
| 21      | e31                        | 22                              | e1.8                                | 22                         | 16                              | .91                                 | 32                         | 35                              | 3.1                                 |
| 22      | e29                        | 19                              | e1.5                                | 22                         | 15                              | .86                                 | 25                         | 40                              | 2.7                                 |
| 23      | e27                        | 21                              | e1.6                                | 20                         | 18                              | 1.0                                 | 48                         | 49                              | 9.1                                 |
| 24      | e26                        | 24                              | e1.7                                | 20                         | 23                              | 1.2                                 | 40                         | 68                              | 7.5                                 |
| 25      | e25                        | 16                              | e1.1                                | 20                         | 25                              | 1.3                                 | 24                         | 55                              | 3.6                                 |
| 26      | e24                        | 10                              | e.65                                | e347                       | 1510                            | e1700                               | 22                         | 44                              | 2.5                                 |
| 27      | e23                        | 7                               | e.42                                | 78                         | 94                              | 26                                  | 20                         | 32                              | 1.7                                 |
| 28      | e22                        | 11                              | e.63                                | 28                         | 48                              | 3.6                                 | 20                         | 23                              | 1.2                                 |
| 29      | e21                        | 19                              | e1.1                                | 25                         | 36                              | 2.4                                 | 19                         | 20                              | 1.1                                 |
| 30      | e20                        | 21                              | e1.1                                | 34                         | 39                              | 3.8                                 | 18                         | 19                              | .93                                 |
| 31      | e19                        | 22                              | e1.1                                | ---                        | ---                             | ---                                 | 18                         | 17                              | .85                                 |
| TOTAL   | 10006                      | ---                             | 35333.94                            | 1583                       | ---                             | 2346.76                             | 757                        | ---                             | 50.11                               |

## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 19                         | 15                                   | .80                                 | 31                         | 14                                   | 1.2                                 | 29                         | 7                                    | .56                                 |
| 2       | 25                         | 16                                   | 1.1                                 | 30                         | 19                                   | 1.5                                 | 28                         | 7                                    | .53                                 |
| 3       | 25                         | 18                                   | 1.2                                 | 30                         | 12                                   | .96                                 | 29                         | 7                                    | .58                                 |
| 4       | 26                         | 19                                   | 1.4                                 | 34                         | 21                                   | 3.3                                 | 29                         | 8                                    | .62                                 |
| 5       | 34                         | 21                                   | 1.9                                 | e361                       | 253                                  | e192                                | 35                         | 26                                   | 3.2                                 |
| 6       | e395                       | 244                                  | e471                                | 82                         | 126                                  | 28                                  | 30                         | 34                                   | 2.8                                 |
| 7       | 604                        | 438                                  | 1080                                | 52                         | 72                                   | 10                                  | 67                         | 67                                   | 26                                  |
| 8       | e154                       | 133                                  | e58                                 | e109                       | 80                                   | e63                                 | 76                         | 75                                   | 19                                  |
| 9       | 124                        | 133                                  | 42                                  | e165                       | 147                                  | e67                                 | 35                         | 36                                   | 3.4                                 |
| 10      | 130                        | 219                                  | 41                                  | 65                         | 59                                   | 10                                  | 30                         | 25                                   | 2.1                                 |
| 11      | e173                       | 223                                  | e76                                 | 51                         | 34                                   | 4.8                                 | 27                         | 17                                   | 1.3                                 |
| 12      | 75                         | 152                                  | 31                                  | 47                         | 22                                   | 2.7                                 | 26                         | 12                                   | .85                                 |
| 13      | 72                         | 79                                   | 16                                  | 45                         | 14                                   | 1.7                                 | 25                         | 9                                    | .64                                 |
| 14      | 76                         | 75                                   | 16                                  | 86                         | 59                                   | 26                                  | 26                         | 10                                   | .69                                 |
| 15      | 51                         | 42                                   | 5.8                                 | 96                         | 95                                   | 27                                  | 33                         | 10                                   | .86                                 |
| 16      | 45                         | 24                                   | 2.9                                 | 52                         | 50                                   | 7.1                                 | 32                         | 9                                    | .80                                 |
| 17      | 42                         | 15                                   | 1.7                                 | 49                         | 29                                   | 3.9                                 | 27                         | 9                                    | .66                                 |
| 18      | 40                         | 12                                   | 1.3                                 | 44                         | 18                                   | 2.1                                 | 25                         | 9                                    | .61                                 |
| 19      | 38                         | 14                                   | 1.5                                 | 41                         | 24                                   | 2.6                                 | 24                         | 9                                    | .61                                 |
| 20      | 37                         | 17                                   | 1.7                                 | 39                         | 37                                   | 3.9                                 | 25                         | 10                                   | .66                                 |
| 21      | 36                         | 18                                   | 1.8                                 | 37                         | 25                                   | 2.5                                 | 29                         | 9                                    | .74                                 |
| 22      | 35                         | 18                                   | 1.7                                 | 35                         | 13                                   | 1.2                                 | 26                         | 9                                    | .60                                 |
| 23      | 35                         | 18                                   | 1.7                                 | 35                         | 8                                    | .72                                 | 26                         | 9                                    | .61                                 |
| 24      | 35                         | 18                                   | 1.7                                 | 33                         | 9                                    | .77                                 | 23                         | 12                                   | .76                                 |
| 25      | 35                         | 18                                   | 1.7                                 | 32                         | 10                                   | .82                                 | 26                         | 18                                   | 1.3                                 |
| 26      | 35                         | 17                                   | 1.5                                 | 33                         | 8                                    | .74                                 | 27                         | 17                                   | 1.3                                 |
| 27      | 33                         | 11                                   | 1.0                                 | 31                         | 7                                    | .61                                 | 28                         | 18                                   | 1.4                                 |
| 28      | 34                         | 8                                    | .69                                 | 30                         | 7                                    | .57                                 | 31                         | 31                                   | 2.6                                 |
| 29      | 33                         | 7                                    | .63                                 | ---                        | ---                                  | ---                                 | 61                         | 56                                   | 13                                  |
| 30      | 33                         | 7                                    | .65                                 | ---                        | ---                                  | ---                                 | 82                         | 87                                   | 26                                  |
| 31      | 30                         | 10                                   | .80                                 | ---                        | ---                                  | ---                                 | 87                         | 97                                   | 26                                  |
| TOTAL   | 2559                       | ---                                  | 1866.17                             | 1775                       | ---                                  | 466.69                              | 1104                       | ---                                  | 140.78                              |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 34                         | 69                                   | 6.3                                 | 15                         | 10                                   | .40                                 | e93                        | 54                                   | e18                                 |
| 2       | 32                         | 45                                   | 3.8                                 | 15                         | 11                                   | .44                                 | e36                        | 26                                   | e2.5                                |
| 3       | 35                         | 24                                   | 2.3                                 | 16                         | 13                                   | .54                                 | e28                        | 25                                   | e1.9                                |
| 4       | 26                         | 16                                   | 1.1                                 | 23                         | 24                                   | 1.7                                 | e25                        | 23                                   | e1.6                                |
| 5       | 23                         | 13                                   | .82                                 | 29                         | 32                                   | 2.5                                 | e23                        | 22                                   | e1.3                                |
| 6       | 25                         | 12                                   | .77                                 | 19                         | 19                                   | .95                                 | e24                        | 21                                   | e1.3                                |
| 7       | 24                         | 14                                   | .89                                 | 16                         | 17                                   | .76                                 | e27                        | 19                                   | e1.4                                |
| 8       | 23                         | 17                                   | 1.0                                 | 30                         | 32                                   | 3.6                                 | e42                        | 18                                   | e2.1                                |
| 9       | 20                         | 12                                   | .66                                 | 56                         | 58                                   | 9.4                                 | e46                        | 17                                   | e2.1                                |
| 10      | 20                         | 8                                    | .42                                 | 37                         | 49                                   | 5.1                                 | e30                        | 16                                   | e1.3                                |
| 11      | 19                         | 12                                   | .61                                 | 22                         | 39                                   | 2.3                                 | e23                        | 16                                   | e1.1                                |
| 12      | 34                         | 32                                   | 2.9                                 | 18                         | 36                                   | 1.8                                 | e38                        | 26                                   | e3.4                                |
| 13      | 26                         | 19                                   | 1.3                                 | 17                         | 32                                   | 1.5                                 | e155                       | 128                                  | e63                                 |
| 14      | 24                         | 15                                   | .93                                 | 32                         | 37                                   | 3.3                                 | e43                        | 43                                   | e5.2                                |
| 15      | 21                         | 13                                   | .74                                 | 23                         | 30                                   | 1.9                                 | e29                        | 24                                   | e1.9                                |
| 16      | 30                         | 26                                   | 3.0                                 | 24                         | 25                                   | 1.7                                 | e28                        | 29                                   | e2.2                                |
| 17      | 63                         | 67                                   | 11                                  | 26                         | 31                                   | 2.2                                 | e35                        | 37                                   | e3.5                                |
| 18      | 28                         | 38                                   | 3.0                                 | 20                         | 34                                   | 1.8                                 | e49                        | 56                                   | e7.6                                |
| 19      | 28                         | 36                                   | 2.7                                 | 16                         | 29                                   | 1.3                                 | e62                        | 106                                  | e20                                 |
| 20      | 38                         | 46                                   | 4.9                                 | 14                         | 25                                   | .96                                 | e40                        | 54                                   | e6.1                                |
| 21      | 69                         | 65                                   | 22                                  | 18                         | 22                                   | 1.0                                 | e38                        | 42                                   | e5.5                                |
| 22      | 53                         | 66                                   | 11                                  | 16                         | 19                                   | .81                                 | e90                        | 99                                   | e25                                 |
| 23      | 21                         | 47                                   | 2.7                                 | 15                         | 18                                   | .72                                 | e43                        | 60                                   | e7.0                                |
| 24      | 18                         | 42                                   | 2.0                                 | 21                         | 25                                   | 1.4                                 | e36                        | 69                                   | e6.6                                |
| 25      | 18                         | 33                                   | 1.6                                 | 15                         | 15                                   | .63                                 | 32                         | 66                                   | 5.7                                 |
| 26      | 18                         | 25                                   | 1.2                                 | e19                        | 49                                   | e2.2                                | 51                         | 59                                   | 8.8                                 |
| 27      | 18                         | 20                                   | .95                                 | e139                       | 264                                  | e53                                 | 30                         | 26                                   | 2.1                                 |
| 28      | 17                         | 18                                   | .87                                 | 29                         | 82                                   | 2.8                                 | 28                         | 22                                   | 1.6                                 |
| 29      | 18                         | 17                                   | .82                                 | 26                         | 31                                   | 2.3                                 | 26                         | 20                                   | 1.4                                 |
| 30      | 15                         | 13                                   | .53                                 | e122                       | 102                                  | e48                                 | 25                         | 18                                   | 1.2                                 |
| 31      | ---                        | ---                                  | ---                                 | e157                       | 133                                  | e66                                 | ---                        | ---                                  | ---                                 |
| TOTAL   | 838                        | ---                                  | 92.81                               | 1045                       | ---                                  | 223.01                              | 1275                       | ---                                  | 212.4                               |

## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 24                         | 18                              | 1.1                                 | 38                         | 19                              | 2.0                                 | 53                         | 51                              | 7.3                                 |
| 2     | 23                         | 22                              | 1.4                                 | 39                         | 30                              | 3.4                                 | 90                         | 99                              | 29                                  |
| 3     | 23                         | 26                              | 1.6                                 | 36                         | 43                              | 4.1                                 | 122                        | 287                             | 36                                  |
| 4     | 82                         | 77                              | 22                                  | 35                         | 29                              | 2.7                                 | 89                         | 209                             | 51                                  |
| 5     | 64                         | 77                              | 14                                  | 33                         | 20                              | 1.8                                 | 57                         | 89                              | 14                                  |
| 6     | 36                         | 44                              | 4.4                                 | 35                         | 19                              | 1.8                                 | 171                        | 157                             | 150                                 |
| 7     | 36                         | 40                              | 3.9                                 | 123                        | 88                              | 74                                  | 118                        | 139                             | 49                                  |
| 8     | 46                         | 26                              | 3.2                                 | 106                        | 97                              | 29                                  | 262                        | 257                             | 289                                 |
| 9     | 48                         | 20                              | 2.6                                 | 63                         | 66                              | 11                                  | 123                        | 129                             | 48                                  |
| 10    | 46                         | 18                              | 2.2                                 | 93                         | 85                              | 24                                  | 69                         | 56                              | 11                                  |
| 11    | 43                         | 19                              | 2.2                                 | 47                         | 43                              | 5.5                                 | 52                         | 36                              | 5.1                                 |
| 12    | 48                         | 22                              | 2.8                                 | 47                         | 32                              | 4.0                                 | 46                         | 25                              | 3.1                                 |
| 13    | 43                         | 24                              | 2.8                                 | 45                         | 28                              | 3.4                                 | 56                         | 40                              | 9.0                                 |
| 14    | 43                         | 26                              | 3.0                                 | 38                         | 26                              | 2.7                                 | 109                        | 148                             | 45                                  |
| 15    | 47                         | 31                              | 4.0                                 | 36                         | 27                              | 2.7                                 | 209                        | 172                             | 135                                 |
| 16    | 92                         | 87                              | 22                                  | 36                         | 29                              | 2.8                                 | 116                        | 133                             | 43                                  |
| 17    | 67                         | 67                              | 12                                  | 150                        | 118                             | 73                                  | 74                         | 105                             | 21                                  |
| 18    | 62                         | 62                              | 11                                  | 83                         | 84                              | 20                                  | 100                        | 99                              | 40                                  |
| 19    | 95                         | 127                             | 33                                  | 61                         | 65                              | 13                                  | 162                        | 138                             | 64                                  |
| 20    | e405                       | 752                             | e1820                               | 113                        | 108                             | 34                                  | 81                         | 87                              | 19                                  |
| 21    | 178                        | 309                             | 206                                 | 179                        | 191                             | 107                                 | e1930                      | 679                             | e12000                              |
| 22    | 64                         | 66                              | 11                                  | 202                        | 160                             | 104                                 | 3520                       | 1030                            | 10500                               |
| 23    | 73                         | 55                              | 11                                  | 84                         | 82                              | 19                                  | 356                        | 421                             | 435                                 |
| 24    | 115                        | 110                             | 39                                  | e1040                      | 466                             | e2580                               | 211                        | 102                             | 60                                  |
| 25    | 68                         | 65                              | 12                                  | e1520                      | 714                             | e3630                               | 171                        | 25                              | 11                                  |
| 26    | 52                         | 47                              | 6.6                                 | 552                        | 401                             | 883                                 | 158                        | 17                              | 7.1                                 |
| 27    | 50                         | 34                              | 4.5                                 | 148                        | 145                             | 61                                  | 146                        | 15                              | 6.0                                 |
| 28    | 67                         | 51                              | 10                                  | 96                         | 126                             | 33                                  | 134                        | 13                              | 4.8                                 |
| 29    | 59                         | 62                              | 10                                  | 319                        | 231                             | 357                                 | 123                        | 9                               | 2.9                                 |
| 30    | 44                         | 49                              | 5.9                                 | 84                         | 116                             | 27                                  | 117                        | 6                               | 1.8                                 |
| 31    | 40                         | 30                              | 3.3                                 | 61                         | 73                              | 12                                  | ---                        | ---                             | ---                                 |
| TOTAL | 2183                       | ---                             | 2288.5                              | 5542                       | ---                             | 8127.9                              | 9025                       | ---                             | 24097.1                             |
| YEAR  | 37692                      |                                 | 75246.17                            |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 13... | 1500 | 155                                                                   | 221                                                   | 92                                                                        | 98                                                                       |
| 14... | 0400 | 31300                                                                 | 1660                                                  | 140000                                                                    | 96                                                                       |
| 14... | 1115 | 2320                                                                  | 709                                                   | 4440                                                                      | 96                                                                       |
| 17... | 1845 | 504                                                                   | 210                                                   | 286                                                                       | 98                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 26... | 0945 | 454                                                                   | 1170                                                  | 1430                                                                      | 90                                                                       |
| 26... | 1500 | 380                                                                   | 393                                                   | 403                                                                       | 99                                                                       |
| 26... | 1915 | 392                                                                   | 2070                                                  | 2190                                                                      | 88                                                                       |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 27... | 1445 | 110                                                                   | 432                                                   | 128                                                                       | 98                                                                       |
| JUL   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 20... | 1700 | 992                                                                   | 3140                                                  | 8410                                                                      | 98                                                                       |
| 21... | 0100 | 516                                                                   | 928                                                   | 1290                                                                      | 98                                                                       |

## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|-------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|       |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 12... | 2100 | 516                                                                     | 465                                                                     | 648                                                                      | 45                                                                       | 53                                                                       | 63                                                                       |                                                                          |
| 14... | 1040 | 3240                                                                    | 1240                                                                    | 10800                                                                    | 49                                                                       | 59                                                                       | 68                                                                       |                                                                          |
| NOV   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 26... | 0600 | 888                                                                     | 5500                                                                    | 13200                                                                    | 39                                                                       | 48                                                                       | 59                                                                       |                                                                          |
| DATE  |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|       |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 12... | 72   | 80                                                                      | 85                                                                      | 95                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| 14... | 77   | 84                                                                      | 87                                                                      | 95                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| NOV   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 26... | 70   | 80                                                                      | 84                                                                      | 94                                                                       | 98                                                                       | 99                                                                       | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50057025 RIO GURABO NEAR GURABO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'56", Long 65°59'04", at bridge on Highway 941, 1.2 mi (1.9 km) west-northwest from gaging station 50057000, and 1.0 mi (1.6 km) northwest of Gurabo plaza.

DRAINAGE AREA.--62.8 mi<sup>2</sup> (162.7 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DEMAND, (PER-CENT (HIGH LEVEL) (00301) | OXYGEN, DEMAND, (PER-CENT (HIGH LEVEL) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 15... | 1150 | --                                              | 200                                     | 6.6                                      | 26.0                               | 88                        | 5.7                               | 69                                             | 23                                             | 46000                                               | K14000                                          |
| FEB 18... | 0855 | 19                                              | 341                                     | 7.1                                      | 26.0                               | 10                        | 4.4                               | 55                                             | <10                                            | 2000                                                | 380                                             |
| MAY 26... | 0945 | 6.9                                             | 391                                     | 7.0                                      | 30.0                               | 10                        | 5.3                               | 70                                             | <10                                            | 2100                                                | K120                                            |
| AUG 17... | 0745 | 90                                              | 399                                     | 6.5                                      | 29.0                               | 25                        | 4.2                               | 55                                             | <10                                            | 4900                                                | K1900                                           |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 15... | 58                                      | 14                                      | 5.8                                         | 14                                      | .8                                | 3.5                                        | 56                                                  | <0.5                              | 11                                       | 15                                         |
| FEB 18... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 130                                                 | --                                | --                                       | --                                         |
| MAY 26... | 120                                     | 27                                      | 13                                          | 32                                      | 1                                 | 3.9                                        | 130                                                 | --                                | 15                                       | 35                                         |
| AUG 17... | 130                                     | 29                                      | 13                                          | 28                                      | 1                                 | 5.0                                        | 140                                                 | <1.0                              | 16                                       | 31                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 15... | .12                                       | 20                                        | 116                                                     | --                                        | 108                                                    | .770                                         | .060                                         | .830                                         | .130                                         | .35                                          |
| FEB 18... | --                                        | --                                        | --                                                      | --                                        | 7                                                      | 1.03                                         | .068                                         | 1.10                                         | .200                                         | .47                                          |
| MAY 26... | .17                                       | 32                                        | 236                                                     | 4.40                                      | 22                                                     | .691                                         | .059                                         | .750                                         | .050                                         | .82                                          |
| AUG 17... | .14                                       | 34                                        | 240                                                     | 58.4                                      | 46                                                     | .758                                         | .062                                         | .820                                         | .190                                         | .68                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM, TOTAL UNFLTRD (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 15... | .48                                                     | 1.3                                  | 5.8                                    | .040                                  | <1                                 | <100                                            | 30                                            | <1                                          | 3                                                  | <10                                             |
| FEB 18... | .67                                                     | 1.8                                  | 7.8                                    | .220                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |
| MAY 26... | .87                                                     | 1.6                                  | 7.2                                    | .130                                  | 1                                  | <100                                            | 50                                            | <1                                          | <1                                                 | <10                                             |
| AUG 17... | .87                                                     | 1.7                                  | 7.5                                    | .620                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |

## RIO GRANDE DE LOIZA BASIN

50057025 RIO GURABO NEAR GURABO, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR

LOCATION.--Lat 18°17'41", long 66°02'44", Hydrologic Unit 21010005, at right bank, off road 798, upstream side of bridge on Highway 52, 0.5 mi (0.8 km ) northeast from Escuela Segunda Unidad de Francisco Valdés, and 0.8 mi (1.3 km) north of La Barra.

DRAINAGE AREA.--7.53 mi<sup>2</sup> (19.50 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1     | 7.2   | 6.6   | 9.5   | 11    | 4.1   | 5.2   | 3.7   | 2.6   | 3.7   | e3.0  | 4.0   | 5.8    |
| 2     | 12    | 6.6   | 9.5   | 7.0   | 4.2   | 4.9   | 3.6   | 2.5   | 3.8   | e3.8  | 3.9   | 7.1    |
| 3     | 4.3   | 6.5   | 9.3   | 7.0   | 4.1   | 5.3   | 3.4   | 2.6   | 3.7   | e6.2  | 3.9   | 7.3    |
| 4     | 3.2   | 6.7   | 10    | 7.1   | 60    | 5.3   | 3.4   | 2.5   | 4.6   | e5.0  | 3.7   | 9.8    |
| 5     | 3.0   | 6.7   | 9.7   | 7.7   | 79    | 5.7   | 3.3   | 2.4   | 10    | e3.7  | 3.7   | 7.5    |
| 6     | 20    | 6.2   | 9.5   | 29    | 8.9   | 5.1   | 3.3   | 2.3   | 4.1   | e27   | e4.4  | 8.8    |
| 7     | 5.3   | 5.8   | 9.8   | 29    | 8.3   | 8.1   | 5.0   | 2.2   | 3.7   | e9.5  | 51    | 6.4    |
| 8     | 7.2   | 5.3   | 9.4   | 10    | 33    | 6.2   | 4.0   | 4.4   | 3.6   | e4.3  | 7.5   | 7.3    |
| 9     | 4.3   | 5.2   | 9.2   | 9.9   | 16    | 4.9   | 3.3   | 3.0   | 7.4   | e3.6  | 4.5   | 5.3    |
| 10    | 3.5   | 7.1   | 8.8   | 9.2   | 9.4   | 4.8   | 3.2   | 2.7   | 4.1   | e3.9  | 4.1   | 4.8    |
| 11    | 6.2   | 5.3   | 8.5   | 8.7   | 8.8   | 4.6   | 3.2   | 2.6   | 3.6   | e3.5  | 3.9   | 4.4    |
| 12    | 30    | 5.6   | 8.2   | 8.1   | 7.9   | 4.5   | 5.9   | 2.5   | 3.4   | e3.3  | 3.9   | 4.3    |
| 13    | 42    | 4.9   | 8.1   | 21    | 7.2   | 4.3   | 4.7   | 2.4   | 3.4   | e3.1  | 3.7   | 5.3    |
| 14    | 227   | 4.8   | 8.4   | 13    | 15    | 11    | 3.8   | 41    | 3.3   | e2.8  | 3.6   | 4.2    |
| 15    | 20    | 75    | 9.2   | 7.2   | 10    | 4.4   | 3.9   | 6.8   | 3.3   | e2.8  | 3.6   | 7.1    |
| 16    | 18    | 17    | 8.9   | 7.2   | 7.7   | 3.7   | 12    | 4.5   | 3.1   | e3.6  | 3.4   | 4.7    |
| 17    | 15    | 10    | 8.7   | 8.5   | 7.2   | 4.1   | 4.0   | 4.3   | 55    | e4.3  | 7.8   | 4.5    |
| 18    | 14    | 9.7   | 8.0   | 6.5   | 6.2   | 4.0   | 3.6   | 4.2   | 9.8   | e3.9  | 35    | 5.5    |
| 19    | 13    | 11    | 8.0   | 5.9   | 5.9   | 3.6   | 3.3   | 4.4   | 6.3   | e4.6  | 5.8   | 4.5    |
| 20    | 11    | 9.9   | 8.0   | 5.3   | 5.6   | 3.8   | 3.3   | 4.3   | 5.8   | e28   | 5.0   | 5.7    |
| 21    | 9.1   | 9.9   | 8.6   | 5.3   | 5.5   | 4.2   | 3.2   | 4.2   | 13    | e11   | 12    | 264    |
| 22    | 8.1   | 10    | 7.7   | 5.2   | 5.5   | 3.5   | 3.1   | 4.1   | e6.8  | 5.4   | 10    | 1060   |
| 23    | 7.6   | 10    | 7.4   | 4.9   | 5.3   | 3.4   | 3.0   | 4.0   | e4.4  | 9.4   | 5.4   | 172    |
| 24    | 7.3   | 9.7   | 7.2   | 4.9   | 5.3   | 3.5   | 2.8   | 4.5   | e4.4  | 7.9   | 51    | 86     |
| 25    | 9.4   | 9.5   | 7.0   | 5.0   | 5.2   | 3.8   | 2.9   | 4.3   | e6.8  | 4.9   | 52    | 77     |
| 26    | 8.0   | 11    | 7.0   | 4.7   | 5.5   | 3.4   | 3.0   | 4.2   | e3.7  | 4.4   | 7.2   | 115    |
| 27    | 7.5   | 10    | 7.0   | 4.5   | 5.3   | 3.4   | 3.4   | 4.3   | e3.4  | 5.5   | 21    | 83     |
| 28    | 7.2   | 10    | 7.2   | 4.3   | 5.2   | 3.6   | 3.0   | 4.3   | e3.5  | 7.9   | 166   | 57     |
| 29    | 6.7   | 9.9   | 7.7   | 4.1   | ---   | 16    | 2.7   | 4.1   | e3.3  | 4.6   | 15    | 57     |
| 30    | 7.0   | 9.5   | 7.4   | 4.0   | ---   | 5.1   | 2.7   | 4.2   | e3.4  | 4.4   | 8.0   | 49     |
| 31    | 6.6   | ---   | 7.9   | 4.1   | ---   | 4.9   | ---   | 3.9   | ---   | 4.3   | e6.5  | ---    |
| TOTAL | 550.7 | 315.4 | 260.8 | 269.3 | 351.3 | 158.3 | 113.7 | 150.3 | 198.4 | 199.6 | 520.5 | 2140.3 |
| MEAN  | 17.8  | 10.5  | 8.41  | 8.69  | 12.5  | 5.11  | 3.79  | 4.85  | 6.61  | 6.44  | 16.8  | 71.3   |
| MAX   | 227   | 75    | 10    | 29    | 79    | 16    | 12    | 41    | 55    | 28    | 166   | 1060   |
| MIN   | 3.0   | 4.8   | 7.0   | 4.0   | 4.1   | 3.4   | 2.7   | 2.2   | 3.1   | 2.8   | 3.4   | 4.2    |
| AC-FT | 1090  | 626   | 517   | 534   | 697   | 314   | 226   | 298   | 394   | 396   | 1030  | 4250   |
| CFSM  | 2.36  | 1.40  | 1.12  | 1.15  | 1.67  | .68   | .50   | .64   | .88   | .86   | 2.23  | 9.47   |
| IN.   | 2.72  | 1.56  | 1.29  | 1.33  | 1.74  | .78   | .56   | .74   | .98   | .99   | 2.57  | 10.57  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

|      | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|------|------|------|------|------|------|------|------|------|------|
| MEAN | 15.4 | 13.6 | 11.3 | 11.3 | 10.3 | 5.24 | 5.37 | 8.26 | 7.49 |
| MAX  | 39.4 | 36.2 | 29.9 | 24.5 | 18.8 | 7.97 | 11.1 | 19.5 | 20.0 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1995 | 1997 | 1993 | 1992 | 1993 |
| MIN  | 4.60 | 7.18 | 5.55 | 4.48 | 4.29 | 2.48 | 3.24 | 2.50 | 1.78 |
| (WY) | 1992 | 1991 | 1994 | 1994 | 1994 | 1994 | 1995 | 1994 | 1994 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

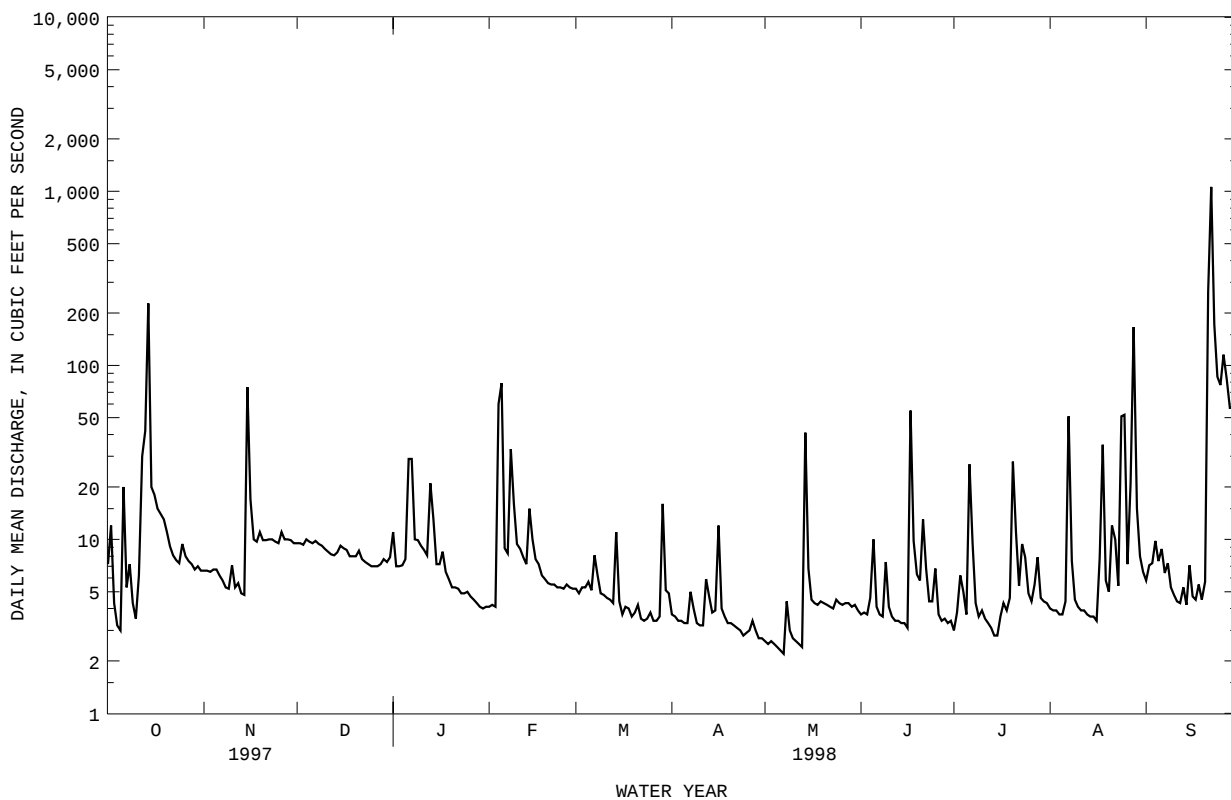
## FOR 1998 WATER YEAR

## WATER YEARS 1990 - 1998

|                          |        |        |       |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL             | 3335.6 | 5228.6 |       |
| ANNUAL MEAN              | 9.14   | 14.3   | 12.2  |
| HIGHEST ANNUAL MEAN      |        |        | 17.7  |
| LOWEST ANNUAL MEAN       |        |        | 5.77  |
| HIGHEST DAILY MEAN       | 382    | Aug 22 | 1060  |
| LOWEST DAILY MEAN        | 2.3    | Jun 28 | 2.2   |
| ANNUAL SEVEN-DAY MINIMUM | 2.5    | Jun 12 | 2.4   |
| INSTANTANEOUS PEAK FLOW  |        |        | 2490  |
| INSTANTANEOUS PEAK STAGE |        |        | 18.19 |
| INSTANTANEOUS LOW FLOW   |        |        | 2.2   |
| ANNUAL RUNOFF (AC-FT)    | 6620   |        | 10370 |
| ANNUAL RUNOFF (CFSM)     | 1.21   |        | 1.90  |
| ANNUAL RUNOFF (INCHES)   | 16.48  |        | 25.83 |
| 10 PERCENT EXCEEDS       | 12     |        | 15    |
| 50 PERCENT EXCEEDS       | 6.4    |        | 5.5   |
| 90 PERCENT EXCEEDS       | 3.1    |        | 3.3   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued



RIO GRANDE DE LOIZA BASIN  
50058350 RIO CAÑAS AT CAÑAS, PR--Continued  
WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1994 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 12,900 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 95,000 tons (86,200 tonnes) September 10, 1996; Minimum daily mean, 0.01 ton (0.01 tonne) January 08, 1995.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,560 mg/L September 22, 1998; Minimum daily mean, 2 mg/L December 26, 1997.

SEDIMENT LOADS: Maximum daily mean, 12,000 tons (10,900 tonnes) September 22, 1998; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 |                                     | NOVEMBER                   |                                 |                                     | DECEMBER                   |                                 |                                     |
| 1       | 7.2                        | 203                             | 17                                  | 6.6                        | 36                              | .63                                 | 9.5                        | 34                              | .87                                 |
| 2       | 12                         | 238                             | 20                                  | 6.6                        | 29                              | .51                                 | 9.5                        | 17                              | .43                                 |
| 3       | 4.3                        | 47                              | .56                                 | 6.5                        | 23                              | .41                                 | 9.3                        | 7                               | .19                                 |
| 4       | 3.2                        | 26                              | .23                                 | 6.7                        | 19                              | .34                                 | 10                         | 6                               | .17                                 |
| 5       | 3.0                        | 19                              | .16                                 | 6.7                        | 17                              | .30                                 | 9.7                        | 7                               | .18                                 |
| 6       | 20                         | 957                             | 408                                 | 6.2                        | 15                              | .26                                 | 9.5                        | 6                               | .14                                 |
| 7       | 5.3                        | 39                              | .58                                 | 5.8                        | 14                              | .22                                 | 9.8                        | 4                               | .11                                 |
| 8       | 7.2                        | 296                             | 24                                  | 5.3                        | 17                              | .24                                 | 9.4                        | 3                               | .08                                 |
| 9       | 4.3                        | 28                              | .33                                 | 5.2                        | 41                              | .57                                 | 9.2                        | 3                               | .07                                 |
| 10      | 3.5                        | 13                              | .13                                 | 7.1                        | 58                              | 1.2                                 | 8.8                        | 3                               | .07                                 |
| 11      | 6.2                        | 47                              | 1.3                                 | 5.3                        | 19                              | .28                                 | 8.5                        | 5                               | .12                                 |
| 12      | 30                         | 519                             | 283                                 | 5.6                        | 48                              | .81                                 | 8.2                        | 10                              | .22                                 |
| 13      | 42                         | 400                             | 725                                 | 4.9                        | 71                              | .95                                 | 8.1                        | 9                               | .20                                 |
| 14      | 227                        | 1690                            | 3260                                | 4.8                        | 48                              | .62                                 | 8.4                        | 6                               | .14                                 |
| 15      | 20                         | 102                             | 5.8                                 | 75                         | 2230                            | 2050                                | 9.2                        | 4                               | .11                                 |
| 16      | 18                         | 54                              | 2.6                                 | 17                         | 341                             | 43                                  | 8.9                        | 6                               | .14                                 |
| 17      | 15                         | 52                              | 2.1                                 | 10                         | 91                              | 2.5                                 | 8.7                        | 8                               | .19                                 |
| 18      | 14                         | 54                              | 2.1                                 | 9.7                        | 70                              | 1.8                                 | 8.0                        | 6                               | .14                                 |
| 19      | 13                         | 57                              | 2.0                                 | 11                         | 127                             | 4.5                                 | 8.0                        | 4                               | .10                                 |
| 20      | 11                         | 60                              | 1.8                                 | 9.9                        | 36                              | .97                                 | 8.0                        | 4                               | .09                                 |
| 21      | 9.1                        | 47                              | 1.2                                 | 9.9                        | 28                              | .76                                 | 8.6                        | 5                               | .11                                 |
| 22      | 8.1                        | 33                              | .72                                 | 10                         | 31                              | .87                                 | 7.7                        | 6                               | .11                                 |
| 23      | 7.6                        | 18                              | .38                                 | 10                         | 33                              | .93                                 | 7.4                        | 6                               | .12                                 |
| 24      | 7.3                        | 10                              | .19                                 | 9.7                        | 34                              | .88                                 | 7.2                        | 7                               | .13                                 |
| 25      | 9.4                        | 56                              | 2.4                                 | 9.5                        | 26                              | .65                                 | 7.0                        | 4                               | .07                                 |
| 26      | 8.0                        | 68                              | 1.5                                 | 11                         | 18                              | .51                                 | 7.0                        | 2                               | .04                                 |
| 27      | 7.5                        | 36                              | .71                                 | 10                         | 14                              | .37                                 | 7.0                        | 3                               | .06                                 |
| 28      | 7.2                        | 10                              | .19                                 | 10                         | 47                              | 1.4                                 | 7.2                        | 5                               | .10                                 |
| 29      | 6.7                        | 13                              | .23                                 | 9.9                        | 73                              | 1.9                                 | 7.7                        | 9                               | .19                                 |
| 30      | 7.0                        | 22                              | .41                                 | 9.5                        | 50                              | 1.3                                 | 7.4                        | 16                              | .32                                 |
| 31      | 6.6                        | 36                              | .65                                 | ---                        | ---                             | ---                                 | 7.9                        | 17                              | .35                                 |
| TOTAL   | 550.7                      | ---                             | 4765.27                             | 315.4                      | ---                             | 2119.68                             | 260.8                      | ---                             | 5.36                                |

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 11                         | 80                                   | 3.1                                 | 4.1                        | 5                                    | .05                                 | 5.2                        | 8                                    | .11                                 |
| 2       | 7.0                        | 67                                   | 1.3                                 | 4.2                        | 5                                    | .06                                 | 4.9                        | 8                                    | .10                                 |
| 3       | 7.0                        | 38                                   | .72                                 | 4.1                        | 4                                    | .04                                 | 5.3                        | 5                                    | .08                                 |
| 4       | 7.1                        | 24                                   | .47                                 | 60                         | 1140                                 | 2270                                | 5.3                        | 3                                    | .05                                 |
| 5       | 7.7                        | 16                                   | .33                                 | 79                         | 1600                                 | 1130                                | 5.7                        | 6                                    | .78                                 |
| 6       | 29                         | 551                                  | 105                                 | 8.9                        | 44                                   | 1.1                                 | 5.1                        | 10                                   | .14                                 |
| 7       | 29                         | 905                                  | 98                                  | 8.3                        | 23                                   | .53                                 | 8.1                        | 40                                   | 3.2                                 |
| 8       | 10                         | 97                                   | 2.8                                 | 33                         | 489                                  | 165                                 | 6.2                        | 46                                   | .83                                 |
| 9       | 9.9                        | 30                                   | 3.2                                 | 16                         | 168                                  | 9.0                                 | 4.9                        | 13                                   | .18                                 |
| 10      | 9.2                        | 10                                   | .25                                 | 9.4                        | 28                                   | .72                                 | 4.8                        | 5                                    | .06                                 |
| 11      | 8.7                        | 10                                   | .23                                 | 8.8                        | 9                                    | .20                                 | 4.6                        | 4                                    | .05                                 |
| 12      | 8.1                        | 10                                   | .22                                 | 7.9                        | 12                                   | .25                                 | 4.5                        | 4                                    | .05                                 |
| 13      | 21                         | 88                                   | 30                                  | 7.2                        | 25                                   | .49                                 | 4.3                        | 4                                    | .05                                 |
| 14      | 13                         | 90                                   | 3.8                                 | 15                         | 25                                   | 13                                  | 11                         | 193                                  | 29                                  |
| 15      | 7.2                        | 17                                   | .34                                 | 10                         | 19                                   | .53                                 | 4.4                        | 26                                   | .32                                 |
| 16      | 7.2                        | 10                                   | .20                                 | 7.7                        | 16                                   | .34                                 | 3.7                        | 11                                   | .11                                 |
| 17      | 8.5                        | 169                                  | 11                                  | 7.2                        | 10                                   | .19                                 | 4.1                        | 9                                    | .09                                 |
| 18      | 6.5                        | 24                                   | .42                                 | 6.2                        | 6                                    | .09                                 | 4.0                        | 8                                    | .09                                 |
| 19      | 5.9                        | 14                                   | .22                                 | 5.9                        | 4                                    | .06                                 | 3.6                        | 8                                    | .08                                 |
| 20      | 5.3                        | 10                                   | .14                                 | 5.6                        | 3                                    | .05                                 | 3.8                        | 9                                    | .09                                 |
| 21      | 5.3                        | 9                                    | .13                                 | 5.5                        | 3                                    | .05                                 | 4.2                        | 9                                    | .10                                 |
| 22      | 5.2                        | 4                                    | .05                                 | 5.5                        | 3                                    | .04                                 | 3.5                        | 9                                    | .09                                 |
| 23      | 4.9                        | 5                                    | .06                                 | 5.3                        | 3                                    | .04                                 | 3.4                        | 9                                    | .08                                 |
| 24      | 4.9                        | 8                                    | .10                                 | 5.3                        | 3                                    | .04                                 | 3.5                        | 9                                    | .08                                 |
| 25      | 5.0                        | 12                                   | .17                                 | 5.2                        | 3                                    | .05                                 | 3.8                        | 8                                    | .08                                 |
| 26      | 4.7                        | 20                                   | .25                                 | 5.5                        | 5                                    | .07                                 | 3.4                        | 8                                    | .07                                 |
| 27      | 4.5                        | 29                                   | .35                                 | 5.3                        | 6                                    | .09                                 | 3.4                        | 7                                    | .06                                 |
| 28      | 4.3                        | 38                                   | .44                                 | 5.2                        | 7                                    | .10                                 | 3.6                        | 6                                    | .06                                 |
| 29      | 4.1                        | 16                                   | .18                                 | ---                        | ---                                  | ---                                 | 16                         | 27                                   | 28                                  |
| 30      | 4.0                        | 4                                    | .05                                 | ---                        | ---                                  | ---                                 | 5.1                        | 53                                   | .75                                 |
| 31      | 4.1                        | 4                                    | .04                                 | ---                        | ---                                  | ---                                 | 4.9                        | 20                                   | .56                                 |
| TOTAL   | 269.3                      | ---                                  | 263.56                              | 351.3                      | ---                                  | 3592.18                             | 158.3                      | ---                                  | 65.39                               |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 3.7                        | 11                                   | .10                                 | 2.6                        | 3                                    | .02                                 | 3.7                        | 3                                    | .03                                 |
| 2       | 3.6                        | 9                                    | .09                                 | 2.5                        | 5                                    | .03                                 | 3.8                        | 6                                    | .06                                 |
| 3       | 3.4                        | 8                                    | .08                                 | 2.6                        | 9                                    | .06                                 | 3.7                        | 10                                   | .10                                 |
| 4       | 3.4                        | 8                                    | .07                                 | 2.5                        | 13                                   | .09                                 | 4.6                        | 28                                   | .45                                 |
| 5       | 3.3                        | 7                                    | .07                                 | 2.4                        | 7                                    | .05                                 | 10                         | 268                                  | 33                                  |
| 6       | 3.3                        | 7                                    | .06                                 | 2.3                        | 4                                    | .02                                 | 4.1                        | 48                                   | .54                                 |
| 7       | 5.0                        | 25                                   | 1.1                                 | 2.2                        | 3                                    | .02                                 | 3.7                        | 19                                   | .19                                 |
| 8       | 4.0                        | 22                                   | .26                                 | 4.4                        | 285                                  | 2.0                                 | 3.6                        | 9                                    | .08                                 |
| 9       | 3.3                        | 13                                   | .11                                 | 3.0                        | 16                                   | .13                                 | 7.4                        | 17                                   | 2.4                                 |
| 10      | 3.2                        | 12                                   | .10                                 | 2.7                        | 7                                    | .05                                 | 4.1                        | 28                                   | .31                                 |
| 11      | 3.2                        | 11                                   | .09                                 | 2.6                        | 3                                    | .02                                 | 3.6                        | 25                                   | .24                                 |
| 12      | 5.9                        | 33                                   | 2.6                                 | 2.5                        | 3                                    | .02                                 | 3.4                        | 23                                   | .22                                 |
| 13      | 4.7                        | 32                                   | .44                                 | 2.4                        | 4                                    | .03                                 | 3.4                        | 23                                   | .21                                 |
| 14      | 3.8                        | 10                                   | .10                                 | 41                         | 1510                                 | 1320                                | 3.3                        | 22                                   | .20                                 |
| 15      | 3.9                        | 10                                   | .21                                 | 6.8                        | 103                                  | 2.2                                 | 3.3                        | 22                                   | .19                                 |
| 16      | 12                         | 104                                  | 10                                  | 4.5                        | 54                                   | .65                                 | 3.1                        | 21                                   | .18                                 |
| 17      | 4.0                        | 30                                   | .33                                 | 4.3                        | 45                                   | .52                                 | 55                         | 1450                                 | 1040                                |
| 18      | 3.6                        | 19                                   | .19                                 | 4.2                        | 37                                   | .42                                 | 9.8                        | 112                                  | 3.2                                 |
| 19      | 3.3                        | 12                                   | .11                                 | 4.4                        | 34                                   | .44                                 | 6.3                        | 43                                   | .74                                 |
| 20      | 3.3                        | 15                                   | .13                                 | 4.3                        | 19                                   | .23                                 | 5.8                        | 33                                   | .51                                 |
| 21      | 3.2                        | 19                                   | .16                                 | 4.2                        | 12                                   | .13                                 | 13                         | 50                                   | 9.6                                 |
| 22      | 3.1                        | 17                                   | .14                                 | 4.1                        | 11                                   | .12                                 | e6.8                       | 48                                   | e.95                                |
| 23      | 3.0                        | 11                                   | .09                                 | 4.0                        | 11                                   | .12                                 | e4.4                       | 15                                   | e.18                                |
| 24      | 2.8                        | 7                                    | .05                                 | 4.5                        | 22                                   | .33                                 | e4.4                       | 13                                   | e.19                                |
| 25      | 2.9                        | 7                                    | .05                                 | 4.3                        | 40                                   | .46                                 | e6.8                       | 25                                   | e.72                                |
| 26      | 3.0                        | 7                                    | .06                                 | 4.2                        | 22                                   | .25                                 | e3.7                       | 10                                   | e.10                                |
| 27      | 3.4                        | 8                                    | .07                                 | 4.3                        | 14                                   | .16                                 | e3.4                       | 9                                    | e.08                                |
| 28      | 3.0                        | 6                                    | .05                                 | 4.3                        | 9                                    | .10                                 | e3.5                       | 6                                    | e.06                                |
| 29      | 2.7                        | 5                                    | .04                                 | 4.1                        | 6                                    | .06                                 | e3.3                       | 4                                    | e.04                                |
| 30      | 2.7                        | 4                                    | .03                                 | 4.2                        | 4                                    | .05                                 | e3.4                       | 5                                    | e.04                                |
| 31      | ---                        | ---                                  | ---                                 | 3.9                        | 4                                    | .04                                 | ---                        | ---                                  | ---                                 |
| TOTAL   | 113.7                      | ---                                  | 16.98                               | 150.3                      | ---                                  | 1328.82                             | 198.4                      | ---                                  | 1094.81                             |

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | e3.0                       | 6                                    | e.05                                | 4.0                        | 5                                    | .06                                 | 5.8                        | 21                                   | .32                                 |
| 2     | e3.8                       | 4                                    | e.04                                | 3.9                        | 5                                    | .05                                 | 7.1                        | 67                                   | 1.9                                 |
| 3     | e6.2                       | 3                                    | e.05                                | 3.9                        | 5                                    | .05                                 | 7.3                        | 76                                   | 1.4                                 |
| 4     | e5.0                       | 4                                    | e.05                                | 3.7                        | 4                                    | .04                                 | 9.8                        | 150                                  | 2.7                                 |
| 5     | e3.7                       | 5                                    | e5.0                                | 3.7                        | 3                                    | .03                                 | 7.5                        | 123                                  | 1.4                                 |
| 6     | e27                        | 341                                  | e83                                 | e4.4                       | 3                                    | e.04                                | 8.8                        | 79                                   | 3.1                                 |
| 7     | e9.5                       | 120                                  | e4.1                                | 51                         | 731                                  | 574                                 | 6.4                        | 55                                   | .98                                 |
| 8     | e4.3                       | 25                                   | e.29                                | 7.5                        | 74                                   | 2.1                                 | 7.3                        | 69                                   | 1.5                                 |
| 9     | e3.6                       | 26                                   | e.25                                | 4.5                        | 29                                   | .37                                 | 5.3                        | 24                                   | .34                                 |
| 10    | e3.9                       | 29                                   | e.30                                | 4.1                        | 7                                    | .08                                 | 4.8                        | 8                                    | .10                                 |
| 11    | e3.5                       | 32                                   | e.30                                | 3.9                        | 7                                    | .07                                 | 4.4                        | 8                                    | .10                                 |
| 12    | e3.3                       | 35                                   | e.31                                | 3.9                        | 7                                    | .08                                 | 4.3                        | 11                                   | .13                                 |
| 13    | e3.1                       | 36                                   | e.30                                | 3.7                        | 8                                    | .08                                 | 5.3                        | 32                                   | .66                                 |
| 14    | e2.8                       | 31                                   | e.23                                | 3.6                        | 9                                    | .09                                 | 4.2                        | 13                                   | .15                                 |
| 15    | e2.8                       | 25                                   | e.19                                | 3.6                        | 9                                    | .09                                 | 7.1                        | 53                                   | 2.0                                 |
| 16    | e3.6                       | 23                                   | e.23                                | 3.4                        | 9                                    | .08                                 | 4.7                        | 23                                   | .29                                 |
| 17    | e4.3                       | 22                                   | e.26                                | 7.8                        | 16                                   | 3.0                                 | 4.5                        | 16                                   | .19                                 |
| 18    | e3.9                       | 21                                   | e.22                                | 35                         | 509                                  | 351                                 | 5.5                        | 19                                   | .77                                 |
| 19    | e4.6                       | 20                                   | e.26                                | 5.8                        | 31                                   | .56                                 | 4.5                        | 28                                   | .39                                 |
| 20    | e28                        | 137                                  | e169                                | 5.0                        | 24                                   | .45                                 | 5.7                        | 43                                   | .88                                 |
| 21    | e11                        | 106                                  | e6.3                                | 12                         | 182                                  | 6.5                                 | 264                        | 1120                                 | 4190                                |
| 22    | 5.4                        | 28                                   | .41                                 | 10                         | 81                                   | 4.6                                 | 1060                       | 3560                                 | 12000                               |
| 23    | 9.4                        | 580                                  | 3.6                                 | 5.4                        | 264                                  | .65                                 | 172                        | 1070                                 | 611                                 |
| 24    | 7.9                        | 192                                  | 1.8                                 | 51                         | 862                                  | 279                                 | 86                         | 143                                  | 34                                  |
| 25    | 4.9                        | 34                                   | .45                                 | 52                         | 904                                  | 286                                 | 77                         | 20                                   | 4.2                                 |
| 26    | 4.4                        | 31                                   | .36                                 | 7.2                        | 39                                   | .83                                 | 115                        | 1330                                 | 1390                                |
| 27    | 5.5                        | 25                                   | .68                                 | 21                         | 295                                  | 51                                  | 83                         | 936                                  | 279                                 |
| 28    | 7.9                        | 69                                   | 2.3                                 | 166                        | 1750                                 | 3480                                | 57                         | 34                                   | 5.2                                 |
| 29    | 4.6                        | 26                                   | .33                                 | 15                         | 177                                  | 7.6                                 | 57                         | 312                                  | 63                                  |
| 30    | 4.4                        | 14                                   | .16                                 | 8.0                        | 56                                   | 1.2                                 | 49                         | 24                                   | 3.2                                 |
| 31    | 4.3                        | 8                                    | .09                                 | e6.5                       | 24                                   | .42                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 199.6                      | ---                                  | 280.91                              | 520.5                      | ---                                  | 5050.12                             | 2140.3                     | ---                                  | 18598.90                            |
| YEAR  | 5228.6                     |                                      | 37181.98                            |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>D (MG/L)<br>(80154) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| FEB   |      |                                                                       |                                                                           |                                                                          |
| 05... | 0318 | 261                                                                   | 5770                                                                      | 82                                                                       |
| JUL   |      |                                                                       |                                                                           |                                                                          |
| 23... | 1530 | 18                                                                    | 1500                                                                      | 73                                                                       |
| AUG   |      |                                                                       |                                                                           |                                                                          |
| 28... | 1810 | 180                                                                   | 4280                                                                      | 2080                                                                     |
| SEP   |      |                                                                       |                                                                           |                                                                          |
| 22... | 0200 | 1640                                                                  | 3820                                                                      | 16900                                                                    |

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70326)             | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70327)             | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70328)             |                                                                          |
|-------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|       |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 06... | 1630 | 240                                                                     | 12700                                                                   | 8230                                                                     | 24                                                                       | 37                                                                       | 52                                                                       |                                                                          |
| 12... | 1415 | 370                                                                     | 9270                                                                    | 9260                                                                     | 35                                                                       | 45                                                                       | 57                                                                       |                                                                          |
| FEB   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 04... | 2248 | 666                                                                     | 10200                                                                   | 18300                                                                    | 26                                                                       | 34                                                                       | 45                                                                       |                                                                          |
| MAY   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 14... | 2049 | 170                                                                     | 10100                                                                   | 4640                                                                     | 43                                                                       | 56                                                                       | 72                                                                       |                                                                          |
| JUN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 17... | 1858 | 265                                                                     | 7420                                                                    | 5310                                                                     | 39                                                                       | 50                                                                       | 63                                                                       |                                                                          |
| AUG   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 28... | 1600 | 1460                                                                    | 9720                                                                    | 38300                                                                    | 38                                                                       | 48                                                                       | 61                                                                       |                                                                          |
| DATE  |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|       |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 06... | 65   | 80                                                                      | 87                                                                      | 96                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| 12... | 68   | 77                                                                      | 79                                                                      | 88                                                                       | 96                                                                       | 99                                                                       | 100                                                                      |                                                                          |
| FEB   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 04... | 56   | 64                                                                      | 68                                                                      | 79                                                                       | 88                                                                       | 95                                                                       | 99                                                                       |                                                                          |
| MAY   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 14... | 85   | 93                                                                      | 97                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| JUN   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 17... | 76   | 86                                                                      | 90                                                                      | 96                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| AUG   |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 28... | 72   | 81                                                                      | 83                                                                      | 91                                                                       | 96                                                                       | 99                                                                       | 100                                                                      |                                                                          |

## RIO GRANDE DE LOIZA BASIN

50059000 LAGO LOIZA AT DAMSITE NEAR TRUJILLO ALTO, PR

LOCATION.--Lat 18°19'49", long 66°01'00", Hydrologic Unit 21010005, at pumpsite at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRAINAGE AREA.--208 mi<sup>2</sup> (539 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--December 1987 to current year. Prior to October 1994, published as Lago Loíza at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Loiza Dam, a concrete structure completed in 1954. Useable capacity of impoundment is 30,000 acre-ft (37.0 hm<sup>3</sup>). Out flow from lake is controlled by five slide gates in powerplant and pump intake structure, four sluiceways, and concrete spillway with eight radial gates. Lake is used for municipal water supply and intermittent power generation. Gage-height satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 147.42 ft (44.93 m), Sept. 18, 1989; minimum elevation, 108.52 ft (33.08 m), July 18, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 136.59 ft (41.63 m), Oct. 13; minimum elevation, 124.12 ft (37.83 m), Sept. 22.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents in acre-feet | Elevation, in feet | Contents in acre-feet |
|--------------------|-----------------------|--------------------|-----------------------|
| 98.4               | 5,000                 | 128.6              | 18,000                |
| 111.5              | 8,900                 | 137.8              | 26,000                |
| 120.4              | 13,000                | 147.6              | 35,000                |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 134.70 | 134.21 | 134.75 | 130.82 | 133.04 | 133.83 | 134.94 | 134.08 | 134.70 | 127.64 | 131.54 | 132.23 |
| 2   | 134.41 | 134.20 | 134.70 | 130.76 | 132.81 | 133.67 | 134.67 | 133.92 | 134.61 | 127.37 | 131.33 | 131.60 |
| 3   | 134.82 | 134.16 | 134.59 | 130.71 | 132.62 | 133.54 | A      | 133.80 | 134.51 | 127.14 | 131.08 | 132.34 |
| 4   | 134.89 | 134.13 | 134.46 | 130.80 | 133.35 | 133.43 | 134.53 | 133.75 | 126.68 | 127.54 | 130.81 | 132.13 |
| 5   | 134.86 | 134.12 | 134.35 | 130.95 | 134.78 | 133.96 | 134.52 | 133.68 | 126.62 | 127.71 | 130.54 | 132.41 |
| 6   | 134.80 | 134.09 | 134.23 | 134.52 | 134.81 | 133.92 | 134.49 | 133.54 | 126.73 | 127.81 | A      | 131.66 |
| 7   | 134.71 | 134.02 | 134.10 | 134.86 | 134.94 | 134.69 | 134.59 | 133.42 | 126.60 | 127.54 | 132.34 | 132.62 |
| 8   | 134.79 | 133.94 | 133.96 | 134.77 | 134.98 | 134.97 | 134.61 | 134.12 | 126.48 | 127.28 | 132.54 | 132.52 |
| 9   | 134.79 | 133.90 | 133.81 | 134.51 | 134.97 | 134.80 | 134.53 | 134.50 | 126.50 | 127.04 | 132.90 | 132.27 |
| 10  | 134.71 | 134.32 | 133.67 | 134.51 | 134.89 | 134.82 | 134.43 | 134.53 | 126.37 | 126.82 | 132.72 | 132.05 |
| 11  | 134.54 | 134.52 | 133.51 | 134.80 | 134.65 | 134.80 | 134.34 | 134.41 | 126.17 | 126.54 | 132.80 | 132.27 |
| 12  | 134.57 | 134.50 | 133.36 | 134.72 | 134.70 | 134.77 | 134.84 | 134.22 | 126.26 | 126.23 | 132.72 | 132.47 |
| 13  | 136.34 | 134.48 | 133.20 | 134.36 | 134.69 | 134.70 | 134.75 | 134.07 | 126.76 | 125.91 | 132.58 | 132.04 |
| 14  | 134.64 | 134.38 | 133.07 | 134.61 | 134.55 | 134.72 | 134.71 | 134.52 | 126.63 | 125.59 | 132.38 | 132.55 |
| 15  | 134.55 | 134.86 | 132.91 | 134.75 | 134.92 | 134.73 | 134.66 | 134.67 | 126.39 | 125.31 | 132.19 | 132.79 |
| 16  | 134.93 | 134.27 | 132.79 | 134.83 | 134.79 | 134.68 | 134.84 | 134.62 | 126.17 | 125.62 | 132.00 | 132.41 |
| 17  | 134.10 | 134.27 | 132.82 | 134.88 | 134.87 | 134.60 | 134.84 | 134.63 | 128.66 | 125.87 | 132.91 | 131.78 |
| 18  | 134.64 | 134.28 | 132.76 | 134.90 | 134.86 | 134.50 | 135.03 | 134.51 | 128.84 | 126.51 | 132.60 | 132.18 |
| 19  | 134.47 | 134.23 | 132.66 | 134.84 | 134.81 | 134.40 | 134.79 | 134.36 | 128.85 | 127.06 | 132.58 | 131.91 |
| 20  | 134.77 | 134.21 | 132.51 | 134.74 | 134.76 | 134.45 | 134.73 | 134.23 | 128.70 | 130.19 | 132.85 | 132.29 |
| 21  | 134.46 | 134.18 | 132.49 | 134.69 | 134.72 | 134.82 | 134.79 | 134.12 | 128.89 | 131.49 | 132.42 | 125.52 |
| 22  | 134.51 | 134.40 | 132.39 | 134.60 | 134.62 | 134.91 | 134.90 | 133.92 | 129.21 | 131.51 | 132.39 | 130.16 |
| 23  | 134.48 | 134.62 | 132.36 | 134.45 | 134.52 | 134.90 | 134.87 | 133.73 | 129.14 | 131.62 | 132.53 | 131.84 |
| 24  | 134.45 | 134.64 | 132.31 | 134.31 | 134.42 | 134.82 | 134.79 | 133.58 | 129.16 | 131.93 | 132.34 | 132.69 |
| 25  | 134.39 | 134.63 | 132.14 | 134.18 | 134.29 | 134.81 | 134.73 | 133.38 | 129.02 | 131.94 | 132.81 | 132.85 |
| 26  | 134.31 | 134.20 | 131.96 | 134.04 | 134.20 | 134.79 | 134.66 | 133.45 | 128.89 | 131.79 | 132.89 | 132.75 |
| 27  | 134.19 | 134.59 | 131.76 | 133.88 | 134.08 | 134.86 | 134.59 | 134.34 | 128.65 | 131.89 | 132.13 | 132.48 |
| 28  | 134.16 | 134.64 | 131.56 | 133.71 | 133.97 | 134.87 | 134.51 | 134.31 | 128.45 | 132.12 | 131.98 | 132.37 |
| 29  | 134.17 | 134.66 | A      | 133.60 | ---    | 134.87 | 134.39 | 134.26 | 128.21 | 132.12 | 132.37 | 131.97 |
| 30  | 134.18 | 134.72 | 131.13 | 133.46 | ---    | 134.92 | 134.24 | 134.91 | 127.94 | 131.96 | 132.78 | 132.52 |
| 31  | 134.17 | ---    | 130.95 | 133.25 | ---    | 134.81 | ---    | 134.70 | ---    | 131.76 | 132.43 | ---    |
| MAX | 136.34 | 134.86 | ---    | 134.90 | 134.98 | 134.97 | ---    | 134.91 | 134.70 | 132.12 | ---    | 132.85 |
| MIN | 134.10 | 133.90 | ---    | 130.71 | 132.62 | 133.43 | ---    | 133.38 | 126.17 | 125.31 | ---    | 125.52 |

A No gage-height record

## RIO GRANDE DE LOIZA BASIN

50059000 LAGO LOIZA AT DAMSITE NEAR TRUJILLO ALTO, PR

## WATER-QUALITY RECORDS

LOCATION---Lat 18°19'49", long 66°01'00", at pumphouse at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRAINAGE AREA.--208 mi<sup>2</sup> (539 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 SEPTEMBER 1998

| DATE      | TIME | SPECIFIC CONDUCTANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STANDARD UNITS) (00400) | TEMPERATURE WATER (DEG C) (00010) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301) | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340) | COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREPTOCOCCI, FECAL, (COLS. PER 100 ML) (31679) | ANC WATER UNFLTRD FET FIELD MG/L AS CAC03 (00410) |
|-----------|------|--------------------------------------|-----------------------------------------------|-----------------------------------|-----------------------------------|--------------------------------------------------|-----------------------------------------------------|----------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
| NOV 03... | 1130 | 266                                  | 7.2                                           | 28.0                              | 6.0                               | 76                                               | <10                                                 | 46                                                 | 500                                             | 80                                                |
| FEB 18... | 1045 | 204                                  | 6.6                                           | 25.5                              | 1.1                               | 14                                               | 10                                                  | 110                                                | 84                                              | 62                                                |
| JUN 10... | 0915 | 298                                  | 7.3                                           | 28.1                              | 4.8                               | 61                                               | 20                                                  | 60                                                 | 21                                              | 98                                                |
| AUG 20... | 0905 | 292                                  | 6.3                                           | 29.5                              | .22                               | 3                                                | 10                                                  | 56                                                 | 43                                              | 100                                               |

| DATE      | SULFIDE TOTAL (MG/L AS S) (00745) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530) | NITROGEN, NITRATE TOTAL (MG/L AS N) (00620) | NITROGEN, NITRITE TOTAL (MG/L AS N) (00615) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITROGEN, TOTAL (MG/L AS N) (00600) | NITROGEN, TOTAL (MG/L AS N03) (71887) |
|-----------|-----------------------------------|-------------------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|-------------------------------------------------------|-------------------------------------|---------------------------------------|
| NOV 03... | <.5                               | 3                                                     | .348                                        | .032                                        | .380                                        | .020                                        | .26                                         | .28                                                   | .66                                 | 2.9                                   |
| FEB 18... | --                                | 44                                                    | .300                                        | .110                                        | .410                                        | .060                                        | .44                                         | .50                                                   | .91                                 | 4.0                                   |
| JUN 10... | <.5                               | 7                                                     | --                                          | <.010                                       | <.020                                       | .200                                        | .52                                         | .72                                                   | --                                  | --                                    |
| AUG 20... | --                                | 46                                                    | --                                          | <.010                                       | .040                                        | .220                                        | .56                                         | .78                                                   | .82                                 | 3.6                                   |

| DATE      | PHOSPHORUS TOTAL (MG/L AS P) (00665) | BORON, TOTAL RECOVERABLE (UG/L AS B) (01022) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042) | IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092) | CYANIDE TOTAL (MG/L AS CN) (00720) | PHENOLS TOTAL (UG/L) (32730) | METHYLENE BLUE ACTIVE SUBSTANCE (MG/L) (38260) |
|-----------|--------------------------------------|----------------------------------------------|------------------------------------------------|----------------------------------------------|---------------------------------------------------|----------------------------------------------|------------------------------------|------------------------------|------------------------------------------------|
| NOV 03... | .020                                 | 30                                           | 10                                             | 100                                          | 70                                                | 350                                          | <.01                               | <1                           | .08                                            |
| FEB 18... | .200                                 | --                                           | --                                             | --                                           | --                                                | --                                           | --                                 | --                           | --                                             |
| JUN 10... | .120                                 | 60                                           | <10                                            | 2100                                         | 410                                               | 20                                           | <.01                               | <1                           | <.02                                           |
| AUG 20... | .210                                 | --                                           | --                                             | --                                           | --                                                | --                                           | --                                 | --                           | --                                             |

## RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR

LOCATION.--Lat 18°20'33", long 66°00'20", Hydrologic Unit 21010005, on left bank of Highway 175, 1.1 mi (1.8 km) downstream of Lago Loiza Dam.

DRAINAGE AREA.--209 mi<sup>2</sup> (541 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 32 ft (10 m), from topographic map.

REMARKS.--Records poor. Flow regulated by Lago Loiza Dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT     | NOV    | DEC   | JAN    | FEB    | MAR    | APR   | MAY   | JUN    | JUL  | AUG      | SEP     |
|-------|---------|--------|-------|--------|--------|--------|-------|-------|--------|------|----------|---------|
| 1     | 7.5     | 7.8    | 42    | e5.1   | 3.5    | 4.9    | 9.2   | e5.8  | 11     | 1.3  | 1.4      | 238     |
| 2     | 833     | 8.0    | 44    | e5.8   | 3.6    | 4.8    | 121   | e5.5  | 5.3    | 1.3  | 1.3      | 377     |
| 3     | 4.0     | 8.4    | 45    | e7.1   | 3.4    | 4.8    | e43   | e5.2  | 5.6    | 1.9  | 1.2      | 137     |
| 4     | 3.5     | 8.2    | 45    | e8.2   | 8.9    | 4.9    | e52   | e5.1  | e3330  | 4.1  | 1.8      | 443     |
| 5     | 3.5     | 8.1    | 46    | e9.6   | 2460   | 7.3    | 7.8   | e5.6  | 43     | 2.8  | 3.0      | 1.2     |
| 6     | 3.4     | 8.0    | 46    | e1070  | 184    | 5.5    | 7.7   | e5.4  | 5.8    | 4.8  | 2.1      | 716     |
| 7     | 3.3     | 7.6    | 46    | e2120  | 18     | 3230   | 9.1   | e5.1  | 3.9    | 1.9  | 4.2      | 11      |
| 8     | 5.1     | 7.8    | 46    | 526    | 613    | 426    | 8.5   | e5.5  | 4.4    | 2.1  | 188      | 1150    |
| 9     | 3.7     | 7.8    | 45    | 448    | 589    | 105    | 7.8   | e5.2  | 6.5    | 3.0  | 1.6      | 564     |
| 10    | 3.5     | 1890   | 45    | 435    | 89     | 6.9    | 7.7   | e5.1  | 5.9    | 1.6  | 162      | 412     |
| 11    | 141     | 39     | 45    | 233    | 87     | 7.1    | 7.5   | e5.0  | 3.4    | 1.4  | 38       | 1.2     |
| 12    | 284     | 39     | 44    | 153    | 10     | 7.0    | 11    | e5.0  | 3.3    | 1.3  | 1.7      | 1.4     |
| 13    | 288     | 38     | 44    | 339    | 6.7    | 6.6    | 41    | e4.8  | 2.8    | 1.3  | .99      | 255     |
| 14    | 33500   | 38     | 42    | 120    | 218    | 6.3    | 7.5   | e21   | 2.8    | 1.6  | .54      | 178     |
| 15    | 747     | 39     | 39    | 22     | 109    | 6.0    | 7.0   | 6.6   | 1.6    | 2.0  | .92      | 933     |
| 16    | 369     | 187    | 41    | 14     | 63     | 6.0    | 15    | 5.1   | 1.2    | 4.5  | 1.1      | 600     |
| 17    | 870     | 30     | 45    | 13     | 4.9    | 6.1    | 65    | 13    | 1.2    | 3.5  | 1.1      | 451     |
| 18    | 135     | 7.7    | e42   | 15     | 4.7    | 5.8    | 8.2   | 5.7   | e3.2   | 2.7  | 367      | 1.9     |
| 19    | 160     | 7.4    | e29   | 14     | 4.6    | 5.5    | e76   | 5.2   | e1.3   | 2.3  | .86      | 440     |
| 20    | 23      | 7.4    | e19   | 12     | 4.3    | 285    | 110   | 5.2   | 1.1    | 5.3  | 1.0      | 1.2     |
| 21    | 127     | 7.6    | e12   | 13     | 3.9    | 85     | 92    | 7.7   | 1.4    | 6.1  | 588      | 10700   |
| 22    | 49      | 7.2    | e8.7  | 12     | 3.7    | 4.2    | 50    | 5.3   | 1.6    | 2.3  | 967      | 65900   |
| 23    | 50      | 6.7    | e9.5  | 12     | 3.9    | 4.2    | 6.3   | 5.7   | 1.7    | 2.4  | 159      | 2500    |
| 24    | 52      | 6.1    | e9.0  | 13     | 4.3    | 4.2    | 5.7   | 5.1   | 1.2    | 4.0  | 5380     | 1070    |
| 25    | 52      | 6.2    | e9.0  | 12     | 4.5    | 4.1    | 5.2   | 5.0   | 1.2    | 3.7  | 8260     | 853     |
| 26    | 52      | 848    | e9.0  | 11     | 4.8    | 4.0    | 4.7   | 5.3   | 1.2    | 3.7  | 1530     | 753     |
| 27    | 52      | 70     | e9.3  | 3.7    | 4.7    | 4.1    | 4.6   | 5.3   | 1.2    | 4.0  | 998      | 768     |
| 28    | 31      | 41     | e8.5  | 3.4    | 4.8    | 4.4    | 4.8   | 5.7   | 1.2    | 4.0  | 850      | 866     |
| 29    | 9.1     | 43     | e8.5  | 3.5    | ---    | 313    | e5.1  | 5.3   | 1.2    | 1.8  | 488      | e670    |
| 30    | 8.8     | 42     | e8.0  | 3.4    | ---    | 290    | e5.3  | 473   | 1.3    | 1.7  | .92      | 174     |
| 31    | 8.1     | ---    | e4.4  | 3.4    | ---    | 304    | ---   | 345   | ---    | 1.5  | 120      | ---     |
| TOTAL | 37878.5 | 3472.0 | 935.9 | 5660.2 | 4519.2 | 5162.7 | 805.7 | 998.5 | 3456.5 | 85.9 | 20120.73 | 91165.9 |
| MEAN  | 1222    | 116    | 30.2  | 183    | 161    | 167    | 26.9  | 32.2  | 115    | 2.77 | 649      | 3039    |
| MAX   | 33500   | 1890   | 46    | 2120   | 2460   | 3230   | 121   | 473   | 3330   | 6.1  | 8260     | 65900   |
| MIN   | 3.3     | 6.1    | 4.4   | 3.4    | 3.4    | 4.0    | 4.6   | 4.8   | 1.1    | 1.3  | .54      | 1.2     |
| AC-FT | 75130   | 6890   | 1860  | 11230  | 8960   | 10240  | 1600  | 1980  | 6860   | 170  | 39910    | 180800  |
| CFSM  | 5.85    | .55    | .14   | .87    | .77    | .80    | .13   | .15   | .55    | .01  | 3.11     | 14.5    |
| IN.   | 6.74    | .62    | .17   | 1.01   | .80    | .92    | .14   | .18   | .62    | .02  | 3.58     | 16.23   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1998, BY WATER YEAR (WY)

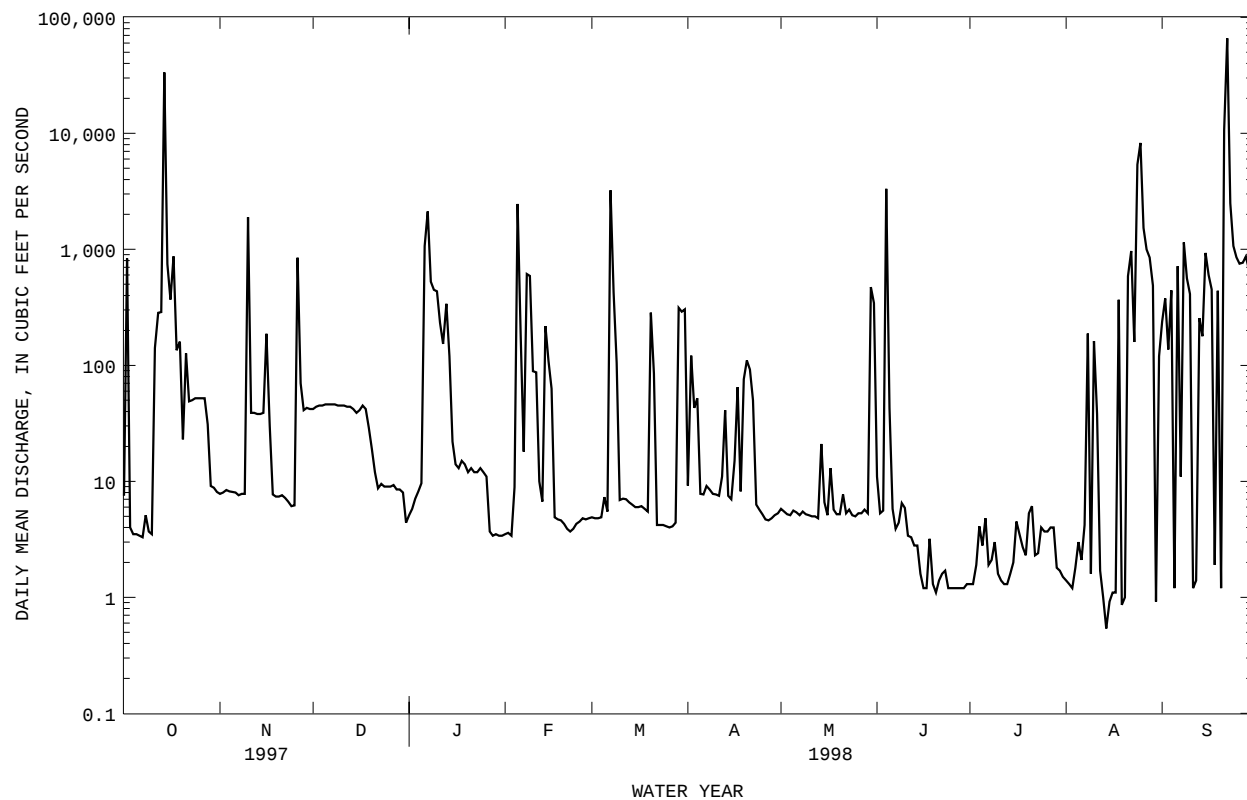
|      | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 313  | 461  | 312  | 154  | 76.8 | 55.0 | 29.1 | 80.8 | 166  | 147  | 236  | 919  |
| MAX  | 1222 | 2732 | 2603 | 733  | 242  | 299  | 112  | 367  | 784  | 672  | 718  | 4255 |
| (WY) | 1998 | 1988 | 1988 | 1992 | 1989 | 1989 | 1987 | 1992 | 1987 | 1993 | 1988 | 1996 |
| MIN  | 44.7 | 37.6 | 17.2 | 2.49 | 4.52 | 5.19 | 1.20 | 1.03 | 1.96 | 1.62 | 2.21 | 29.7 |
| (WY) | 1992 | 1996 | 1994 | 1995 | 1990 | 1997 | 1995 | 1995 | 1994 | 1994 | 1994 | 1990 |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1987 - 1998

|                          | 1997 CALENDAR YEAR | 1998 WATER YEAR | 1987 - 1998 |
|--------------------------|--------------------|-----------------|-------------|
| ANNUAL TOTAL             | 50355.9            | 174261.73       |             |
| ANNUAL MEAN              | 138                | 477             |             |
| HIGHEST ANNUAL MEAN      |                    |                 | 247         |
| LOWEST ANNUAL MEAN       |                    |                 | 652         |
| HIGHEST DAILY MEAN       | 33500              | 65900           | 110000      |
| LOWEST DAILY MEAN        | 1.8                | .54             | 37.8        |
| ANNUAL SEVEN-DAY MINIMUM | 2.3                | 1.2             | .42         |
| INSTANTANEOUS PEAK FLOW  |                    | 196000          | 223000      |
| INSTANTANEOUS PEAK STAGE |                    | 47.01           | 49.31       |
| ANNUAL RUNOFF (AC-FT)    | 99880              | 345600          | 179100      |
| ANNUAL RUNOFF (CFSM)     | .66                | 2.28            | 1.18        |
| ANNUAL RUNOFF (INCHES)   | 8.96               | 31.02           | 16.07       |
| 10 PERCENT EXCEEDS       | 47                 | 479             | 375         |
| 50 PERCENT EXCEEDS       | 5.2                | 7.7             | 7.9         |
| 90 PERCENT EXCEEDS       | 3.1                | 1.6             | 2.3         |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued



## RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water year 1987 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: December 1986 to current year.

INSTRUMENTATION.-- Automatic sediment sampler, since 1987.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 4,290 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 1,500,000 tons (1,360,000 tonnes) September 10, 1996; Minimum daily mean, &lt;0.01 tons (&lt;0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,350 mg/L September 22, 1998; minimum daily mean, 7 mg/L October 9-10, 1997.

SEDIMENT LOADS: Maximum daily mean, 1,030,000 tons (935,000 tonnes) September 22, 1998; minimum daily mean, 0.03 ton (0.02 tonne) June 20, 1998.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 7.5                        | 28                                   | .56                                 | 7.8                        | 101                                  | 2.1                                 | 42                         | 137                                  | 15                                  |
| 2       | 833                        | 195                                  | 1220                                | 8.0                        | 99                                   | 2.1                                 | 44                         | 150                                  | 18                                  |
| 3       | 4.0                        | 71                                   | .78                                 | 8.4                        | 96                                   | 2.2                                 | 45                         | 160                                  | 19                                  |
| 4       | 3.5                        | 49                                   | .46                                 | 8.2                        | 94                                   | 2.1                                 | 45                         | 156                                  | 19                                  |
| 5       | 3.5                        | 31                                   | .29                                 | 8.1                        | 92                                   | 2.0                                 | 46                         | 150                                  | 18                                  |
| 6       | 3.4                        | 19                                   | .17                                 | 8.0                        | 90                                   | 1.9                                 | 46                         | 144                                  | 18                                  |
| 7       | 3.3                        | 12                                   | .11                                 | 7.6                        | 88                                   | 1.8                                 | 46                         | 139                                  | 17                                  |
| 8       | 5.1                        | 8                                    | .11                                 | 7.8                        | 85                                   | 1.8                                 | 46                         | 134                                  | 16                                  |
| 9       | 3.7                        | 7                                    | .07                                 | 7.8                        | 83                                   | 1.8                                 | 45                         | 129                                  | 16                                  |
| 10      | 3.5                        | 7                                    | .06                                 | 1890                       | 128                                  | 936                                 | 45                         | 124                                  | 15                                  |
| 11      | 141                        | 55                                   | 167                                 | 39                         | 170                                  | 18                                  | 45                         | 120                                  | 14                                  |
| 12      | 284                        | 172                                  | 482                                 | 39                         | 191                                  | 20                                  | 44                         | 115                                  | 14                                  |
| 13      | 288                        | 126                                  | 814                                 | 38                         | 215                                  | 22                                  | 44                         | 111                                  | 13                                  |
| 14      | 33500                      | 736                                  | 106000                              | 38                         | 222                                  | 23                                  | 42                         | 107                                  | 12                                  |
| 15      | 747                        | 572                                  | 1530                                | 39                         | 159                                  | 17                                  | 39                         | 103                                  | 11                                  |
| 16      | 369                        | 334                                  | 397                                 | 187                        | 161                                  | 107                                 | 41                         | 99                                   | 11                                  |
| 17      | 870                        | 296                                  | 949                                 | 30                         | 154                                  | 12                                  | 45                         | 95                                   | 12                                  |
| 18      | 135                        | 227                                  | 94                                  | 7.7                        | 152                                  | 3.2                                 | e42                        | 92                                   | e10                                 |
| 19      | 160                        | 190                                  | 111                                 | 7.4                        | 151                                  | 3.0                                 | e29                        | 91                                   | e7.2                                |
| 20      | 23                         | 221                                  | 14                                  | 7.4                        | 150                                  | 3.0                                 | e19                        | 91                                   | e4.8                                |
| 21      | 127                        | 189                                  | 87                                  | 7.6                        | 149                                  | 3.1                                 | e12                        | 90                                   | e3.0                                |
| 22      | 49                         | 179                                  | 24                                  | 7.2                        | 148                                  | 2.9                                 | e8.7                       | 90                                   | e2.2                                |
| 23      | 50                         | 127                                  | 17                                  | 6.7                        | 147                                  | 2.6                                 | e9.5                       | 89                                   | e2.3                                |
| 24      | 52                         | 124                                  | 17                                  | 6.1                        | 143                                  | 2.4                                 | e9.0                       | 89                                   | e2.2                                |
| 25      | 52                         | 120                                  | 17                                  | 6.2                        | 125                                  | 2.1                                 | e9.0                       | 88                                   | e2.2                                |
| 26      | 52                         | 117                                  | 16                                  | 848                        | 95                                   | 221                                 | e9.0                       | 88                                   | e2.1                                |
| 27      | 52                         | 114                                  | 16                                  | 70                         | 97                                   | 16                                  | e9.3                       | 87                                   | e2.2                                |
| 28      | 31                         | 111                                  | 9.3                                 | 41                         | 106                                  | 12                                  | e8.5                       | 87                                   | e2.0                                |
| 29      | 9.1                        | 109                                  | 2.7                                 | 43                         | 116                                  | 13                                  | e8.5                       | 86                                   | e2.0                                |
| 30      | 8.8                        | 106                                  | 2.5                                 | 42                         | 126                                  | 14                                  | e8.0                       | 85                                   | e1.8                                |
| 31      | 8.1                        | 104                                  | 2.3                                 | ---                        | ---                                  | ---                                 | e4.4                       | 85                                   | e1.0                                |
| TOTAL   | 37878.5                    | ---                                  | 111991.41                           | 3472.0                     | ---                                  | 1471.1                              | 935.9                      | ---                                  | 303.0                               |

## RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | e5.1                       | 84                              | e1.2                                | 3.5                        | 71                              | .67                                 | 4.9                        | 28                              | .37                                 |
| 2       | e5.8                       | 84                              | e1.3                                | 3.6                        | 68                              | .66                                 | 4.8                        | 25                              | .33                                 |
| 3       | e7.1                       | 83                              | e1.6                                | 3.4                        | 64                              | .58                                 | 4.8                        | 24                              | .32                                 |
| 4       | e8.2                       | 83                              | e1.8                                | 8.9                        | 67                              | 3.3                                 | 4.9                        | 30                              | .39                                 |
| 5       | e9.6                       | 82                              | e2.1                                | 2460                       | 149                             | 917                                 | 7.3                        | 38                              | .78                                 |
| 6       | e1070                      | 69                              | e275                                | 184                        | 162                             | 139                                 | 5.5                        | 49                              | .72                                 |
| 7       | e2120                      | 229                             | e1550                               | 18                         | 128                             | 6.1                                 | 3230                       | 173                             | 2830                                |
| 8       | 526                        | 246                             | 395                                 | 613                        | 151                             | 593                                 | 426                        | 228                             | 716                                 |
| 9       | 448                        | 228                             | 287                                 | 589                        | 195                             | 486                                 | 105                        | 556                             | 198                                 |
| 10      | 435                        | 174                             | 224                                 | 89                         | 193                             | 50                                  | 6.9                        | 411                             | 7.6                                 |
| 11      | 233                        | 156                             | 114                                 | 87                         | 126                             | 47                                  | 7.1                        | 340                             | 6.5                                 |
| 12      | 153                        | 140                             | 71                                  | 10                         | 106                             | 2.9                                 | 7.0                        | 287                             | 5.4                                 |
| 13      | 339                        | 142                             | 269                                 | 6.7                        | 97                              | 1.8                                 | 6.6                        | 242                             | 4.3                                 |
| 14      | 120                        | 139                             | 77                                  | 218                        | 103                             | 112                                 | 6.3                        | 204                             | 3.5                                 |
| 15      | 22                         | 174                             | 10                                  | 109                        | 121                             | 47                                  | 6.0                        | 173                             | 2.8                                 |
| 16      | 14                         | 159                             | 6.1                                 | 63                         | 96                              | 20                                  | 6.0                        | 146                             | 2.4                                 |
| 17      | 13                         | 152                             | 5.4                                 | 4.9                        | 92                              | 1.2                                 | 6.1                        | 123                             | 2.0                                 |
| 18      | 15                         | 144                             | 5.9                                 | 4.7                        | 83                              | 1.0                                 | 5.8                        | 104                             | 1.6                                 |
| 19      | 14                         | 137                             | 5.3                                 | 4.6                        | 75                              | .92                                 | 5.5                        | 87                              | 1.3                                 |
| 20      | 12                         | 130                             | 4.4                                 | 4.3                        | 68                              | .79                                 | 285                        | 127                             | 294                                 |
| 21      | 13                         | 124                             | 4.3                                 | 3.9                        | 62                              | .65                                 | 85                         | 148                             | 61                                  |
| 22      | 12                         | 118                             | 3.9                                 | 3.7                        | 56                              | .56                                 | 4.2                        | 176                             | 2.0                                 |
| 23      | 12                         | 112                             | 3.6                                 | 3.9                        | 50                              | .53                                 | 4.2                        | 166                             | 1.9                                 |
| 24      | 13                         | 107                             | 3.6                                 | 4.3                        | 46                              | .53                                 | 4.2                        | 154                             | 1.7                                 |
| 25      | 12                         | 101                             | 3.4                                 | 4.5                        | 41                              | .51                                 | 4.1                        | 134                             | 1.5                                 |
| 26      | 11                         | 96                              | 2.9                                 | 4.8                        | 37                              | .48                                 | 4.0                        | 116                             | 1.3                                 |
| 27      | 3.7                        | 92                              | .92                                 | 4.7                        | 34                              | .43                                 | 4.1                        | 100                             | 1.1                                 |
| 28      | 3.4                        | 87                              | .81                                 | 4.8                        | 31                              | .40                                 | 4.4                        | 86                              | 1.0                                 |
| 29      | 3.5                        | 83                              | .79                                 | ---                        | ---                             | ---                                 | 313                        | 110                             | 209                                 |
| 30      | 3.4                        | 79                              | .71                                 | ---                        | ---                             | ---                                 | 290                        | 120                             | 137                                 |
| 31      | 3.4                        | 75                              | .68                                 | ---                        | ---                             | ---                                 | 304                        | 105                             | 109                                 |
| TOTAL   | 5660.2                     | ---                             | 3332.71                             | 4519.2                     | ---                             | 2435.01                             | 5162.7                     | ---                             | 4604.81                             |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 9.2                        | 84                              | 2.1                                 | e5.8                       | 19                              | e.29                                | 11                         | 84                              | 2.6                                 |
| 2       | 121                        | 98                              | 47                                  | e5.5                       | 16                              | e.24                                | 5.3                        | 77                              | 1.1                                 |
| 3       | e43                        | 85                              | e10                                 | e5.2                       | 14                              | e.20                                | 5.6                        | 73                              | 1.1                                 |
| 4       | e52                        | 56                              | e17                                 | e5.1                       | 12                              | e.17                                | e3330                      | 160                             | e5740                               |
| 5       | 7.8                        | 68                              | 1.4                                 | e5.6                       | 10                              | e.16                                | 43                         | 71                              | 8.4                                 |
| 6       | 7.7                        | 84                              | 1.7                                 | e5.4                       | 9                               | e.13                                | 5.8                        | 53                              | .84                                 |
| 7       | 9.1                        | 103                             | 2.6                                 | e5.1                       | 9                               | e.12                                | 3.9                        | 40                              | .42                                 |
| 8       | 8.5                        | 123                             | 2.8                                 | e5.5                       | 9                               | e.13                                | 4.4                        | 30                              | .36                                 |
| 9       | 7.8                        | 117                             | 2.5                                 | e5.2                       | 9                               | e.12                                | 6.5                        | 23                              | .40                                 |
| 10      | 7.7                        | 107                             | 2.2                                 | e5.1                       | 8                               | e.12                                | 5.9                        | 17                              | .27                                 |
| 11      | 7.5                        | 97                              | 2.0                                 | e5.0                       | 8                               | e.11                                | 3.4                        | 13                              | .12                                 |
| 12      | 11                         | 89                              | 2.7                                 | e5.0                       | 8                               | e.11                                | 3.3                        | 10                              | .09                                 |
| 13      | 41                         | 94                              | 11                                  | e4.8                       | 8                               | e.11                                | 2.8                        | 10                              | .08                                 |
| 14      | 7.5                        | 95                              | 1.9                                 | e21                        | 33                              | e6.2                                | 2.8                        | 10                              | .08                                 |
| 15      | 7.0                        | 90                              | 1.7                                 | 6.6                        | 80                              | 1.4                                 | 1.6                        | 10                              | .04                                 |
| 16      | 15                         | 86                              | 3.5                                 | 5.1                        | 73                              | 1.0                                 | 1.2                        | 10                              | .04                                 |
| 17      | 65                         | 94                              | 18                                  | 13                         | 96                              | 4.0                                 | 1.2                        | 10                              | .04                                 |
| 18      | 8.2                        | 87                              | 1.9                                 | 5.7                        | 133                             | 2.1                                 | e3.2                       | 11                              | e.08                                |
| 19      | e76                        | 95                              | e22                                 | 5.2                        | 120                             | 1.7                                 | e1.3                       | 11                              | e.04                                |
| 20      | 110                        | 88                              | 34                                  | 5.2                        | 109                             | 1.5                                 | 1.1                        | 11                              | .03                                 |
| 21      | 92                         | 93                              | 27                                  | 7.7                        | 100                             | 2.1                                 | 1.4                        | 11                              | .04                                 |
| 22      | 50                         | 91                              | 13                                  | 5.3                        | 95                              | 1.4                                 | 1.6                        | 11                              | .05                                 |
| 23      | 6.3                        | 69                              | 1.2                                 | 5.7                        | 91                              | 1.4                                 | 1.7                        | 11                              | .05                                 |
| 24      | 5.7                        | 53                              | .83                                 | 5.1                        | 87                              | 1.2                                 | 1.2                        | 11                              | .04                                 |
| 25      | 5.2                        | 45                              | .63                                 | 5.0                        | 83                              | 1.1                                 | 1.2                        | 11                              | .04                                 |
| 26      | 4.7                        | 39                              | .50                                 | 5.3                        | 80                              | 1.1                                 | 1.2                        | 11                              | .04                                 |
| 27      | 4.6                        | 34                              | .42                                 | 5.3                        | 76                              | 1.1                                 | 1.2                        | 11                              | .04                                 |
| 28      | 4.8                        | 29                              | .38                                 | 5.7                        | 73                              | 1.1                                 | 1.2                        | 11                              | .04                                 |
| 29      | e5.1                       | 25                              | e.35                                | 5.3                        | 70                              | 1.0                                 | 1.2                        | 12                              | .04                                 |
| 30      | e5.3                       | 22                              | e.31                                | 473                        | 140                             | 561                                 | 1.3                        | 12                              | .04                                 |
| 31      | ---                        | ---                             | ---                                 | 345                        | 88                              | 117                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 805.7                      | ---                             | 232.62                              | 998.5                      | ---                             | 709.41                              | 3456.5                     | ---                             | 5756.55                             |

## RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY         | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY        |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1           | 1.3                        | 12                                   | .04                                 | 1.4                        | 12                                   | .04                                 | 238                        | 97                                   | 103                                 |
| 2           | 1.3                        | 12                                   | .04                                 | 1.3                        | 11                                   | .04                                 | 377                        | 161                                  | 325                                 |
| 3           | 1.9                        | 12                                   | .06                                 | 1.2                        | 11                                   | .04                                 | 137                        | 63                                   | 51                                  |
| 4           | 4.1                        | 12                                   | .13                                 | 1.8                        | 11                                   | .05                                 | 443                        | 61                                   | 134                                 |
| 5           | 2.8                        | 12                                   | .09                                 | 3.0                        | 11                                   | .09                                 | 1.2                        | 49                                   | .16                                 |
| 6           | 4.8                        | 12                                   | .16                                 | 2.1                        | 10                                   | .06                                 | 716                        | 77                                   | 257                                 |
| 7           | 1.9                        | 12                                   | .06                                 | 4.2                        | 10                                   | .12                                 | 11                         | 80                                   | 2.3                                 |
| 8           | 2.1                        | 12                                   | .07                                 | 188                        | 28                                   | 57                                  | 1150                       | 105                                  | 491                                 |
| 9           | 3.0                        | 13                                   | .10                                 | 1.6                        | 58                                   | .26                                 | 564                        | 86                                   | 236                                 |
| 10          | 1.6                        | 13                                   | .05                                 | 162                        | 80                                   | 109                                 | 412                        | 86                                   | 165                                 |
| 11          | 1.4                        | 13                                   | .05                                 | 38                         | 96                                   | 21                                  | 1.2                        | 81                                   | .27                                 |
| 12          | 1.3                        | 13                                   | .05                                 | 1.7                        | 59                                   | .26                                 | 1.4                        | 63                                   | .24                                 |
| 13          | 1.3                        | 13                                   | .05                                 | .99                        | 56                                   | .15                                 | 255                        | 58                                   | 111                                 |
| 14          | 1.6                        | 13                                   | .06                                 | .54                        | 54                                   | .08                                 | 178                        | 79                                   | 46                                  |
| 15          | 2.0                        | 13                                   | .07                                 | .92                        | 51                                   | .13                                 | 933                        | 83                                   | 368                                 |
| 16          | 4.5                        | 13                                   | .16                                 | 1.1                        | 49                                   | .14                                 | 600                        | 91                                   | 244                                 |
| 17          | 3.5                        | 13                                   | .13                                 | 1.1                        | 47                                   | .14                                 | 451                        | 70                                   | 181                                 |
| 18          | 2.7                        | 13                                   | .10                                 | 367                        | 65                                   | 148                                 | 1.9                        | 18                                   | .09                                 |
| 19          | 2.3                        | 14                                   | .09                                 | .86                        | 54                                   | .13                                 | 440                        | 270                                  | 1430                                |
| 20          | 5.3                        | 14                                   | .20                                 | 1.0                        | 50                                   | .14                                 | 1.2                        | 77                                   | .25                                 |
| 21          | 6.1                        | 14                                   | .23                                 | 588                        | 72                                   | 183                                 | 10700                      | 1830                                 | 138000                              |
| 22          | 2.3                        | 14                                   | .09                                 | 967                        | 431                                  | 3430                                | 65900                      | 3350                                 | 1030000                             |
| 23          | 2.4                        | 14                                   | .09                                 | 159                        | 69                                   | 163                                 | 2500                       | 699                                  | 4670                                |
| 24          | 4.0                        | 14                                   | .15                                 | 5380                       | 239                                  | 7180                                | 1070                       | 653                                  | 1860                                |
| 25          | 3.7                        | 13                                   | .13                                 | 8260                       | 490                                  | 12100                               | 853                        | 610                                  | 1420                                |
| 26          | 3.7                        | 13                                   | .13                                 | 1530                       | 207                                  | 1520                                | 753                        | 570                                  | 1160                                |
| 27          | 4.0                        | 13                                   | .14                                 | 998                        | 93                                   | 354                                 | 768                        | 533                                  | 1110                                |
| 28          | 4.0                        | 13                                   | .14                                 | 850                        | 98                                   | 289                                 | 866                        | 498                                  | 1140                                |
| 29          | 1.8                        | 12                                   | .06                                 | 488                        | 71                                   | 152                                 | e670                       | 465                                  | e815                                |
| 30          | 1.7                        | 12                                   | .05                                 | .92                        | 49                                   | .12                                 | 174                        | 446                                  | 210                                 |
| 31          | 1.5                        | 12                                   | .05                                 | 120                        | 57                                   | 133                                 | ---                        | ---                                  | ---                                 |
| TOTAL       | 85.9                       | ---                                  | 3.02                                | 20120.73                   | ---                                  | 25840.99                            | 91165.9                    | ---                                  | 1184530.31                          |
| YEAR        | 174261.73                  |                                      | 1341210.94                          |                            |                                      |                                     |                            |                                      |                                     |
| e Estimated |                            |                                      |                                     |                            |                                      |                                     |                            |                                      |                                     |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 02... | 1747 | 2170                                                                  | 843                                                   | 492                                                                       | 99                                                                       |
| 02... | 2032 | 1420                                                                  | 1020                                                  | 3910                                                                      | 99                                                                       |
| 12... | 1742 | 1730                                                                  | 890                                                   | 4160                                                                      | 99                                                                       |
| 15... | 1045 | 71                                                                    | 539                                                   | 103                                                                       | 99                                                                       |
| 15... | 1957 | 1660                                                                  | 515                                                   | 2310                                                                      | 100                                                                      |
| 17... | 2132 | 2400                                                                  | 454                                                   | 2940                                                                      | 85                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 0907 | 4270                                                                  | 120                                                   | 1380                                                                      | 92                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 09... | 2207 | 1720                                                                  | 228                                                   | 1060                                                                      | 100                                                                      |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 1708 | 1830                                                                  | 191                                                   | 944                                                                       | 99                                                                       |
| 15... | 1103 | 1750                                                                  | 204                                                   | 964                                                                       | 100                                                                      |
| MAR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 0847 | 6.5                                                                   | 412                                                   | 7.2                                                                       | 100                                                                      |
| 20... | 2258 | 1720                                                                  | 351                                                   | 1630                                                                      | 97                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 25... | 1458 | 3380                                                                  | 546                                                   | 4980                                                                      | 98                                                                       |
| 26... | 1028 | 3210                                                                  | 372                                                   | 3220                                                                      | 99                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 02... | 1510 | 233                                                                   | 1120                                                  | 704                                                                       | 100                                                                      |
| 19... | 0746 | 3510                                                                  | 1580                                                  | 15000                                                                     | 100                                                                      |

## RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

## WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                                         |                                                                          |                                                                         |                                                                         |                                                                         |
| 14... | 0207 | 134000                                                                | 1190                                                                    | 430000                                                                   | 63                                                                      | 76                                                                      | 88                                                                      |
| 15... | 1544 | 1780                                                                  | 957                                                                     | 4600                                                                     | 17                                                                      | 22                                                                      | 32                                                                      |
| FEB   |      |                                                                       |                                                                         |                                                                          |                                                                         |                                                                         |                                                                         |
| 05... | 0315 | 1620                                                                  | 897                                                                     | 3900                                                                     | 55                                                                      | 67                                                                      | 77                                                                      |
| MAR   |      |                                                                       |                                                                         |                                                                          |                                                                         |                                                                         |                                                                         |
| 07... | 2148 | 3020                                                                  | 851                                                                     | 6940                                                                     | 62                                                                      | 74                                                                      | 85                                                                      |
| SEP   |      |                                                                       |                                                                         |                                                                          |                                                                         |                                                                         |                                                                         |
| 21... | 2031 | 10600                                                                 | 2480                                                                    | 71000                                                                    | 73                                                                      | 88                                                                      | 95                                                                      |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|-------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 14... | 90                                                                      | 93                                                                      | 93                                                                       | 95                                                                       | 97                                                                       | 99                                                                       | 100                                                                      |
| 15... | 49                                                                      | 76                                                                      | 89                                                                       | 96                                                                       | 97                                                                       | 99                                                                       | 100                                                                      |
| FEB   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 05... | 84                                                                      | 91                                                                      | 94                                                                       | 97                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |
| MAR   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 07... | 91                                                                      | 95                                                                      | 95                                                                       | 97                                                                       | 97                                                                       | 98                                                                       | 98                                                                       |
| SEP   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 21... | 96                                                                      | 98                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |

## RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°21'35", long 66°00'15", 100 ft (30 m) downstream of Highway 181 bridge, 0.4 mi (0.6 km) northwest of Trujillo Alto plaza, and 2.2 mi (3.5 km) northeast of Lago Loiza Reservoir.

DRAINAGE AREA.--213 mi<sup>2</sup> (552 km<sup>2</sup>).

PERIOD OF RECORD.--Water year 1981 to current year.

REMARKS: Flow controlled by Lago Loiza reservoir.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| NOV 05... | 1030 | 17                                              | 318                                     | 7.6                                            | 27.5                               | 49                        | 7.5                               | 97                                                | <10                                                  | K80                                                 | 420                                             |
| MAR 10... | 1130 | 9.3                                             | 250                                     | 7.0                                            | 26.0                               | 150                       | 5.4                               | 66                                                | 15                                                   | K840                                                | 2100                                            |
| JUN 02... | 1115 | 9.5                                             | 373                                     | 7.2                                            | 31.0                               | 2.0                       | 7.9                               | 106                                               | <10                                                  | 560                                                 | 30                                              |
| SEP 08... | 0835 | E4340                                           | 315                                     | 6.8                                            | 28.0                               | 51                        | 5.5                               | 70                                                | <10                                                  | 5700                                                | 2200                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 05... | 70                                      | 17                                      | 6.4                                         | 7.2                                     | .4                                | 2.2                                        | 115                                                 | <.5                               | 8.2                                      | 11                                         |
| MAR 10... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 94                                                  | --                                | --                                       | --                                         |
| JUN 02... | 120                                     | 30                                      | 11                                          | 27                                      | 1                                 | 2.6                                        | 131                                                 | --                                | 16                                       | 27                                         |
| SEP 08... | 100                                     | 26                                      | 9.9                                         | 20                                      | .8                                | 2.8                                        | 130                                                 | <1.0                              | 13                                       | 19                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 05... | <.10                                      | 17                                        | 134                                                     | 6.15                                      | 52                                                     | .926                                         | .014                                         | .940                                         | .040                                         | .37                                          |
| MAR 10... | --                                        | --                                        | --                                                      | --                                        | 116                                                    | 1.16                                         | .039                                         | 1.20                                         | .190                                         | .59                                          |
| JUN 02... | .14                                       | 28                                        | 220                                                     | 5.65                                      | 6                                                      | .326                                         | .014                                         | .340                                         | .030                                         | .33                                          |
| SEP 08... | .13                                       | 24                                        | 192                                                     | E2250                                     | 84                                                     | .873                                         | .017                                         | .890                                         | .080                                         | .61                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 05... | .41                                                     | 1.4                                  | 6.0                                    | .110                                  | <1                                 | <100                                            | 40                                            | <1                                               | <1                                                 | <10                                             |
| MAR 10... | .78                                                     | 2.0                                  | 8.8                                    | .240                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 02... | .36                                                     | .70                                  | 3.1                                    | .060                                  | 1                                  | <100                                            | 50                                            | <1                                               | <1                                                 | <10                                             |
| SEP 08... | .69                                                     | 1.6                                  | 7.0                                    | .180                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO GRANDE DE LOIZA BASIN

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR

LOCATION.--Lat 18°19'08", long 65°53'21", Hydrologic Unit 21010005, at upstream side of bridge, on paved secondary road, 0.4 mi (0.6 km) northeast of junction of Highways 185 and 186, 1.5 mi (2.4 km) south of Campo Rico, and 4.4 mi (7.1 km) south of Loiza.

DRAINAGE AREA.--9.84 mi<sup>2</sup> (25.48 km<sup>2</sup>).

PERIOD OF RECORD.--March 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 225 ft (68 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG    | SEP   |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| 1     | 13     | 9.0   | 15    | 8.3   | 14    | 8.2   | 9.0   | 5.5   | 7.0   | 3.3   | 4.8    | 18    |
| 2     | 37     | 8.7   | 12    | 9.5   | 9.2   | 7.8   | 28    | 5.4   | 6.6   | 3.2   | 4.4    | 76    |
| 3     | 29     | 8.4   | 10    | 13    | 9.0   | 7.8   | 14    | 5.9   | 6.4   | 3.5   | 4.1    | 51    |
| 4     | 16     | 8.4   | 9.6   | 14    | 13    | 7.8   | 8.3   | 11    | 9.7   | 4.5   | 3.8    | 32    |
| 5     | 14     | 8.6   | 9.8   | 12    | 314   | 7.4   | 6.8   | 8.5   | 6.6   | 4.9   | 3.5    | 30    |
| 6     | 12     | 8.5   | 9.3   | 39    | 20    | 8.0   | 6.2   | 6.3   | 6.6   | 3.5   | 4.4    | 22    |
| 7     | 12     | 8.3   | 9.2   | 197   | 13    | 7.5   | 6.2   | 5.9   | 6.2   | 5.5   | 39     | 30    |
| 8     | 14     | 7.9   | 8.8   | 22    | 34    | 9.2   | 7.8   | 118   | 8.5   | 4.9   | 33     | 28    |
| 9     | 21     | 8.0   | 8.7   | 25    | 36    | 7.5   | 6.2   | 33    | 14    | 4.0   | 19     | 23    |
| 10    | 14     | 136   | 9.1   | 25    | 14    | 7.0   | 5.7   | 21    | 11    | 3.2   | 13     | 19    |
| 11    | 46     | 15    | 8.9   | 30    | 12    | 6.8   | 5.8   | 10    | 7.1   | 3.0   | 6.8    | 16    |
| 12    | 32     | 11    | 8.4   | 15    | 15    | 6.5   | 7.4   | 7.9   | 14    | 3.0   | 5.4    | 14    |
| 13    | 174    | 9.8   | 8.3   | 34    | 11    | 6.2   | 18    | 7.1   | 30    | 2.6   | 5.2    | 17    |
| 14    | 666    | 9.1   | 8.4   | 32    | 13    | 6.7   | 8.1   | 10    | 9.0   | 3.1   | 4.3    | 27    |
| 15    | 31     | 8.9   | 8.5   | 16    | 16    | 8.4   | 6.3   | 9.3   | 6.6   | 5.2   | 4.9    | 74    |
| 16    | 28     | 12    | 8.2   | 13    | 11    | 9.0   | 65    | 8.1   | 6.4   | 5.5   | 40     | 29    |
| 17    | 23     | 10    | 11    | 12    | 10    | 7.4   | 18    | 7.9   | 8.1   | 4.0   | 53     | 18    |
| 18    | 16     | 13    | 11    | 11    | 9.5   | 6.9   | 10    | 7.8   | 12    | 4.8   | 16     | 17    |
| 19    | 15     | 17    | 9.0   | 11    | 9.3   | 6.6   | 15    | 7.4   | 7.5   | 7.9   | 16     | 19    |
| 20    | 13     | 11    | 8.3   | 11    | 8.7   | 7.8   | 12    | 6.6   | 6.0   | 12    | 20     | 18    |
| 21    | 13     | 14    | 11    | 10    | 8.3   | 10    | 9.4   | 11    | 6.1   | 11    | 104    | 2060  |
| 22    | 12     | 12    | 9.7   | 9.8   | 7.7   | 8.8   | 8.3   | 7.2   | 9.1   | 5.3   | 41     | 1600  |
| 23    | 12     | 11    | 8.1   | 9.7   | 7.5   | 8.4   | 7.2   | 6.4   | 6.4   | 5.7   | 19     | 127   |
| 24    | 11     | 11    | 8.9   | 9.5   | 7.3   | 7.3   | 6.7   | 6.3   | 5.5   | 50    | 554    | e70   |
| 25    | 10     | 9.7   | 7.9   | 9.3   | 7.5   | 7.1   | 6.9   | 6.4   | 4.9   | 13    | 536    | e55   |
| 26    | 10     | 138   | 7.0   | 8.9   | 11    | 6.8   | 6.8   | 6.5   | 4.8   | 7.1   | 108    | 44    |
| 27    | 9.8    | 27    | 6.7   | 9.2   | 9.1   | 7.2   | 7.6   | 9.3   | 4.2   | 11    | 39     | 38    |
| 28    | 9.5    | 15    | 6.7   | 8.9   | 8.7   | 7.7   | 6.5   | 6.9   | 3.8   | 15    | 30     | 34    |
| 29    | 9.5    | 13    | 6.7   | 8.5   | ---   | 11    | 6.0   | 7.7   | 3.5   | 15    | 63     | 31    |
| 30    | 9.1    | 16    | 6.4   | 8.3   | ---   | 34    | 5.7   | 9.4   | 3.3   | 7.2   | 26     | 29    |
| 31    | 9.0    | ---   | 6.9   | 10    | ---   | 23    | ---   | 10    | ---   | 5.4   | 20     | ---   |
| TOTAL | 1340.9 | 595.3 | 277.5 | 651.9 | 658.8 | 281.8 | 334.9 | 389.7 | 240.9 | 237.3 | 1840.6 | 4666  |
| MEAN  | 43.3   | 19.8  | 8.95  | 21.0  | 23.5  | 9.09  | 11.2  | 12.6  | 8.03  | 7.65  | 59.4   | 156   |
| MAX   | 666    | 138   | 15    | 197   | 314   | 34    | 65    | 118   | 30    | 50    | 554    | 2060  |
| MIN   | 9.0    | 7.9   | 6.4   | 8.3   | 7.3   | 6.2   | 5.7   | 5.4   | 3.3   | 2.6   | 3.5    | 14    |
| AC-FT | 2660   | 1180  | 550   | 1290  | 1310  | 559   | 664   | 773   | 478   | 471   | 3650   | 9260  |
| CFSM  | 4.40   | 2.02  | .91   | 2.14  | 2.39  | .92   | 1.13  | 1.28  | .82   | .78   | 6.03   | 15.8  |
| IN.   | 5.07   | 2.25  | 1.05  | 2.46  | 2.49  | 1.07  | 1.27  | 1.47  | .91   | .90   | 6.96   | 17.64 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 40.7 | 44.1 | 31.9 | 25.1 | 19.8 | 13.9 | 14.9 | 27.2 | 17.6 | 18.7 | 26.5 | 41.8 |
| MAX  | 273  | 125  | 116  | 62.4 | 48.4 | 36.2 | 53.2 | 93.2 | 63.7 | 63.7 | 137  | 196  |
| (WY) | 1971 | 1985 | 1971 | 1969 | 1988 | 1969 | 1971 | 1969 | 1970 | 1979 | 1979 | 1996 |
| MIN  | 6.74 | 6.66 | 5.82 | 6.66 | 4.04 | 3.54 | 4.36 | 4.28 | 2.80 | 3.72 | 5.69 | 5.20 |
| (WY) | 1968 | 1981 | 1968 | 1977 | 1977 | 1977 | 1994 | 1974 | 1974 | 1974 | 1991 | 1967 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

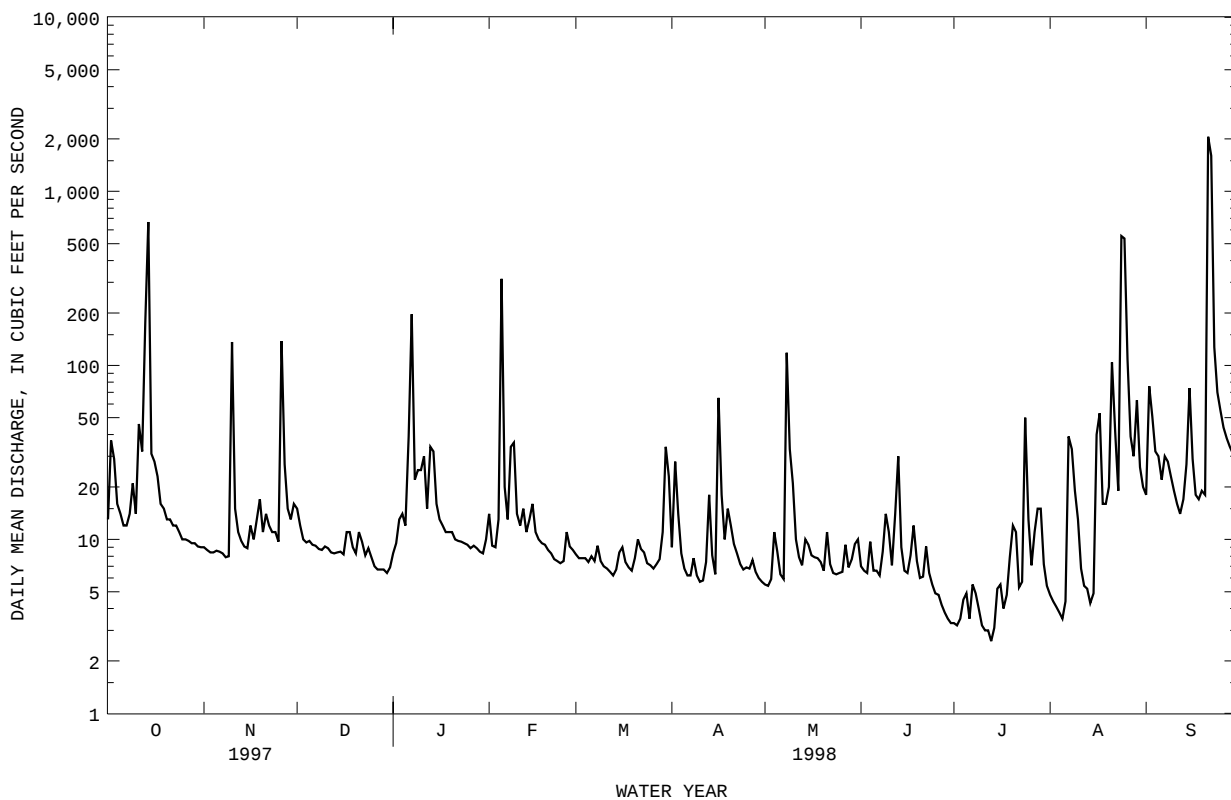
## FOR 1998 WATER YEAR

## WATER YEARS 1967 - 1998

|                          |        |         |       |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL             | 7266.6 | 11515.6 |       |
| ANNUAL MEAN              | 19.9   | 31.5    |       |
| HIGHEST ANNUAL MEAN      |        |         | 27.1  |
| LOWEST ANNUAL MEAN       |        |         | 58.0  |
| HIGHEST DAILY MEAN       | 666    | 2060    | 4230  |
| LOWEST DAILY MEAN        | 3.8    | 2.6     | .80   |
| ANNUAL SEVEN-DAY MINIMUM | 4.0    | 3.4     | 1.5   |
| INSTANTANEOUS PEAK FLOW  |        | 17300   | 17300 |
| INSTANTANEOUS PEAK STAGE |        | 15.90   | 15.90 |
| INSTANTANEOUS LOW FLOW   |        | 2.4     | .80   |
| ANNUAL RUNOFF (AC-FT)    | 14410  | 22840   | 19650 |
| ANNUAL RUNOFF (CFSM)     | 2.02   | 3.21    | 2.76  |
| ANNUAL RUNOFF (INCHES)   | 27.47  | 43.53   | 37.45 |
| 10 PERCENT EXCEEDS       | 30     | 34      | 43    |
| 50 PERCENT EXCEEDS       | 13     | 9.4     | 12    |
| 90 PERCENT EXCEEDS       | 6.7    | 5.5     | 5.2   |

e Estimated

RIO GRANDE DE LOIZA BASIN  
50061800 RIO CANOVANAS NEAR CAMPO RICO, PR--Continued



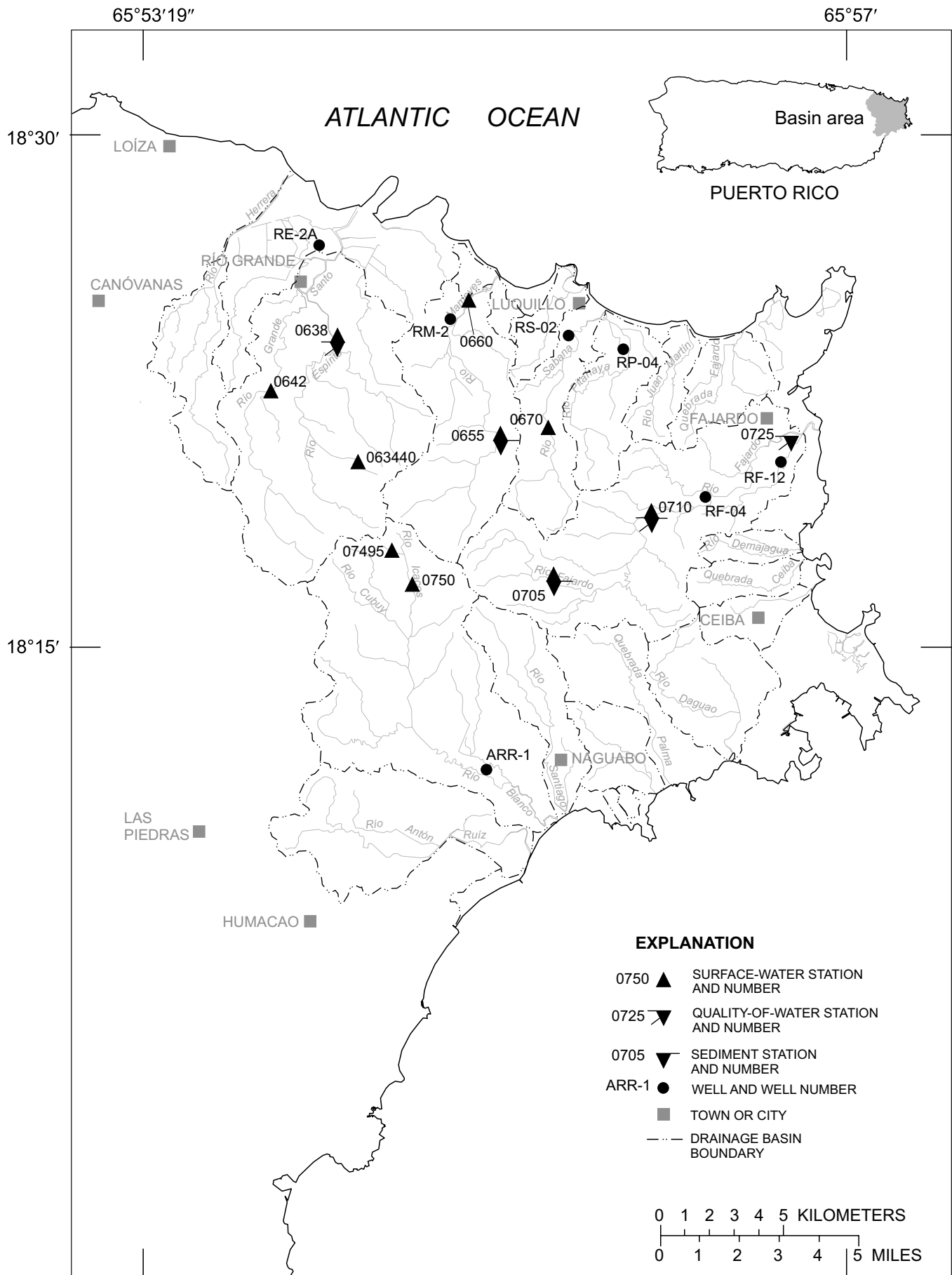


Figure 19. Northeastern river basins -- Río Herrera to Río Antón Ruiz basins.

## RIO ESPIRITU SANTO BASIN

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR

LOCATION.--Lat 18°19'24", long 65°49'03", Hydrologic Unit 21010005, in Caribbean National Forest, at El Yunque, 0.6 mi (1.0 km) upstream from Rio Espiritu Santo, 0.2 mi (0.3 km) upstream from Highway 186, and about 1.2 mi (1.9 km) south of El Verde.

DRAINAGE AREA.--1.01 mi<sup>2</sup> (2.62 km<sup>2</sup>).

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,230 ft (375 m), from topographic map.

REMARKS.--Records poor.

CORRECTIONS.--The maximum discharge for the water year 1996 is 963.0 ft<sup>3</sup>/s (27.2 m<sup>3</sup>/s), Apr. 4, 1996, gage-height, 8.09 ft (2.46 m). The previously published figure was not the maximum. The maximum discharge for the period of record is 2,230 ft<sup>3</sup>/s (63.1 m<sup>3</sup>/s), Dec. 7, 1987, gage-height, 9.42 ft (2.87 m). The previously published figure in the report for 1997 was not the maximum for the period of record.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN    | FEB   | MAR    | APR   | MAY    | JUN   | JUL   | AUG   | SEP   |
|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|-------|-------|-------|
| 1     | e2.2  | 4.1   | e2.0  | 5.3    | 1.0   | .34    | 3.9   | 1.6    | 1.7   | e1.5  | e1.8  | e3.8  |
| 2     | e15   | 1.4   | 1.5   | 3.9    | .93   | .33    | 11    | 1.4    | 1.4   | e1.7  | e1.8  | e21   |
| 3     | e2.6  | 1.2   | 1.3   | 24     | .72   | .33    | 3.0   | 3.3    | 1.2   | e4.0  | e2.1  | e9.4  |
| 4     | e2.0  | 2.2   | 1.3   | 17     | 12    | .30    | 2.1   | 9.6    | 1.2   | e6.8  | e2.2  | e7.0  |
| 5     | e2.0  | 2.2   | 1.3   | 12     | e16   | .25    | e1.8  | 2.1    | 1.1   | e2.5  | e2.1  | e10   |
| 6     | e1.6  | 2.6   | 1.2   | 62     | e1.3  | .61    | e1.5  | 1.3    | 1.5   | e1.8  | e4.3  | e12   |
| 7     | e1.5  | 1.4   | 1.2   | e90    | e.52  | e200   | e1.8  | 1.2    | 1.2   | e4.7  | e17   | e39   |
| 8     | e1.7  | 1.1   | 1.1   | e4.9   | e1.1  | e11    | e3.1  | 9.6    | 1.5   | e5.4  | e9.0  | e11   |
| 9     | e2.1  | 18    | 1.1   | e3.7   | e3.2  | e3.8   | e1.9  | 2.2    | e16   | e9.2  | e8.2  | e8.6  |
| 10    | e1.5  | e20   | 1.1   | e3.8   | e.60  | e1.8   | e1.6  | 1.1    | e4.0  | e2.2  | e3.1  | e4.5  |
| 11    | e4.3  | e2.3  | 1.2   | e2.1   | e.42  | e1.6   | e1.4  | 1.0    | e1.8  | e2.1  | e2.3  | e3.5  |
| 12    | e3.8  | e1.4  | 1.1   | e1.5   | e1.4  | e1.6   | e3.4  | .93    | e39   | e1.6  | e2.9  | e3.1  |
| 13    | e10   | e1.3  | 1.1   | e4.4   | e.42  | e1.5   | e6.0  | 7.2    | e5.4  | e1.7  | e2.8  | e14   |
| 14    | e29   | e1.2  | 1.1   | e5.2   | e.60  | e2.1   | e2.7  | 9.1    | e2.4  | e1.9  | e1.7  | e10   |
| 15    | e3.8  | e2.7  | 1.2   | e1.9   | e1.4  | e3.0   | e2.8  | 9.5    | e1.8  | e4.2  | e3.1  | e54   |
| 16    | e2.3  | e4.4  | 1.0   | e1.4   | e.42  | e2.7   | e50   | 4.4    | e4.3  | e4.6  | e11   | e8.0  |
| 17    | e1.9  | e3.8  | 1.8   | e1.2   | e.42  | e2.1   | e6.0  | 1.7    | e2.1  | e3.7  | e17   | e5.2  |
| 18    | e1.5  | e4.1  | 1.5   | e1.2   | e.42  | e2.2   | e6.6  | 1.2    | e6.0  | e3.7  | e8.2  | e6.0  |
| 19    | e1.5  | e4.2  | 1.2   | e1.2   | e.38  | e1.5   | e41   | 1.1    | e2.1  | e11   | e24   | e9.5  |
| 20    | e1.3  | e3.5  | 1.3   | e1.1   | e.38  | 19     | e8.0  | 1.2    | e1.6  | e18   | e12   | e7.0  |
| 21    | e1.4  | e5.4  | 3.7   | e1.0   | e.38  | 4.6    | e5.4  | 1.4    | e2.7  | e6.0  | e32   | e240  |
| 22    | e1.3  | e2.9  | 1.3   | e1.0   | e.38  | 3.1    | 3.8   | 1.0    | e3.4  | e2.3  | e12   | e160  |
| 23    | e1.3  | e1.8  | 1.0   | e1.0   | e.38  | 2.5    | 3.1   | .95    | e1.9  | e10   | e5.8  | e15   |
| 24    | e1.4  | e2.7  | .97   | e1.0   | e.34  | 1.7    | 2.6   | 1.1    | e1.8  | e27   | e83   | e8.0  |
| 25    | e1.4  | e1.5  | .87   | e1.0   | e.39  | 2.5    | 2.5   | 1.8    | e1.8  | e4.2  | e54   | e6.0  |
| 26    | e1.5  | e21   | .81   | e1.0   | .41   | 4.6    | 2.4   | 15     | e1.6  | e2.8  | e17   | e5.2  |
| 27    | e1.3  | e4.1  | .83   | e.88   | .40   | 7.9    | 7.3   | 9.8    | e1.6  | e4.7  | e12   | e4.5  |
| 28    | e1.1  | e2.8  | .82   | e.88   | .45   | 4.2    | 3.9   | 6.6    | e1.9  | e5.8  | e13   | e3.9  |
| 29    | e1.0  | e2.3  | .69   | e.80   | ---   | 3.4    | 2.1   | 17     | e1.5  | e2.9  | e14   | e3.6  |
| 30    | e1.1  | e3.0  | .61   | e.75   | ---   | 9.2    | 1.7   | 16     | e1.4  | e2.4  | e5.0  | e3.3  |
| 31    | e1.3  | ---   | .84   | .80    | ---   | 4.5    | ---   | 3.7    | ---   | e2.7  | e4.4  | ---   |
| TOTAL | 105.7 | 130.6 | 38.04 | 257.91 | 46.76 | 304.26 | 194.4 | 145.08 | 116.9 | 162.6 | 388.8 | 696.1 |
| MEAN  | 3.41  | 4.35  | 1.23  | 8.32   | 1.67  | 9.81   | 6.48  | 4.68   | 3.90  | 5.25  | 12.5  | 23.2  |
| MAX   | 29    | 21    | 3.7   | 90     | 16    | 200    | 50    | 17     | 39    | 27    | 83    | 240   |
| MIN   | 1.0   | 1.1   | .61   | .75    | .34   | .25    | 1.4   | .93    | 1.1   | 1.5   | 1.7   | 3.1   |
| AC-FT | 210   | 259   | 75    | 512    | 93    | 603    | 386   | 288    | 232   | 323   | 771   | 1380  |
| CFSM  | 3.38  | 4.31  | 1.21  | 8.24   | 1.65  | 9.72   | 6.42  | 4.63   | 3.86  | 5.19  | 12.4  | 23.0  |
| IN.   | 3.89  | 4.81  | 1.40  | 9.50   | 1.72  | 11.21  | 7.16  | 5.34   | 4.31  | 5.99  | 14.32 | 25.64 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1998, BY WATER YEAR (WY)

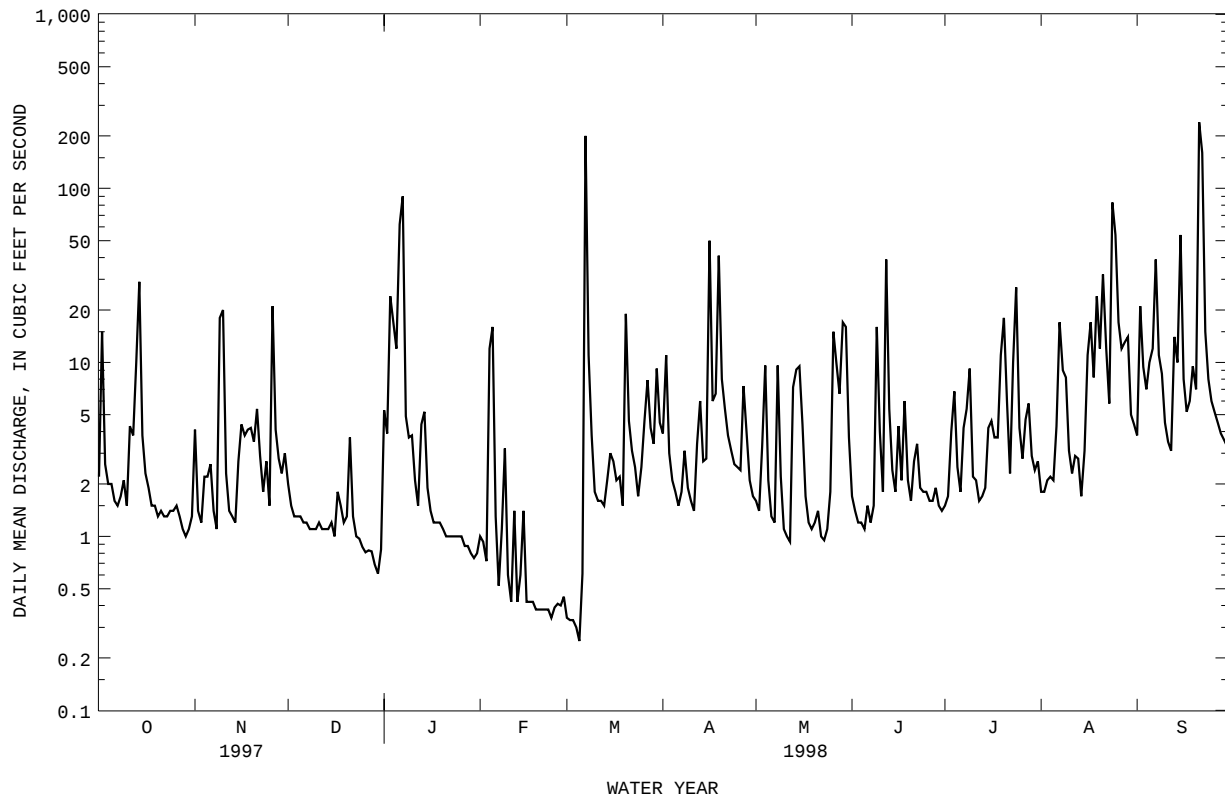
|      | MEAN | 5.42 | 9.32 | 7.46 | 7.02 | 5.88 | 5.01 | 4.66 | 7.38 | 5.80 | 6.37 | 7.03 | 7.93 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 16.8 | 19.8 | 20.9 | 11.1 | 11.9 | 14.3 | 9.76 | 14.3 | 13.7 | 12.7 | 14.2 | 23.2 | 23.2 |
| (WY) | 1986 | 1985 | 1988 | 1996 | 1988 | 1990 | 1987 | 1992 | 1987 | 1983 | 1988 | 1998 | 1998 |
| MIN  | .22  | 2.47 | .92  | 3.42 | 1.56 | 1.53 | .90  | 2.51 | .98  | 2.33 | .50  | 2.45 | 2.45 |
| (WY) | 1993 | 1991 | 1990 | 1985 | 1992 | 1993 | 1997 | 1996 | 1985 | 1991 | 1993 | 1986 | 1986 |

## RIO ESPIRITU SANTO BASIN

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR--Continued

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1983 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 1472.42                | 2587.15             |                         |
| ANNUAL MEAN              | 4.03                   | 7.09                | 6.55                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 9.32                    |
| LOWEST ANNUAL MEAN       |                        |                     | 3.91                    |
| HIGHEST DAILY MEAN       | 46 Jan 22              | 240 Sep 21          | 346 Sep 10 1996         |
| LOWEST DAILY MEAN        | .31 May 3              | .25 Mar 5           | .00 Aug 14 1993         |
| ANNUAL SEVEN-DAY MINIMUM | .32 Apr 30             | .34 Feb 27          | .01 Mar 31 1994         |
| INSTANTANEOUS PEAK FLOW  |                        | 614 Sep 21          | 2230 Dec 7 1987         |
| INSTANTANEOUS PEAK STAGE |                        | 7.39 Sep 21         | 9.42 Dec 7 1987         |
| INSTANTANEOUS LOW FLOW   |                        | .22 Mar 5           | .00 Aug 13 1993         |
| ANNUAL RUNOFF (AC-FT)    | 2920                   | 5130                | 4750                    |
| ANNUAL RUNOFF (CFSM)     | 3.99                   | 7.02                | 6.49                    |
| ANNUAL RUNOFF (INCHES)   | 54.23                  | 95.29               | 88.14                   |
| 10 PERCENT EXCEEDS       | 10                     | 13                  | 16                      |
| 50 PERCENT EXCEEDS       | 1.7                    | 2.2                 | 2.5                     |
| 90 PERCENT EXCEEDS       | .73                    | .88                 | .47                     |

e Estimated



## RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

LOCATION.--Lat 18°21'37", long 65°48'49", Hydrologic Unit 21010005, on downstream side of bridge on Highway 966, 0.1 mi (0.2 km) upstream from Quebrada Jiménez, and 1.9 mi (3.1 km), southeast of Río Grande.

DRAINAGE AREA.--8.62 mi<sup>2</sup> (22.33 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1963 (annual low-flow and occasional measurements only), August 1966 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV   | DEC  | JAN  | FEB   | MAR  | APR   | MAY  | JUN  | JUL  | AUG   | SEP   |
|-------|------|-------|------|------|-------|------|-------|------|------|------|-------|-------|
| 1     | 36   | 44    | 55   | 77   | 13    | 13   | 30    | 18   | 29   | 15   | 18    | 38    |
| 2     | 237  | 26    | 44   | 48   | 12    | 12   | 66    | 15   | 21   | 17   | 18    | 214   |
| 3     | 43   | 17    | 39   | 112  | 12    | 12   | 33    | 30   | 17   | 29   | 20    | 98    |
| 4     | 32   | 22    | 36   | 91   | 14    | 12   | 29    | 98   | 15   | 67   | 22    | 70    |
| 5     | 32   | 28    | 36   | 80   | 282   | 20   | 24    | 33   | 13   | 27   | 21    | 99    |
| 6     | 26   | 33    | 33   | 271  | 40    | 20   | 21    | 20   | 15   | 18   | e43   | 114   |
| 7     | 25   | 25    | 30   | 468  | 15    | 1270 | 24    | 17   | 16   | 40   | e172  | 393   |
| 8     | 28   | 18    | 28   | 79   | 33    | e143 | 42    | 89   | 19   | 52   | 90    | 112   |
| 9     | 34   | 67    | 27   | 59   | 57    | 50   | 27    | 50   | 164  | 92   | 81    | 88    |
| 10    | 25   | 279   | 27   | 61   | 17    | e23  | 22    | 19   | 51   | 22   | 34    | 50    |
| 11    | 71   | 37    | 27   | 36   | 12    | e21  | 19    | 15   | 18   | 21   | 23    | 36    |
| 12    | 62   | 22    | 24   | 25   | 25    | e21  | 42    | 14   | 390  | 16   | 29    | 31    |
| 13    | 174  | 21    | 24   | 71   | 12    | e20  | 82    | 26   | 97   | 17   | 28    | 142   |
| 14    | 456  | 19    | 23   | 84   | 17    | e29  | 37    | 119  | 24   | 19   | 17    | 101   |
| 15    | 45   | 58    | 23   | 30   | 25    | e40  | 38    | 83   | 18   | 41   | 25    | 534   |
| 16    | 38   | 123   | 26   | 21   | 12    | e36  | 677   | 56   | 43   | 46   | 102   | 88    |
| 17    | 31   | 106   | 40   | 18   | 12    | 28   | 82    | 30   | 21   | 37   | 166   | 53    |
| 18    | 25   | 115   | 44   | 18   | 12    | 29   | 90    | 17   | 60   | 37   | 82    | 60    |
| 19    | 25   | 118   | 37   | 18   | 11    | 20   | 558   | 18   | 23   | 99   | 232   | e97   |
| 20    | 21   | 98    | 31   | 17   | 11    | 88   | 120   | 15   | 16   | 176  | 121   | e70   |
| 21    | 22   | 152   | 79   | 16   | 11    | 33   | 48    | 40   | 25   | 65   | 323   | e2380 |
| 22    | 21   | 76    | 37   | 16   | 11    | 23   | 39    | 24   | 34   | 23   | 144   | e1680 |
| 23    | 21   | 51    | 31   | 16   | 11    | 22   | 29    | 24   | 19   | 79   | 59    | e151  |
| 24    | 22   | 76    | 33   | 16   | e9.7  | 22   | 28    | 21   | 18   | 274  | 840   | 80    |
| 25    | 22   | 42    | 30   | 16   | e11   | 24   | 25    | 30   | 18   | 48   | 550   | 61    |
| 26    | 23   | 588   | 28   | 16   | 12    | 29   | 25    | 127  | 16   | 28   | 167   | 53    |
| 27    | 21   | 113   | 28   | 14   | 12    | 38   | 58    | 131  | 16   | 43   | 124   | 46    |
| 28    | 17   | 76    | 28   | 14   | 13    | 27   | 37    | 66   | 19   | 57   | 135   | 40    |
| 29    | 16   | 63    | 26   | 13   | ---   | 27   | 23    | 129  | 15   | 29   | 139   | 37    |
| 30    | 17   | 85    | 26   | 12   | ---   | 57   | 19    | 199  | 14   | 24   | 51    | 33    |
| 31    | 21   | ---   | 26   | 12   | ---   | 34   | ---   | 67   | ---  | 27   | 45    | ---   |
| TOTAL | 1689 | 2598  | 1026 | 1845 | 734.7 | 2243 | 2394  | 1640 | 1264 | 1585 | 3921  | 7049  |
| MEAN  | 54.5 | 86.6  | 33.1 | 59.5 | 26.2  | 72.4 | 79.8  | 52.9 | 42.1 | 51.1 | 126   | 235   |
| MAX   | 456  | 588   | 79   | 468  | 282   | 1270 | 677   | 199  | 390  | 274  | 840   | 2380  |
| MIN   | 16   | 17    | 23   | 12   | 9.7   | 12   | 19    | 14   | 13   | 15   | 17    | 31    |
| AC-FT | 3350 | 5150  | 2040 | 3660 | 1460  | 4450 | 4750  | 3250 | 2510 | 3140 | 7780  | 13980 |
| CFSM  | 6.32 | 10.0  | 3.84 | 6.90 | 3.04  | 8.39 | 9.26  | 6.14 | 4.89 | 5.93 | 14.7  | 27.3  |
| IN.   | 7.29 | 11.21 | 4.43 | 7.96 | 3.17  | 9.68 | 10.33 | 7.08 | 5.45 | 6.84 | 16.92 | 30.42 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY)

|      | MEAN | 59.6 | 85.7 | 71.0 | 55.2 | 50.4 | 39.6 | 44.3 | 65.7 | 45.7 | 52.1 | 62.4 | 64.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 202  | 196  | 179  | 119  | 117  | 153  | 119  | 185  | 120  | 114  | 126  | 235  |      |
| (WY) | 1971 | 1985 | 1971 | 1969 | 1982 | 1990 | 1981 | 1979 | 1970 | 1983 | 1998 | 1998 |      |
| MIN  | 12.3 | 29.1 | 16.8 | 18.5 | 10.8 | 9.53 | 6.27 | 14.9 | 10.0 | 11.1 | 18.5 | 17.7 |      |
| (WY) | 1969 | 1982 | 1994 | 1977 | 1983 | 1996 | 1984 | 1973 | 1975 | 1975 | 1994 | 1971 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

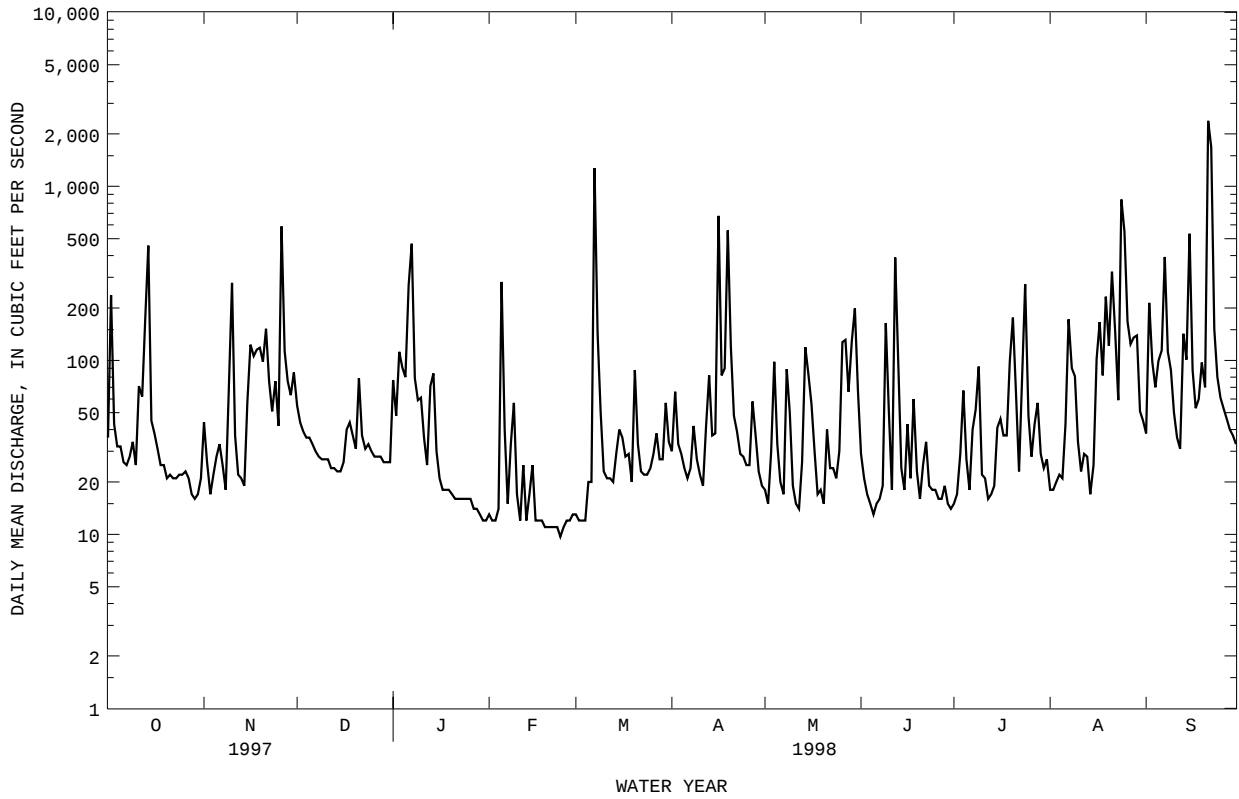
## WATER YEARS 1966 - 1998

|                          |       |         |       |             |
|--------------------------|-------|---------|-------|-------------|
| ANNUAL TOTAL             | 22521 | 27988.7 | 58.2  |             |
| ANNUAL MEAN              | 61.7  | 76.7    | 98.6  | 1979        |
| HIGHEST ANNUAL MEAN      |       |         | 21.6  | 1994        |
| LOWEST ANNUAL MEAN       |       |         | 2600  | Dec 7 1987  |
| HIGHEST DAILY MEAN       | 923   | Aug 22  | 3.6   | Apr 2 1996  |
| LOWEST DAILY MEAN        | 11    | Jun 9   | 4.4   | Jun 30 1975 |
| ANNUAL SEVEN-DAY MINIMUM | 12    | Jun 6   | 11    | Feb 19      |
| INSTANTANEOUS PEAK FLOW  |       |         | 13500 | Sep 21      |
| INSTANTANEOUS PEAK STAGE |       |         | 12.87 | Sep 21      |
| ANNUAL RUNOFF (AC-FT)    | 44670 | 55520   | 21200 | Aug 13 1990 |
| ANNUAL RUNOFF (CFSM)     | 7.16  | 8.90    | 16.62 | Aug 13 1990 |
| ANNUAL RUNOFF (INCHES)   | 97.19 | 120.79  | 42140 |             |
| 10 PERCENT EXCEEDS       | 114   | 130     | 6.75  |             |
| 50 PERCENT EXCEEDS       | 34    | 30      | 91.69 |             |
| 90 PERCENT EXCEEDS       | 17    | 15      | 123   |             |
|                          |       |         | 26    |             |
|                          |       |         | 10    |             |

e Estimated

## RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued



## RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958, 1961-66, 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 28... | 1300 | 17                                              | 115                                     | 7.4                                      | 27.0                               | .40                       | 7.3                               | 92                                                | <10                                                  | 310                                                 | 360                                             |
| MAR 25... | 0845 | 24                                              | 115                                     | 6.8                                      | 24.5                               | 2.1                       | 8.2                               | 98                                                | <10                                                  | 4800                                                | 2700                                            |
| JUN 09... | 0910 | 17                                              | 89                                      | 6.7                                      | 26.0                               | 2.0                       | 8.0                               | 98                                                | <10                                                  | 340                                                 | 310                                             |
| AUG 24... | 1400 | 506                                             | 31                                      | 6.2                                      | 24.5                               | 71                        | 8.1                               | 97                                                | 15                                                   | 5800                                                | K14000                                          |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 28... | 39                                      | 8.6                                     | 4.3                                         | 8.4                                     | .6                                | .73                                        | 40                                                  | <.5                               | 1.8                                      | 10                                         |
| MAR 25... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 44                                                  | --                                | --                                       | --                                         |
| JUN 09... | 27                                      | 5.9                                     | 3.0                                         | 7.0                                     | .6                                | .43                                        | 33                                                  | --                                | 1.7                                      | 8.5                                        |
| AUG 24... | 8                                       | 1.8                                     | .92                                         | 3.2                                     | .5                                | .46                                        | 82                                                  | <1.0                              | 1.4                                      | 4.2                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 28... | <.10                                      | 22                                        | 80                                                      | 3.61                                      | <1                                                     | --                                           | <.010                                        | .060                                         | .020                                         | --                                           |
| MAR 25... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | --                                           | <.010                                        | .020                                         | .020                                         | .41                                          |
| JUN 09... | <.10                                      | 18                                        | 64                                                      | 3.01                                      | 3                                                      | --                                           | <.010                                        | .060                                         | .010                                         | --                                           |
| AUG 24... | <.10                                      | 5.0                                       | 66                                                      | 90.3                                      | 146                                                    | .060                                         | .010                                         | .070                                         | .060                                         | 1.4                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 28... | <.20                                                    | --                                   | --                                     | .030                                  | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| MAR 25... | .43                                                     | .43                                  | 1.9                                    | .030                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 09... | <.20                                                    | --                                   | --                                     | <.020                                 | <1                                 | <100                                            | 30                                            | 2                                                | <1                                                 | <10                                             |
| AUG 24... | 1.5                                                     | 1.6                                  | 6.9                                    | .110                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO ESPIRITU SANTO BASIN

50064200 RIO GRANDE NEAR EL VERDE, PR

LOCATION.--Lat 18°20'42", long 65°50'30", Hydrologic Unit 21010005, on left bank 250 ft (7.6 m) upstream side of bridge at Hwy 960, 0.05 mi (0.08 km) southwest of junction of Highways 956 and 960, 1.1 mi (1.8 km) west of El Verde, and 2.7 mi (4.3 km) south of Rio Grande.

DRAINAGE AREA.--7.31 mi<sup>2</sup> (18.93 km<sup>2</sup>).

PERIOD OF RECORD.--May 1967 to December 1970, January 1972 to September 1982, August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN  | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG    | SEP   |
|-------|--------|-------|-------|------|-------|-------|-------|-------|-------|-------|--------|-------|
| 1     | 17     | e18   | e18   | e78  | 18    | 7.1   | 16    | 9.7   | 23    | 8.5   | 12     | e30   |
| 2     | 120    | e11   | e14   | e45  | 13    | 7.1   | 54    | 9.2   | 14    | 8.3   | 9.8    | e143  |
| 3     | 37     | e7.0  | e13   | e110 | 12    | 6.7   | e18   | 11    | 12    | 12    | 9.1    | e95   |
| 4     | 20     | e9.3  | e12   | e90  | 19    | 6.5   | e12   | 47    | 11    | 23    | 8.6    | e61   |
| 5     | 16     | e11   | e12   | e80  | 313   | 7.5   | 9.3   | 20    | 11    | 17    | 8.7    | e61   |
| 6     | 13     | e13   | e11   | e300 | 29    | 9.0   | 8.2   | 10    | 20    | 11    | e22    | e43   |
| 7     | 13     | e9.1  | e9.4  | e470 | 15    | 212   | 8.9   | 9.2   | 18    | 41    | e94    | e60   |
| 8     | 13     | e7.0  | e8.2  | e80  | 45    | 55    | 13    | 98    | 12    | 21    | 60     | e58   |
| 9     | 19     | e29   | e7.6  | e60  | 57    | 16    | 8.0   | 44    | 64    | 26    | 55     | e45   |
| 10    | 12     | e119  | e6.4  | e64  | 17    | 11    | 7.3   | 18    | 40    | 15    | 38     | e36   |
| 11    | 25     | e15   | e6.0  | e35  | 14    | 10    | 7.9   | 13    | 14    | 12    | 16     | e28   |
| 12    | 33     | e6.8  | e5.5  | e26  | 34    | 10    | 15    | 12    | 150   | 9.6   | 18     | e25   |
| 13    | 146    | e6.1  | e5.4  | e72  | 14    | 9.5   | 56    | 21    | 79    | 8.9   | 17     | e59   |
| 14    | 455    | e5.5  | e5.5  | e86  | 16    | 13    | 14    | 65    | 20    | 8.7   | 11     | e72   |
| 15    | 46     | 13    | e5.6  | e30  | 24    | 19    | 19    | 30    | 14    | 24    | 14     | 219   |
| 16    | 48     | 33    | e5.3  | e21  | 12    | 17    | 361   | 36    | 17    | 25    | 47     | 60    |
| 17    | 34     | 31    | e18   | e19  | 11    | 14    | 49    | 24    | 18    | 16    | 113    | 35    |
| 18    | 21     | 50    | e20   | e19  | 10    | 10    | 31    | 15    | 39    | 19    | 43     | e34   |
| 19    | 17     | 45    | e17   | e19  | 9.8   | 10    | 49    | 13    | 15    | 52    | 116    | 67    |
| 20    | 15     | 25    | e14   | e18  | 9.4   | 49    | 23    | 11    | 12    | 91    | 71     | e49   |
| 21    | 12     | 66    | e36   | e17  | 9.9   | 28    | 16    | 20    | 18    | 48    | 221    | 1440  |
| 22    | 11     | 25    | e17   | e17  | 9.0   | 22    | 14    | 11    | 28    | 15    | 114    | 833   |
| 23    | 9.7    | e17   | e14   | e17  | 8.7   | 15    | 13    | 9.7   | 13    | 32    | 43     | 119   |
| 24    | 8.7    | e25   | e15   | 17   | 7.2   | 9.8   | 11    | 11    | 11    | 201   | 563    | 79    |
| 25    | e8.0   | e14   | e13   | 16   | 7.1   | 10    | 12    | 13    | 10    | 42    | e492   | 66    |
| 26    | e7.3   | e275  | e12   | 16   | 9.1   | 13    | 13    | 37    | 9.9   | 19    | e144   | 62    |
| 27    | e6.5   | e37   | e11   | 15   | 8.1   | 26    | 22    | 69    | 9.5   | 42    | e71    | 50    |
| 28    | e6.5   | e24   | e11   | 14   | 7.4   | 17    | 16    | 22    | 12    | 60    | e58    | 44    |
| 29    | e6.4   | e20   | e10   | 13   | ---   | 17    | 12    | 53    | 9.8   | 31    | e90    | 41    |
| 30    | e6.8   | e28   | e9.9  | 12   | ---   | 98    | 10    | 44    | 9.1   | 16    | e43    | 37    |
| 31    | e7.9   | ---   | e9.8  | 12   | ---   | 45    | ---   | 52    | ---   | 18    | e32    | ---   |
| TOTAL | 1210.8 | 994.8 | 372.6 | 1888 | 758.7 | 800.2 | 918.6 | 857.8 | 733.3 | 973.0 | 2654.2 | 4051  |
| MEAN  | 39.1   | 33.2  | 12.0  | 60.9 | 27.1  | 25.8  | 30.6  | 27.7  | 24.4  | 31.4  | 85.6   | 135   |
| MAX   | 455    | 275   | 36    | 470  | 313   | 212   | 361   | 98    | 150   | 201   | 563    | 1440  |
| MIN   | 6.4    | 5.5   | 5.3   | 12   | 7.1   | 6.5   | 7.3   | 9.2   | 9.1   | 8.3   | 8.6    | 25    |
| AC-FT | 2400   | 1970  | 739   | 3740 | 1500  | 1590  | 1820  | 1700  | 1450  | 1930  | 5260   | 8040  |
| CFSM  | 5.34   | 4.54  | 1.64  | 8.33 | 3.71  | 3.53  | 4.19  | 3.79  | 3.34  | 4.29  | 11.7   | 18.5  |
| IN.   | 6.16   | 5.06  | 1.90  | 9.61 | 3.86  | 4.07  | 4.67  | 4.37  | 3.73  | 4.95  | 13.51  | 20.62 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1998, BY WATER YEAR (WY)

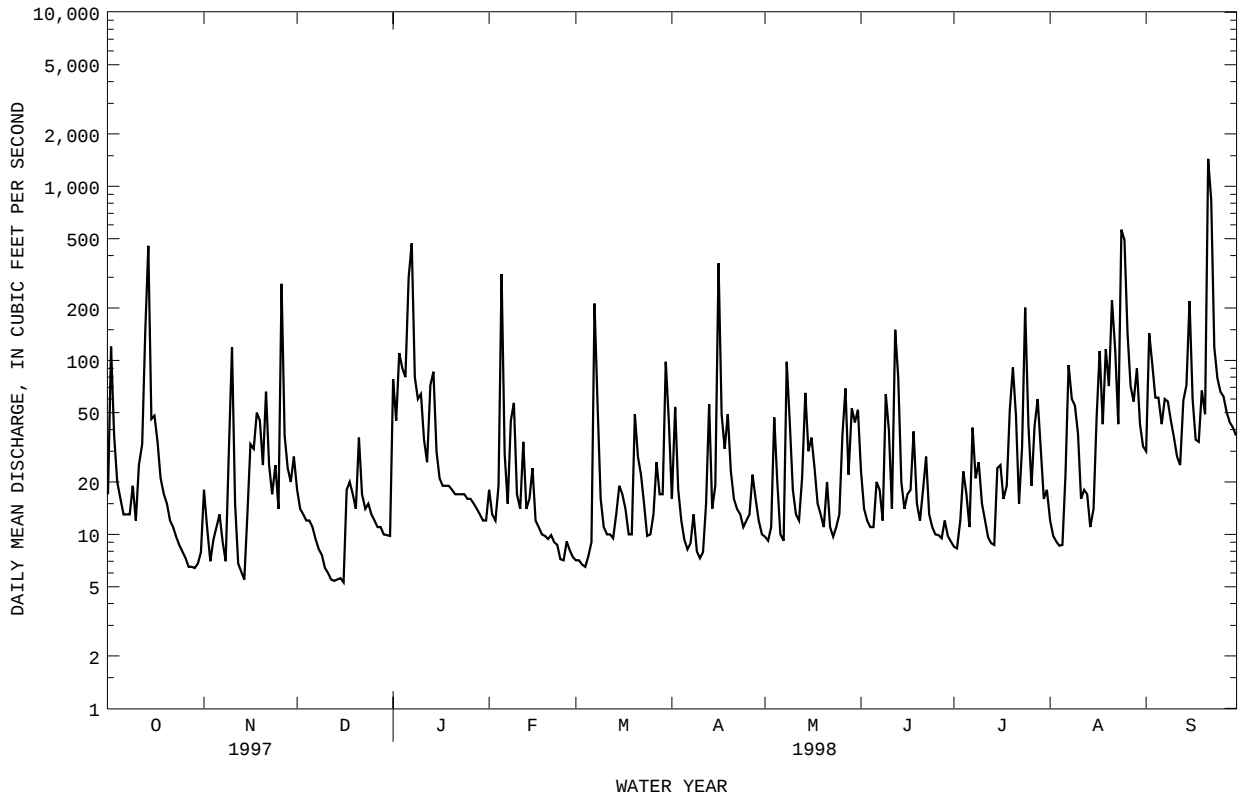
|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 54.9 | 66.2 | 45.4 | 43.8 | 30.8 | 20.9 | 27.0 | 49.5 | 30.5 | 36.5 | 44.6 | 52.4 |
| MAX  | 392  | 172  | 140  | 151  | 76.4 | 54.4 | 119  | 203  | 86.5 | 109  | 90.0 | 153  |
| (WY) | 1971 | 1970 | 1971 | 1969 | 1969 | 1969 | 1978 | 1969 | 1968 | 1969 | 1968 | 1975 |
| MIN  | 8.45 | 14.3 | 12.0 | 10.1 | 5.80 | 4.50 | 6.29 | 10.2 | 6.22 | 8.66 | 7.39 | 12.4 |
| (WY) | 1969 | 1981 | 1998 | 1977 | 1977 | 1977 | 1995 | 1974 | 1975 | 1994 | 1991 | 1967 |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1967 - 1998

|                          |         |         |       |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL             | 10408.8 | 16213.0 |       |
| ANNUAL MEAN              | 28.5    | 44.4    |       |
| HIGHEST ANNUAL MEAN      |         |         | 40.3  |
| LOWEST ANNUAL MEAN       |         |         | 87.1  |
| HIGHEST DAILY MEAN       |         |         | 17.3  |
| LOWEST DAILY MEAN        | 455     | Oct 14  | 3470  |
| ANNUAL SEVEN-DAY MINIMUM | 3.6     | May 5   | 2.2   |
| INSTANTANEOUS PEAK FLOW  | 4.0     | Apr 30  | 5.7   |
| INSTANTANEOUS PEAK STAGE |         |         | 22000 |
| INSTANTANEOUS LOW FLOW   |         |         | 19.30 |
| ANNUAL RUNOFF (AC-FT)    | 20650   | 32160   | 1.6   |
| ANNUAL RUNOFF (CFSM)     | 3.90    | 6.08    | 29190 |
| ANNUAL RUNOFF (INCHES)   | 52.97   | 82.51   | 5.51  |
| 10 PERCENT EXCEEDS       | 57      | 79      | 74.90 |
| 50 PERCENT EXCEEDS       | 16      | 17      | 17    |
| 90 PERCENT EXCEEDS       | 5.8     | 8.6     | 6.6   |

e Estimated

RIO ESPIRITU SANTO BASIN  
50064200 RIO GRANDE NEAR EL VERDE, PR--Continued



## RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR

LOCATION.--Lat 18°19'46", long 65°45'04", Hydrologic Unit 21010005, on left bank, at bridge on Highway 988, 1.4 mi (2.3 km) west of Sabana, 2.0 mi (3.2 km) downstream from Rio de la Mina, and 3.2 mi (5.1 km) southeast of Mameyes.

DRAINAGE AREA.--6.88 mi<sup>2</sup> (17.82 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to December 1973, June 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 275 ft (84 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN  | FEB  | MAR  | APR  | MAY   | JUN  | JUL  | AUG   | SEP   |
|-------|-------|-------|------|------|------|------|------|-------|------|------|-------|-------|
| 1     | 28    | 33    | 38   | 63   | 18   | 20   | 47   | 26    | 69   | 22   | e24   | 39    |
| 2     | e380  | 16    | 30   | 52   | 19   | 18   | 96   | 23    | 49   | 22   | e25   | 129   |
| 3     | e58   | 15    | 27   | 79   | 17   | 18   | 38   | 57    | 39   | 30   | e32   | 59    |
| 4     | e42   | 22    | 25   | 83   | 19   | 17   | 29   | 93    | 35   | 110  | e30   | 44    |
| 5     | e33   | 23    | 24   | 68   | 334  | 18   | 29   | 39    | 32   | 34   | e31   | 55    |
| 6     | e26   | 36    | 21   | 233  | 42   | 34   | 25   | 31    | 36   | 32   | e70   | 65    |
| 7     | e23   | 17    | 20   | 392  | 31   | 260  | 40   | 28    | 29   | 59   | e166  | 284   |
| 8     | 76    | 42    | 18   | 77   | 48   | 64   | 50   | 113   | 40   | 69   | 104   | 105   |
| 9     | 68    | 116   | 18   | 62   | 49   | 23   | 26   | 50    | 106  | 88   | 103   | 84    |
| 10    | 34    | 270   | 18   | 83   | 29   | 18   | 23   | 31    | 48   | 38   | 47    | 49    |
| 11    | 192   | 35    | 18   | 42   | 29   | 16   | 24   | 27    | 32   | 29   | 33    | 39    |
| 12    | 85    | 25    | 16   | 29   | 34   | 15   | 65   | 26    | 332  | 26   | 38    | 39    |
| 13    | 264   | 24    | 15   | 63   | 26   | 15   | 64   | 56    | 113  | 23   | 35    | 139   |
| 14    | 490   | 22    | 15   | 47   | 38   | 69   | 34   | 177   | 51   | 28   | 28    | 69    |
| 15    | 77    | 47    | 14   | 25   | 34   | 32   | 29   | 108   | 42   | 59   | 28    | 225   |
| 16    | 58    | 107   | 14   | 22   | 26   | 21   | 377  | 67    | 71   | 47   | 78    | 70    |
| 17    | 45    | 84    | 24   | 21   | 27   | 22   | 81   | 45    | 39   | 35   | 97    | 49    |
| 18    | 66    | 107   | 21   | 19   | 25   | 23   | 110  | 36    | e62  | 27   | 54    | 55    |
| 19    | 41    | 73    | 15   | 19   | 24   | 17   | 128  | 43    | e45  | 75   | 65    | 63    |
| 20    | 32    | 61    | 21   | 19   | 23   | 96   | 126  | 42    | 34   | 82   | 54    | 58    |
| 21    | 28    | 87    | 45   | 18   | 23   | 35   | 67   | 40    | 41   | 37   | 151   | 1480  |
| 22    | 25    | 49    | 21   | 17   | 22   | 40   | 46   | 32    | 41   | 20   | 83    | 699   |
| 23    | 23    | 38    | 17   | 17   | 21   | 28   | 39   | 29    | 31   | 29   | 45    | 126   |
| 24    | 21    | 64    | 14   | 18   | 20   | 20   | 35   | 28    | 29   | 123  | 415   | 82    |
| 25    | 20    | 40    | 13   | 18   | 19   | 31   | 33   | 30    | 26   | 30   | 277   | 65    |
| 26    | 19    | 526   | 12   | 18   | 19   | 32   | 31   | 125   | 25   | 22   | 112   | 56    |
| 27    | 17    | 80    | 16   | 18   | 20   | 46   | 51   | 91    | 28   | 26   | 82    | 46    |
| 28    | 16    | 53    | 13   | 18   | 20   | 32   | 42   | 56    | 38   | 34   | 59    | 40    |
| 29    | 15    | 61    | 11   | 18   | ---  | 54   | 29   | 194   | 26   | 25   | 52    | 39    |
| 30    | 16    | 58    | 11   | 18   | ---  | 107  | 26   | 297   | 23   | 28   | 41    | 35    |
| 31    | 16    | ---   | 15   | 18   | ---  | 48   | ---  | 106   | ---  | 32   | 37    | ---   |
| TOTAL | 2334  | 2231  | 600  | 1694 | 1056 | 1289 | 1840 | 2146  | 1612 | 1341 | 2496  | 4387  |
| MEAN  | 75.3  | 74.4  | 19.4 | 54.6 | 37.7 | 41.6 | 61.3 | 69.2  | 53.7 | 43.3 | 80.5  | 146   |
| MAX   | 490   | 526   | 45   | 392  | 334  | 260  | 377  | 297   | 332  | 123  | 415   | 1480  |
| MIN   | 15    | 15    | 11   | 17   | 17   | 15   | 23   | 23    | 23   | 20   | 24    | 35    |
| AC-FT | 4630  | 4430  | 1190 | 3360 | 2090 | 2560 | 3650 | 4260  | 3200 | 2660 | 4950  | 8700  |
| CFSM  | 10.9  | 10.8  | 2.81 | 7.94 | 5.48 | 6.04 | 8.91 | 10.1  | 7.81 | 6.29 | 11.7  | 21.3  |
| IN.   | 12.62 | 12.06 | 3.24 | 9.16 | 5.71 | 6.97 | 9.95 | 11.60 | 8.72 | 7.25 | 13.50 | 23.72 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1998, BY WATER YEAR (WY)

|      | MEAN | 64.0 | 80.0 | 56.9 | 54.3 | 42.1 | 37.5 | 40.9 | 64.5 | 54.8 | 49.4 | 53.8 | 64.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 240  | 191  | 164  | 105  | 68.0 | 79.7 | 83.1 | 147  | 112  | 93.4 | 81.4 | 166  |      |
| (WY) | 1971 | 1985 | 1971 | 1969 | 1988 | 1990 | 1973 | 1970 | 1970 | 1969 | 1988 | 1989 |      |
| MIN  | 20.3 | 36.3 | 16.6 | 25.0 | 21.7 | 18.1 | 14.5 | 18.7 | 12.4 | 20.3 | 20.4 | 26.6 |      |
| (WY) | 1969 | 1974 | 1990 | 1985 | 1968 | 1968 | 1984 | 1973 | 1985 | 1994 | 1994 | 1986 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

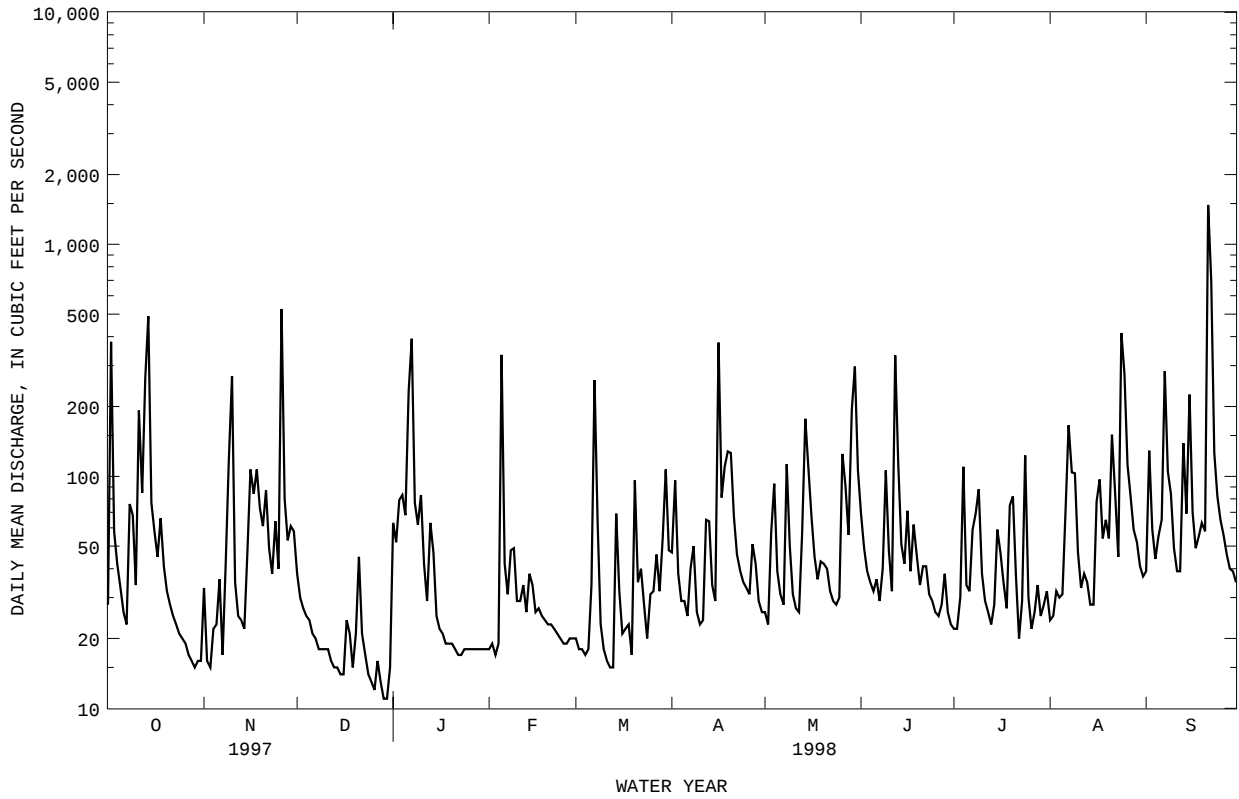
## FOR 1998 WATER YEAR

## WATER YEARS 1967 - 1998

|                          |       |        |        |
|--------------------------|-------|--------|--------|
| ANNUAL TOTAL             | 17732 | 23026  |        |
| ANNUAL MEAN              | 48.6  | 63.1   | 55.8   |
| HIGHEST ANNUAL MEAN      |       |        | 78.0   |
| LOWEST ANNUAL MEAN       |       |        | 33.1   |
| HIGHEST DAILY MEAN       | 526   | Nov 26 | 1480   |
| LOWEST DAILY MEAN        | 11    | Dec 29 | 11     |
| ANNUAL SEVEN-DAY MINIMUM | 13    | Dec 24 | 13     |
| INSTANTANEOUS PEAK FLOW  |       |        | 12600  |
| INSTANTANEOUS PEAK STAGE |       |        | 11.03  |
| INSTANTANEOUS LOW FLOW   |       |        | 10     |
| ANNUAL RUNOFF (AC-FT)    | 35170 | 45670  | 40430  |
| ANNUAL RUNOFF (CFSM)     | 7.06  | 9.17   | 8.11   |
| ANNUAL RUNOFF (INCHES)   | 95.88 | 124.50 | 110.20 |
| 10 PERCENT EXCEEDS       | 80    | 109    | 100    |
| 50 PERCENT EXCEEDS       | 34    | 35     | 33     |
| 90 PERCENT EXCEEDS       | 18    | 18     | 16     |

e Estimated

RIO MAMEYES BASIN  
50065500 RIO MAMEYES NEAR SABANA, PR--Continued



## RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1992 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1992 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler, since 1993.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 484 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 5,390 tons (4,890 tonnes) September 21, 1998; Minimum daily mean, 0.03 tons (0.02 tonne) October 05, 1994.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 463 mg/L March 7, 1998; Minimum daily mean, 1 mg/L severals days .

SEDIMENT LOADS: Maximum daily mean, 5,390 tons (4,890 tonnes) September 21, 1998; Minimum daily mean, 0.05 tons (0.04 tonne) October 27-28, 1997.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 28                         | 2                                    | .16                                 | 33                         | 5                                    | 1.2                                 | 38                         | 70                                   | 7.2                                 |
| 2       | e380                       | 139                                  | e412                                | 16                         | 6                                    | .20                                 | 30                         | 43                                   | 3.6                                 |
| 3       | e58                        | 17                                   | e.38                                | 15                         | 7                                    | .17                                 | 27                         | 26                                   | 1.9                                 |
| 4       | e42                        | 6                                    | e1.7                                | 22                         | 9                                    | .44                                 | 25                         | 20                                   | 1.4                                 |
| 5       | e33                        | 1                                    | e.90                                | 23                         | 12                                   | .43                                 | 24                         | 17                                   | 1.1                                 |
| 6       | e26                        | 1                                    | e.54                                | 36                         | 15                                   | 1.3                                 | 21                         | 13                                   | .78                                 |
| 7       | e23                        | 1                                    | e.29                                | 17                         | 19                                   | .24                                 | 20                         | 11                                   | .60                                 |
| 8       | 76                         | 27                                   | 19                                  | 42                         | 25                                   | 4.9                                 | 18                         | 11                                   | .53                                 |
| 9       | 68                         | 52                                   | 7.9                                 | 116                        | 48                                   | 29                                  | 18                         | 11                                   | .50                                 |
| 10      | 34                         | 4                                    | .39                                 | 270                        | 226                                  | 523                                 | 18                         | 10                                   | .49                                 |
| 11      | 192                        | 104                                  | 232                                 | 35                         | 12                                   | 1.1                                 | 18                         | 10                                   | .49                                 |
| 12      | 85                         | 62                                   | 14                                  | 25                         | 4                                    | .27                                 | 16                         | 9                                    | .38                                 |
| 13      | 264                        | 80                                   | 223                                 | 24                         | 1                                    | .09                                 | 15                         | 8                                    | .35                                 |
| 14      | 490                        | 57                                   | 257                                 | 22                         | 1                                    | .06                                 | 15                         | 13                                   | .54                                 |
| 15      | 77                         | 3                                    | .61                                 | 47                         | 18                                   | 5.1                                 | 14                         | 11                                   | .42                                 |
| 16      | 58                         | 2                                    | .38                                 | 107                        | 41                                   | 15                                  | 14                         | 8                                    | .29                                 |
| 17      | 45                         | 3                                    | .34                                 | 84                         | 23                                   | 9.4                                 | 24                         | 8                                    | .49                                 |
| 18      | 66                         | 30                                   | 8.5                                 | 107                        | 22                                   | 24                                  | 21                         | 7                                    | .45                                 |
| 19      | 41                         | 16                                   | 1.8                                 | 73                         | 22                                   | 5.3                                 | 15                         | 7                                    | .16                                 |
| 20      | 32                         | 13                                   | 1.1                                 | 61                         | 35                                   | 7.8                                 | 21                         | 7                                    | 1.1                                 |
| 21      | 28                         | 7                                    | .56                                 | 87                         | 15                                   | 8.5                                 | 45                         | 6                                    | 3.0                                 |
| 22      | 25                         | 4                                    | .28                                 | 49                         | 9                                    | 1.2                                 | 21                         | 18                                   | 1.0                                 |
| 23      | 23                         | 2                                    | .14                                 | 38                         | 2                                    | .24                                 | 17                         | 23                                   | 1.1                                 |
| 24      | 21                         | 2                                    | .11                                 | 64                         | 34                                   | 7.9                                 | 14                         | 21                                   | .82                                 |
| 25      | 20                         | 2                                    | .10                                 | 40                         | 15                                   | 1.9                                 | 13                         | 19                                   | .70                                 |
| 26      | 19                         | 1                                    | .08                                 | 526                        | 136                                  | 514                                 | 12                         | 18                                   | .58                                 |
| 27      | 17                         | 1                                    | .05                                 | 80                         | 37                                   | 8.1                                 | 16                         | 16                                   | .69                                 |
| 28      | 16                         | 1                                    | .05                                 | 53                         | 23                                   | 3.3                                 | 13                         | 10                                   | .35                                 |
| 29      | 15                         | 1                                    | .06                                 | 61                         | 47                                   | 12                                  | 11                         | 6                                    | .19                                 |
| 30      | 16                         | 2                                    | .07                                 | 58                         | 96                                   | 15                                  | 11                         | 4                                    | .12                                 |
| 31      | 16                         | 2                                    | .08                                 | ---                        | ---                                  | ---                                 | 15                         | 4                                    | .18                                 |
| TOTAL   | 2334                       | ---                                  | 1183.57                             | 2231                       | ---                                  | 1201.14                             | 600                        | ---                                  | 31.50                               |

## RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 63                         | 36                                   | 19                                  | 18                         | 4                                    | .18                                 | 20                         | 8                                    | .41                                 |
| 2       | 52                         | 26                                   | 3.4                                 | 19                         | 6                                    | .32                                 | 18                         | 7                                    | .34                                 |
| 3       | 79                         | 27                                   | 9.9                                 | 17                         | 5                                    | .23                                 | 18                         | 6                                    | .31                                 |
| 4       | 83                         | 28                                   | 9.6                                 | 19                         | 8                                    | 5.4                                 | 17                         | 6                                    | .27                                 |
| 5       | 68                         | 29                                   | 4.9                                 | 334                        | 233                                  | 508                                 | 18                         | 6                                    | .31                                 |
| 6       | 233                        | 296                                  | 270                                 | 42                         | 12                                   | 1.5                                 | 34                         | 8                                    | 1.4                                 |
| 7       | 392                        | 129                                  | 357                                 | 31                         | 3                                    | .24                                 | 260                        | 463                                  | 2780                                |
| 8       | 77                         | 47                                   | 10                                  | 48                         | 14                                   | 5.2                                 | 64                         | 25                                   | 5.8                                 |
| 9       | 62                         | 18                                   | 4.1                                 | 49                         | 43                                   | 2.7                                 | 23                         | 7                                    | .43                                 |
| 10      | 83                         | 40                                   | 11                                  | 29                         | 29                                   | .71                                 | 18                         | 4                                    | .18                                 |
| 11      | 42                         | 19                                   | 1.6                                 | 29                         | 20                                   | .76                                 | 16                         | 3                                    | .14                                 |
| 12      | 29                         | 15                                   | .70                                 | 34                         | 14                                   | 1.1                                 | 15                         | 4                                    | .15                                 |
| 13      | 63                         | 12                                   | 7.4                                 | 26                         | 10                                   | .56                                 | 15                         | 4                                    | .17                                 |
| 14      | 47                         | 10                                   | 2.5                                 | 38                         | 11                                   | 1.5                                 | 69                         | 6                                    | 9.5                                 |
| 15      | 25                         | 8                                    | .57                                 | 34                         | 12                                   | 1.1                                 | 32                         | 7                                    | 1.0                                 |
| 16      | 22                         | 7                                    | .44                                 | 26                         | 7                                    | .52                                 | 21                         | 4                                    | .26                                 |
| 17      | 21                         | 6                                    | .36                                 | 27                         | 5                                    | .34                                 | 22                         | 2                                    | .13                                 |
| 18      | 19                         | 5                                    | .29                                 | 25                         | 3                                    | .20                                 | 23                         | 2                                    | .10                                 |
| 19      | 19                         | 5                                    | .25                                 | 24                         | 2                                    | .14                                 | 17                         | 1                                    | .06                                 |
| 20      | 19                         | 4                                    | .21                                 | 23                         | 3                                    | .18                                 | 96                         | 6                                    | 16                                  |
| 21      | 18                         | 4                                    | .19                                 | 23                         | 4                                    | .25                                 | 35                         | 7                                    | 1.2                                 |
| 22      | 17                         | 4                                    | .19                                 | 22                         | 6                                    | .33                                 | 40                         | 7                                    | 1.8                                 |
| 23      | 17                         | 3                                    | .15                                 | 21                         | 8                                    | .44                                 | 28                         | 8                                    | .67                                 |
| 24      | 18                         | 3                                    | .15                                 | 20                         | 11                                   | .58                                 | 20                         | 8                                    | .32                                 |
| 25      | 18                         | 3                                    | .14                                 | 19                         | 11                                   | .58                                 | 31                         | 9                                    | .90                                 |
| 26      | 18                         | 3                                    | .13                                 | 19                         | 10                                   | .53                                 | 32                         | 9                                    | 1.2                                 |
| 27      | 18                         | 2                                    | .12                                 | 20                         | 9                                    | .49                                 | 46                         | 10                                   | 2.2                                 |
| 28      | 18                         | 2                                    | .11                                 | 20                         | 8                                    | .44                                 | 32                         | 11                                   | .92                                 |
| 29      | 18                         | 2                                    | .10                                 | ---                        | ---                                  | ---                                 | 54                         | 21                                   | 5.0                                 |
| 30      | 18                         | 2                                    | .10                                 | ---                        | ---                                  | ---                                 | 107                        | 23                                   | 26                                  |
| 31      | 18                         | 3                                    | .13                                 | ---                        | ---                                  | ---                                 | 48                         | 13                                   | 1.9                                 |
| TOTAL   | 1694                       | ---                                  | 714.73                              | 1056                       | ---                                  | 534.52                              | 1289                       | ---                                  | 2859.07                             |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 47                         | 20                                   | 2.3                                 | 26                         | 12                                   | .86                                 | 69                         | 46                                   | 4.9                                 |
| 2       | 96                         | 18                                   | 14                                  | 23                         | 10                                   | .61                                 | 49                         | 21                                   | 2.2                                 |
| 3       | 38                         | 14                                   | 1.4                                 | 57                         | 29                                   | 7.4                                 | 39                         | 10                                   | 1.1                                 |
| 4       | 29                         | 11                                   | .87                                 | 93                         | 34                                   | 13                                  | 35                         | 8                                    | .75                                 |
| 5       | 29                         | 9                                    | .70                                 | 39                         | 12                                   | 1.3                                 | 32                         | 8                                    | .70                                 |
| 6       | 25                         | 7                                    | .49                                 | 31                         | 10                                   | .86                                 | 36                         | 8                                    | .77                                 |
| 7       | 40                         | 15                                   | 4.3                                 | 28                         | 9                                    | .65                                 | 29                         | 8                                    | .63                                 |
| 8       | 50                         | 36                                   | 3.0                                 | 113                        | 10                                   | 49                                  | 40                         | 9                                    | 1.6                                 |
| 9       | 26                         | 24                                   | .55                                 | 50                         | 16                                   | 2.5                                 | 106                        | 49                                   | 41                                  |
| 10      | 23                         | 15                                   | .42                                 | 31                         | 26                                   | .81                                 | 48                         | 21                                   | 2.9                                 |
| 11      | 24                         | 10                                   | .47                                 | 27                         | 40                                   | .62                                 | 32                         | 10                                   | .86                                 |
| 12      | 65                         | 28                                   | 8.1                                 | 26                         | 64                                   | .56                                 | 332                        | 162                                  | 370                                 |
| 13      | 64                         | 35                                   | 5.9                                 | 56                         | 102                                  | 11                                  | 113                        | 62                                   | 24                                  |
| 14      | 34                         | 7                                    | .60                                 | 177                        | 70                                   | 145                                 | 51                         | 13                                   | 1.9                                 |
| 15      | 29                         | 6                                    | .58                                 | 108                        | 78                                   | 14                                  | 42                         | 4                                    | .51                                 |
| 16      | 377                        | 243                                  | 512                                 | 67                         | 45                                   | 4.9                                 | 71                         | 25                                   | 6.2                                 |
| 17      | 81                         | 34                                   | 8.0                                 | 45                         | 26                                   | 1.8                                 | 39                         | 15                                   | 1.6                                 |
| 18      | 110                        | 22                                   | 30                                  | 36                         | 15                                   | 1.1                                 | e62                        | 13                                   | 4.1                                 |
| 19      | 128                        | 57                                   | 52                                  | 43                         | 8                                    | 1.2                                 | e45                        | 12                                   | 1.8                                 |
| 20      | 126                        | 51                                   | 19                                  | 42                         | 7                                    | 1.3                                 | 34                         | 11                                   | 1.0                                 |
| 21      | 67                         | 21                                   | 4.1                                 | 40                         | 3                                    | .33                                 | 41                         | 11                                   | 1.8                                 |
| 22      | 46                         | 8                                    | .95                                 | 32                         | 2                                    | .21                                 | 41                         | 10                                   | 1.5                                 |
| 23      | 39                         | 3                                    | .29                                 | 29                         | 5                                    | .41                                 | 31                         | 6                                    | .51                                 |
| 24      | 35                         | 2                                    | .15                                 | 28                         | 12                                   | .88                                 | 29                         | 3                                    | .22                                 |
| 25      | 33                         | 1                                    | .10                                 | 30                         | 11                                   | .79                                 | 26                         | 4                                    | .28                                 |
| 26      | 31                         | 3                                    | .28                                 | 125                        | 15                                   | 27                                  | 25                         | 6                                    | .38                                 |
| 27      | 51                         | 11                                   | 1.8                                 | 91                         | 22                                   | 16                                  | 28                         | 8                                    | .57                                 |
| 28      | 42                         | 12                                   | 1.4                                 | 56                         | 30                                   | 4.1                                 | 38                         | 8                                    | 1.4                                 |
| 29      | 29                         | 18                                   | 1.5                                 | 194                        | 84                                   | 84                                  | 26                         | 3                                    | .20                                 |
| 30      | 26                         | 15                                   | 1.1                                 | 297                        | 216                                  | 138                                 | 23                         | 2                                    | .10                                 |
| 31      | ---                        | ---                                  | ---                                 | 106                        | 100                                  | 12                                  | ---                        | ---                                  | ---                                 |
| TOTAL   | 1840                       | ---                                  | 676.35                              | 2146                       | ---                                  | 542.19                              | 1612                       | ---                                  | 475.48                              |

## RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 22                         | 1                               | .08                                 | e24                        | 17                              | e.37                                | 39                         | 14                              | 1.7                                 |
| 2     | 22                         | 1                               | .07                                 | e25                        | 22                              | e.46                                | 129                        | 27                              | 25                                  |
| 3     | 30                         | 4                               | .63                                 | e32                        | 26                              | e.85                                | 59                         | 8                               | 1.5                                 |
| 4     | 110                        | 28                              | 34                                  | e30                        | 33                              | e.75                                | 44                         | 2                               | .26                                 |
| 5     | 34                         | 23                              | 1.0                                 | e31                        | 38                              | e.80                                | 55                         | 16                              | 2.9                                 |
| 6     | 32                         | 19                              | 1.6                                 | e70                        | 44                              | e6.2                                | 65                         | 22                              | 4.2                                 |
| 7     | 59                         | 15                              | 4.1                                 | e166                       | 43                              | e41                                 | 284                        | 127                             | 263                                 |
| 8     | 69                         | 12                              | 9.5                                 | 104                        | 53                              | 18                                  | 105                        | 34                              | 13                                  |
| 9     | 88                         | 40                              | 14                                  | 103                        | 46                              | 15                                  | 84                         | 31                              | 7.4                                 |
| 10    | 38                         | 12                              | 1.2                                 | 47                         | 22                              | 2.8                                 | 49                         | 18                              | 2.4                                 |
| 11    | 29                         | 8                               | .65                                 | 33                         | 18                              | 1.7                                 | 39                         | 14                              | 1.5                                 |
| 12    | 26                         | 6                               | .41                                 | 38                         | 15                              | 1.5                                 | 39                         | 16                              | 2.5                                 |
| 13    | 23                         | 4                               | .26                                 | 35                         | 13                              | 1.2                                 | 139                        | 52                              | 33                                  |
| 14    | 28                         | 7                               | .63                                 | 28                         | 11                              | .79                                 | 69                         | 35                              | 4.7                                 |
| 15    | 59                         | 31                              | 7.3                                 | 28                         | 9                               | .67                                 | 225                        | 120                             | 144                                 |
| 16    | 47                         | 12                              | 2.6                                 | 78                         | 14                              | 13                                  | 70                         | 20                              | 4.1                                 |
| 17    | 35                         | 11                              | 1.2                                 | 97                         | 35                              | 14                                  | 49                         | 6                               | .80                                 |
| 18    | 27                         | 11                              | .67                                 | 54                         | 19                              | 2.9                                 | 55                         | 16                              | 3.4                                 |
| 19    | 75                         | 30                              | 9.1                                 | 65                         | 29                              | 8.5                                 | 63                         | 19                              | 4.0                                 |
| 20    | 82                         | 33                              | 13                                  | 54                         | 20                              | 3.0                                 | 58                         | 22                              | 3.2                                 |
| 21    | 37                         | 9                               | 1.1                                 | 151                        | 17                              | 38                                  | 1480                       | 309                             | 5390                                |
| 22    | 20                         | 1                               | .07                                 | 83                         | 29                              | 8.8                                 | 699                        | 180                             | 580                                 |
| 23    | 29                         | 5                               | 1.3                                 | 45                         | 18                              | 2.2                                 | 126                        | 53                              | 18                                  |
| 24    | 123                        | 53                              | 24                                  | 415                        | 128                             | 312                                 | 82                         | 32                              | 7.2                                 |
| 25    | 30                         | 13                              | 1.0                                 | 277                        | 44                              | 56                                  | 65                         | 23                              | 4.0                                 |
| 26    | 22                         | 8                               | .46                                 | 112                        | 42                              | 14                                  | 56                         | 20                              | 2.9                                 |
| 27    | 26                         | 5                               | .33                                 | 82                         | 24                              | 7.1                                 | 46                         | 17                              | 1.9                                 |
| 28    | 34                         | 8                               | .82                                 | 59                         | 22                              | 3.3                                 | 40                         | 15                              | 1.4                                 |
| 29    | 25                         | 10                              | .54                                 | 52                         | 20                              | 2.5                                 | 39                         | 13                              | 1.3                                 |
| 30    | 28                         | 12                              | .67                                 | 41                         | 18                              | 1.5                                 | 35                         | 11                              | 1.0                                 |
| 31    | 32                         | 15                              | .90                                 | 37                         | 13                              | 1.4                                 | ---                        | ---                             | ---                                 |
| TOTAL | 1341                       | ---                             | 133.19                              | 2496                       | ---                             | 580.29                              | 4387                       | ---                             | 6530.26                             |
| YEAR  | 23026                      |                                 | 15462.29                            |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 13... | 2153 | 1840                                                                  | 722                                                   | 3590                                                                      | 81                                                                       |
| 14... | 0043 | 2050                                                                  | 288                                                   | 1590                                                                      | 72                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 26... | 0420 | 4210                                                                  | 1080                                                  | 12300                                                                     | 87                                                                       |
| 26... | 0510 | 1750                                                                  | 357                                                   | 1690                                                                      | 91                                                                       |
| APR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 16... | 1140 | 1320                                                                  | 972                                                   | 3460                                                                      | 86                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 17... | 1418 | 340                                                                   | 106                                                   | 97                                                                        | 96                                                                       |

## RIO MAMEYES BASIN

50066000 RIO MAMEYES AT MAMEYES, PR

LOCATION.--Lat 18°22'27", long 65°45'50", Hydrologic Unit 21010005, on right bank, at bridge on Highway 3, 3.1 mi (5.0 km), southwest from Luquillo, 0.4 mi (0.6 km) downstream from Quebrada Anón, and 2.9 mi (4.7 km) east from Escuela Juan González.

DRAINAGE AREA.--13.4 mi<sup>2</sup> (34.7 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 16.4 ft (5.0m), from topographic map.

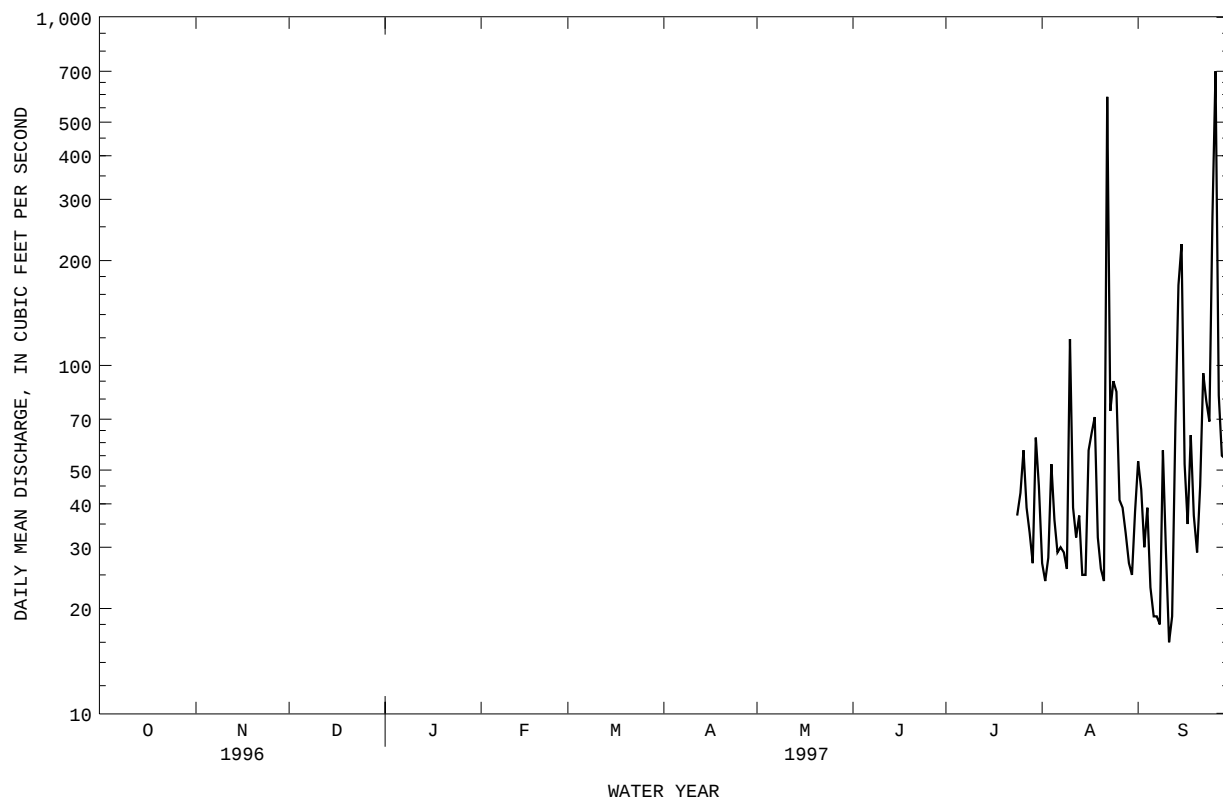
REMARKS.--Records fair except those for estimated daily discharges, which are poor. Discharges above 5,000 ft<sup>3</sup>/s (141.6 m<sup>3</sup>/s), are based on a rating curve extension and are rated poor. Low flow affected by water supply intake about 1,000 ft (305 m), upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
DAILY MEAN VALUES

| DAY   | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG  | SEP  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 1     |     |     |     |     |     |     |     |     |     |     | e27  | 53   |
| 2     |     |     |     |     |     |     |     |     |     |     | 24   | 44   |
| 3     |     |     |     |     |     |     |     |     |     |     | 28   | 30   |
| 4     |     |     |     |     |     |     |     |     |     |     | 52   | 39   |
| 5     |     |     |     |     |     |     |     |     |     |     | 36   | 23   |
| 6     |     |     |     |     |     |     |     |     |     |     | 29   | 19   |
| 7     |     |     |     |     |     |     |     |     |     |     | 30   | 19   |
| 8     |     |     |     |     |     |     |     |     |     |     | 29   | 18   |
| 9     |     |     |     |     |     |     |     |     |     |     | 26   | 57   |
| 10    |     |     |     |     |     |     |     |     |     |     | 119  | 29   |
| 11    |     |     |     |     |     |     |     |     |     |     | 39   | 16   |
| 12    |     |     |     |     |     |     |     |     |     |     | 32   | 19   |
| 13    |     |     |     |     |     |     |     |     |     |     | 37   | 67   |
| 14    |     |     |     |     |     |     |     |     |     |     | 25   | 170  |
| 15    |     |     |     |     |     |     |     |     |     |     | 25   | 223  |
| 16    |     |     |     |     |     |     |     |     |     |     | 57   | 52   |
| 17    |     |     |     |     |     |     |     |     |     |     | 64   | 35   |
| 18    |     |     |     |     |     |     |     |     |     |     | 71   | 63   |
| 19    |     |     |     |     |     |     |     |     |     |     | 32   | 37   |
| 20    |     |     |     |     |     |     |     |     |     |     | 26   | 29   |
| 21    |     |     |     |     |     |     |     |     |     |     | 24   | 45   |
| 22    |     |     |     |     |     |     |     |     |     |     | 591  | 95   |
| 23    |     |     |     |     |     |     |     |     |     |     | 74   | 79   |
| 24    |     |     |     |     |     |     |     |     |     | e37 | 90   | 69   |
| 25    |     |     |     |     |     |     |     |     |     | 43  | 84   | 267  |
| 26    |     |     |     |     |     |     |     |     |     | 57  | 41   | 700  |
| 27    |     |     |     |     |     |     |     |     |     | 39  | 39   | 82   |
| 28    |     |     |     |     |     |     |     |     |     | 33  | 33   | 55   |
| 29    |     |     |     |     |     |     |     |     |     | 27  | 27   | 54   |
| 30    |     |     |     |     |     |     |     |     |     | e62 | 25   | 45   |
| 31    |     |     |     |     |     |     |     |     |     | e45 | 38   | ---  |
| TOTAL |     |     |     |     |     |     |     |     |     | --- | 1874 | 2533 |
| MEAN  |     |     |     |     |     |     |     |     |     | --- | 60.5 | 84.4 |
| MAX   |     |     |     |     |     |     |     |     |     | --- | 591  | 700  |
| MIN   |     |     |     |     |     |     |     |     |     | --- | 24   | 16   |
| AC-FT |     |     |     |     |     |     |     |     |     | --- | 3720 | 5020 |

e Estimated

RIO MAMEYES BASIN  
50066000 RIO MAMEYES AT MAMEYES, PR--Continued



RIO MAMEYES BASIN  
50066000 RIO MAMEYES AT MAMEYES, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC   | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|------|------|-------|------|------|------|------|------|------|------|------|-------|
| 1     | 29   | 33   | 42    | 58   | 26   | 20   | 54   | 35   | 204  | 25   | 29   | 49    |
| 2     | 560  | 20   | 33    | 37   | 28   | 20   | 131  | 31   | 97   | 25   | 23   | 205   |
| 3     | 60   | 17   | 29    | 64   | 24   | 19   | 46   | 67   | 71   | 39   | 21   | 94    |
| 4     | 45   | 23   | 26    | 64   | 27   | 19   | 32   | 131  | 60   | 198  | 19   | 62    |
| 5     | 34   | 27   | 25    | 57   | 557  | 66   | 30   | 50   | 54   | 30   | 19   | 82    |
| 6     | 29   | 38   | 23    | 380  | 55   | 66   | 27   | 35   | 59   | e16  | 65   | 99    |
| 7     | 26   | 23   | 21    | 669  | 34   | 869  | 34   | 33   | 48   | e52  | 190  | 560   |
| 8     | 100  | 43   | 20    | 106  | 51   | 161  | 72   | 172  | 59   | 85   | 146  | 207   |
| 9     | 97   | 140  | 19    | 73   | 79   | 50   | 29   | 80   | 144  | 174  | 149  | 159   |
| 10    | 29   | 476  | 19    | 94   | 30   | 36   | 25   | 40   | 88   | 33   | 63   | 74    |
| 11    | 443  | 48   | 20    | 50   | 26   | 30   | 25   | 33   | 49   | 23   | 34   | 55    |
| 12    | 114  | 29   | 18    | 35   | 34   | 29   | 67   | 30   | 500  | 16   | 36   | 47    |
| 13    | 568  | 28   | 16    | 73   | 25   | 27   | 108  | 43   | 200  | 14   | 37   | 224   |
| 14    | 1100 | 24   | 16    | 82   | 32   | 94   | 43   | 311  | 68   | 16   | 26   | 123   |
| 15    | 87   | 47   | 15    | 35   | 48   | 57   | 35   | 169  | 50   | 45   | 30   | 446   |
| 16    | 61   | 141  | 14    | 31   | 30   | 32   | 809  | 102  | 188  | 41   | 96   | 127   |
| 17    | 48   | 115  | 20    | 30   | 30   | 34   | 131  | 50   | 52   | 32   | 160  | 83    |
| 18    | 63   | 138  | 17    | 29   | 28   | 40   | 155  | 37   | 101  | 24   | 88   | 75    |
| 19    | 43   | 117  | 13    | 28   | 25   | 25   | 235  | 43   | 64   | 97   | 109  | 113   |
| 20    | 33   | 80   | 11    | 27   | 27   | 120  | 230  | 36   | 43   | 139  | 114  | 83    |
| 21    | 29   | 121  | 45    | 27   | 26   | 58   | 119  | 41   | 50   | 72   | 261  | 2660  |
| 22    | 27   | 53   | 17    | 27   | 24   | 50   | 71   | 30   | 58   | 32   | 148  | 1830  |
| 23    | 26   | 40   | 15    | 27   | 22   | 45   | 57   | 27   | 37   | 37   | 71   | 228   |
| 24    | 23   | 83   | 12    | 28   | 21   | 31   | 50   | 25   | 34   | 246  | e500 | 126   |
| 25    | 21   | 41   | 9.5   | 31   | 19   | 44   | 47   | 26   | 33   | 62   | e350 | 94    |
| 26    | 21   | 1000 | 8.1   | 28   | 19   | 37   | 45   | 164  | 32   | 37   | 205  | 85    |
| 27    | 19   | 122  | 9.6   | 28   | 19   | 59   | 66   | 138  | 34   | 39   | 155  | 70    |
| 28    | 17   | 65   | 8.2   | 29   | 20   | 51   | 56   | 61   | 48   | 49   | 93   | 59    |
| 29    | 16   | 63   | 7.7   | 28   | ---  | 106  | 41   | 615  | 33   | 35   | 98   | 56    |
| 30    | 17   | 66   | 13    | 27   | ---  | 143  | 35   | 1130 | 28   | 32   | 57   | 50    |
| 31    | 18   | ---  | 8.9   | 25   | ---  | 61   | ---  | 219  | ---  | 37   | 58   | ---   |
| TOTAL | 3803 | 3261 | 571.0 | 2327 | 1386 | 2499 | 2905 | 4004 | 2586 | 1802 | 3450 | 8225  |
| MEAN  | 123  | 109  | 18.4  | 75.1 | 49.5 | 80.6 | 96.8 | 129  | 86.2 | 58.1 | 111  | 274   |
| MAX   | 1100 | 1000 | 45    | 669  | 557  | 869  | 809  | 1130 | 500  | 246  | 500  | 2660  |
| MIN   | 16   | 17   | 7.7   | 25   | 19   | 19   | 25   | 25   | 28   | 14   | 19   | 47    |
| AC-FT | 7540 | 6470 | 1130  | 4620 | 2750 | 4960 | 5760 | 7940 | 5130 | 3570 | 6840 | 16310 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 123  | 109  | 18.4 | 75.1 | 49.5 | 80.6 | 96.8 | 129  | 86.2 | 58.1 | 85.9 | 179  |
| MAX  | 123  | 109  | 18.4 | 75.1 | 49.5 | 80.6 | 96.8 | 129  | 86.2 | 58.1 | 111  | 274  |
| (WY) | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 |
| MIN  | 123  | 109  | 18.4 | 75.1 | 49.5 | 80.6 | 96.8 | 129  | 86.2 | 58.1 | 60.5 | 84.4 |
| (WY) | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1997 | 1997 |

SUMMARY STATISTICS

FOR 1998 WATER YEAR

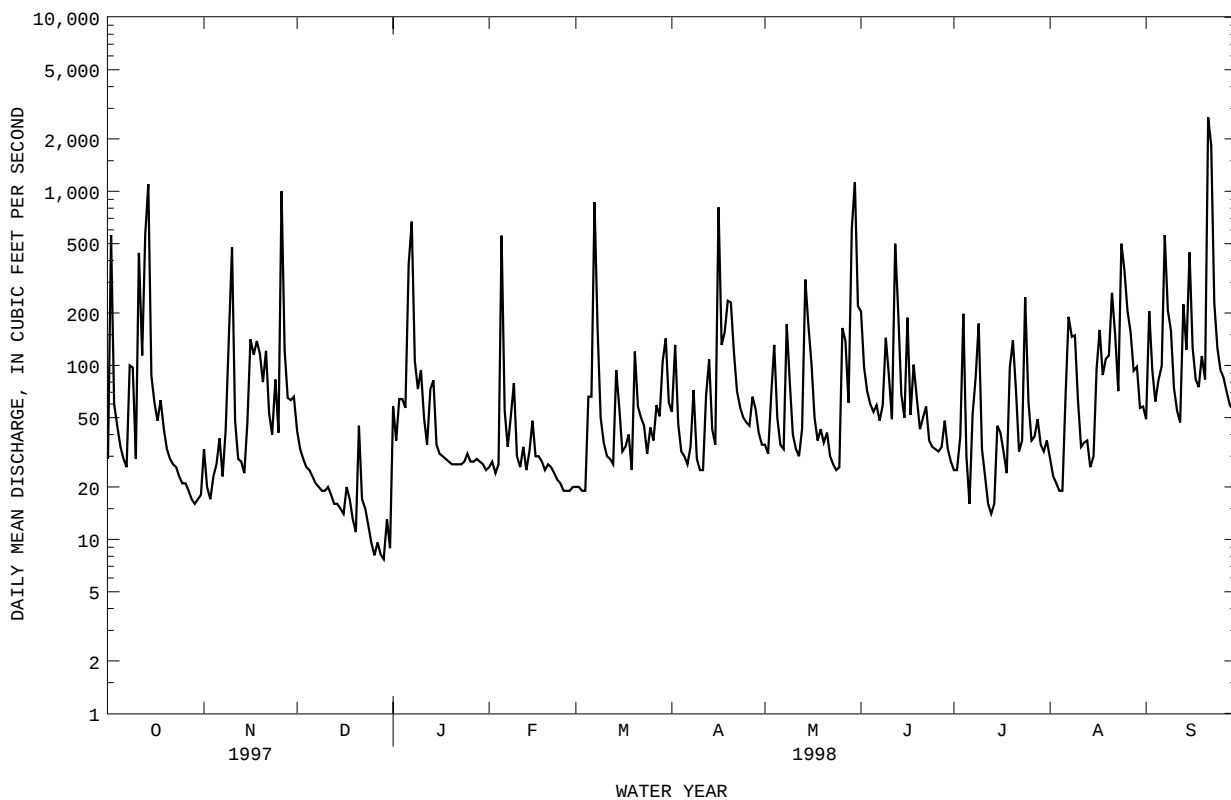
WATER YEARS 1997 - 1998

|                          |         |       |
|--------------------------|---------|-------|
| ANNUAL TOTAL             | 36819.0 |       |
| ANNUAL MEAN              | 101     | 101   |
| HIGHEST ANNUAL MEAN      |         | 101   |
| LOWEST ANNUAL MEAN       |         | 101   |
| HIGHEST DAILY MEAN       | 2660    | 2660  |
| LOWEST DAILY MEAN        | 7.7     | 7.7   |
| ANNUAL SEVEN-DAY MINIMUM | 9.3     | 9.3   |
| INSTANTANEOUS PEAK FLOW  | 18400   | 18400 |
| INSTANTANEOUS PEAK STAGE | 14.18   | 14.18 |
| ANNUAL RUNOFF (AC-FT)    | 73030   | 73080 |
| 10 PERCENT EXCEEDS       | 180     | 170   |
| 50 PERCENT EXCEEDS       | 44      | 43    |
| 90 PERCENT EXCEEDS       | 19      | 20    |

e Estimated

## RIO MAMEYES BASIN

50066000 RIO MAMEYES AT MAMEYES, PR--Continued



## RIO SABANA BASIN

50067000 RIO SABANA AT SABANA, PR

LOCATION.--Lat 18°19'52", long 65°43'52", Hydrologic Unit 21010005, on right bank along Highway 988, 0.3 mi (0.5 km) north of junction of Highways 988 and 983 in Sabana, and 3.3 mi (5.3 km) south of Luquillo.

DRAINAGE AREA.--3.96 mi<sup>2</sup> (10.26 km<sup>2</sup>).

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low-flow affected by Puerto Rico Aqueduct and Sewer Authority Water Intake 1.0 mi (1.6 km) upstream, and purification plant 0.2 mi (0.32 km). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV    | DEC   | JAN   | FEB   | MAR   | APR   | MAY    | JUN   | JUL   | AUG   | SEP    |
|-------|--------|--------|-------|-------|-------|-------|-------|--------|-------|-------|-------|--------|
| 1     | e61    | 11     | 12    | 11    | 6.5   | 6.6   | 9.3   | 5.6    | 50    | 7.9   | 4.8   | 9.8    |
| 2     | e328   | 7.2    | 11    | 12    | 6.8   | 6.0   | 13    | 5.5    | 26    | 8.3   | 4.2   | 47     |
| 3     | e28    | 6.8    | 10    | 10    | 6.3   | 6.0   | 6.8   | 6.7    | 20    | 12    | 3.8   | 21     |
| 4     | e17    | 12     | 9.6   | 17    | 13    | 5.6   | 5.3   | 12     | 17    | 77    | 3.7   | 12     |
| 5     | e13    | 8.9    | 9.2   | 18    | 226   | 11    | 8.5   | 6.3    | 15    | 15    | 3.3   | 16     |
| 6     | e10    | 11     | 8.4   | 120   | 16    | 16    | 6.1   | 5.2    | 17    | 9.6   | 6.5   | 13     |
| 7     | e9.7   | 6.9    | 7.9   | 194   | 13    | 71    | 15    | 6.3    | 13    | 13    | 16    | 108    |
| 8     | 22     | 30     | 7.1   | 29    | 26    | 14    | 16    | 48     | 14    | 17    | 17    | 35     |
| 9     | 26     | 81     | 7.3   | 19    | 22    | 5.5   | 6.0   | 11     | 65    | 25    | 12    | 46     |
| 10    | 28     | 178    | 7.2   | 25    | 11    | 4.4   | 4.9   | 5.4    | 22    | e11   | 6.1   | 18     |
| 11    | 56     | 18     | 7.1   | 16    | 9.8   | 4.1   | 6.7   | 4.6    | 13    | e9.7  | 5.0   | 14     |
| 12    | 53     | 11     | 5.8   | 14    | 9.8   | e4.2  | 19    | 4.9    | 99    | e21   | 4.3   | 13     |
| 13    | 242    | 9.5    | 5.9   | 20    | 9.1   | e4.2  | 22    | 6.7    | 58    | e11   | 5.4   | 41     |
| 14    | 339    | 7.7    | 6.0   | 20    | 11    | 20    | 8.0   | 160    | 21    | e8.4  | 5.5   | 26     |
| 15    | 37     | 14     | 5.4   | 12    | 10    | 9.8   | 6.1   | 67     | 17    | e18   | 5.0   | 65     |
| 16    | 28     | 64     | 5.2   | 11    | 8.8   | 5.3   | 246   | 31     | 40    | e11   | 5.4   | 26     |
| 17    | 23     | 26     | 6.9   | 10    | 9.9   | 8.4   | 27    | 12     | 17    | e12   | 24    | 15     |
| 18    | 26     | 31     | 5.0   | 10    | 8.5   | 9.4   | 22    | 9.0    | e24   | e10   | 9.5   | 13     |
| 19    | 19     | 24     | 4.3   | 9.9   | 7.0   | 4.3   | 13    | 8.9    | 19    | e25   | 7.0   | 20     |
| 20    | 16     | 17     | 4.2   | 9.6   | 6.9   | 22    | 27    | 8.4    | 14    | e16   | 7.5   | 15     |
| 21    | 14     | 24     | 12    | 9.4   | 6.0   | 10    | 20    | 9.4    | 16    | e12   | 24    | 472    |
| 22    | 13     | 14     | 6.6   | 8.3   | 5.8   | 6.2   | 9.4   | 9.4    | 15    | e8.6  | 14    | 296    |
| 23    | 12     | 12     | 5.0   | 8.3   | 5.5   | 7.6   | 8.4   | 7.2    | 12    | e8.7  | 7.1   | 25     |
| 24    | 11     | 38     | 3.8   | 8.4   | e5.4  | 6.2   | 8.0   | 6.3    | 12    | e24   | 244   | 18     |
| 25    | 10     | 15     | 3.4   | 8.4   | e4.9  | 4.9   | 7.0   | 6.2    | 11    | e9.3  | 128   | 16     |
| 26    | 9.5    | 421    | 3.0   | 8.0   | e4.9  | 4.8   | 6.9   | 60     | 10    | e6.8  | 28    | 14     |
| 27    | 9.0    | 36     | 3.6   | 7.6   | 5.3   | 7.8   | 9.0   | 29     | 9.9   | e8.6  | 23    | 13     |
| 28    | 8.4    | 22     | 3.2   | 7.2   | 5.1   | 6.3   | 8.2   | 27     | 10    | e8.6  | 16    | 12     |
| 29    | 7.8    | 17     | 3.0   | 6.8   | ---   | 49    | 6.0   | 136    | 8.4   | 6.2   | 22    | 12     |
| 30    | 7.6    | 16     | 2.8   | 7.0   | ---   | 20    | 5.5   | 401    | 8.7   | 5.3   | 12    | 9.1    |
| 31    | 7.1    | ---    | 3.7   | 6.7   | ---   | 11    | ---   | 53     | ---   | 5.3   | 11    | ---    |
| TOTAL | 1491.1 | 1190.0 | 195.6 | 673.6 | 480.3 | 371.6 | 576.1 | 1169.0 | 694.0 | 441.3 | 685.1 | 1460.9 |
| MEAN  | 48.1   | 39.7   | 6.31  | 21.7  | 17.2  | 12.0  | 19.2  | 37.7   | 23.1  | 14.2  | 22.1  | 48.7   |
| MAX   | 339    | 421    | 12    | 194   | 226   | 71    | 246   | 401    | 99    | 77    | 244   | 472    |
| MIN   | 7.1    | 6.8    | 2.8   | 6.7   | 4.9   | 4.1   | 4.9   | 4.6    | 8.4   | 5.3   | 3.3   | 9.1    |
| AC-FT | 2960   | 2360   | 388   | 1340  | 953   | 737   | 1140  | 2320   | 1380  | 875   | 1360  | 2900   |
| CFSM  | 12.1   | 10.0   | 1.59  | 5.49  | 4.33  | 3.03  | 4.85  | 9.52   | 5.84  | 3.59  | 5.58  | 12.3   |
| IN.   | 14.01  | 11.18  | 1.84  | 6.33  | 4.51  | 3.49  | 5.41  | 10.98  | 6.52  | 4.15  | 6.44  | 13.72  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1998, BY WATER YEAR (WY)

|      | MEAN | 23.8 | 32.9 | 24.1 | 15.9 | 13.2 | 11.4 | 11.7 | 31.6 | 20.6 | 16.6 | 18.1 | 25.2 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 66.4 | 79.7 | 64.1 | 48.5 | 23.2 | 36.0 | 33.5 | 63.9 | 50.6 | 36.0 | 39.9 | 74.2 |      |
| (WY) | 1986 | 1988 | 1982 | 1996 | 1997 | 1987 | 1990 | 1982 | 1987 | 1996 | 1995 | 1996 |      |
| MIN  | 6.48 | 8.15 | 3.92 | 6.12 | 2.94 | 2.71 | 2.20 | 4.65 | 3.64 | 5.84 | 3.09 | 7.23 |      |
| (WY) | 1983 | 1981 | 1990 | 1986 | 1983 | 1994 | 1984 | 1994 | 1997 | 1986 | 1994 | 1987 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

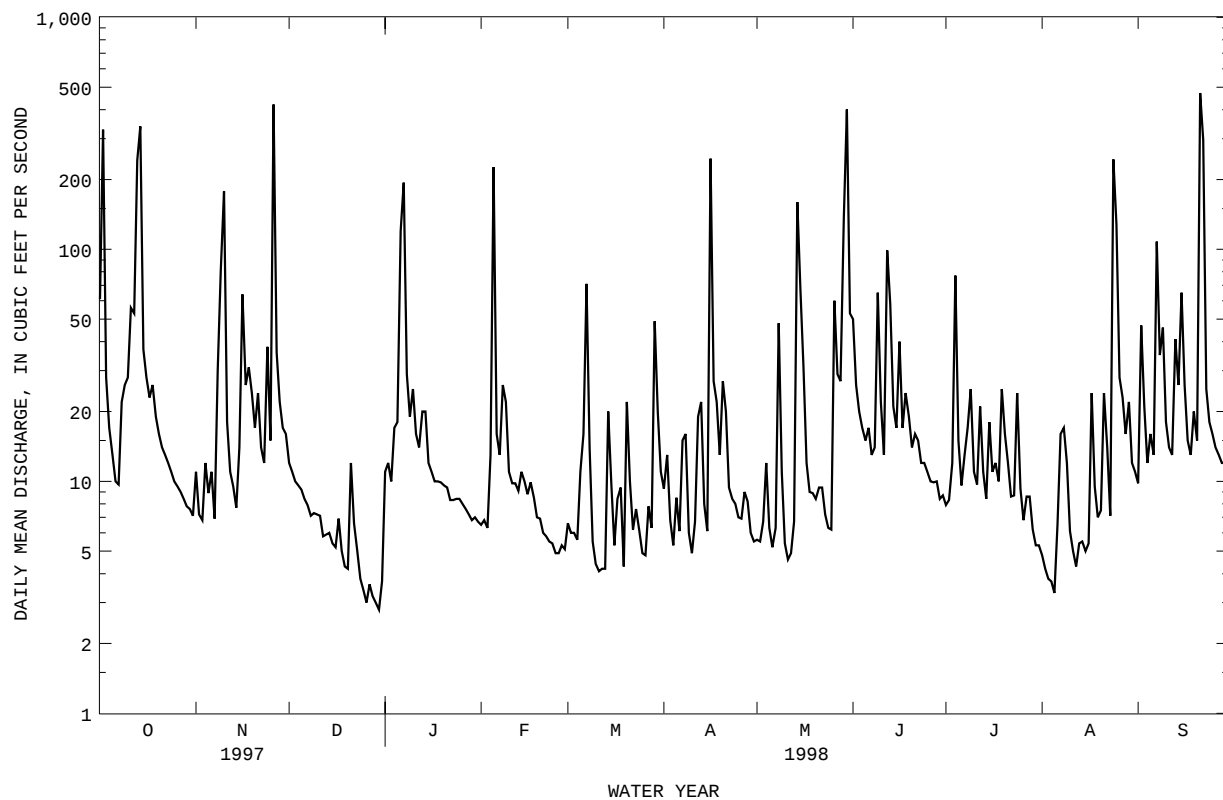
## FOR 1998 WATER YEAR

## WATER YEARS 1980 - 1998

|                          |        |        |       |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL             | 7427.5 | 9428.6 |       |
| ANNUAL MEAN              | 20.3   | 25.8   | 20.5  |
| HIGHEST ANNUAL MEAN      |        |        | 31.9  |
| LOWEST ANNUAL MEAN       |        |        | 7.85  |
| HIGHEST DAILY MEAN       | 421    | Nov 26 | 1100  |
| LOWEST DAILY MEAN        | 1.6    | Jul 1  | 1.96  |
| ANNUAL SEVEN-DAY MINIMUM | 2.0    | Jun 29 | 3.2   |
| INSTANTANEOUS PEAK FLOW  |        |        | 4580  |
| INSTANTANEOUS PEAK STAGE |        |        | 15.86 |
| INSTANTANEOUS LOW FLOW   |        |        | 19.74 |
| ANNUAL RUNOFF (AC-FT)    | 14730  | 18700  | 14820 |
| ANNUAL RUNOFF (CFSM)     | 5.14   | 6.52   | 5.17  |
| ANNUAL RUNOFF (INCHES)   | 69.77  | 88.57  | 70.19 |
| 10 PERCENT EXCEEDS       | 33     | 43     | 38    |
| 50 PERCENT EXCEEDS       | 9.2    | 11     | 8.9   |
| 90 PERCENT EXCEEDS       | 3.4    | 5.3    | 2.8   |

e Estimated

RIO SABANA BASIN  
50067000 RIO SABANA AT SABANA, PR--Continued



## RIO FAJARDO BASIN

50070500 RIO FAJARDO ABOVE FAJARDO, PR

LOCATION.--Lat 18°16'21", long 65°43'18", Hydrologic Unit 21010005, on right bank, 4.1 mi (6.6 km) from Plaza de Naguabo, 0.5 mi (0.8 km) northeast from Escuela Sonadora, 1.5 mi (2.4 km) southwest of Colonia Paraiso, and 2.5 mi (4.0 km) north from Escuela Segunda Unidad Mariana.

DRAINAGE AREA.--3.69 mi<sup>2</sup> (9.56 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1, 1995 to Nov. 8, 1995 (estimated discharge). Nov. 9, 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 328 ft (100 m) above mean sea level, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN   | FEB   | MAR   | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|-------|-------|------|-------|-------|-------|------|------|------|------|------|-------|
| 1     | 12    | 12    | 22   | 45    | 10    | 10    | 19   | 19   | 32   | 18   | 14   | 31    |
| 2     | 90    | 10    | 20   | 36    | 10    | 9.9   | 18   | 18   | 26   | 19   | 13   | 67    |
| 3     | 12    | 9.9   | 18   | 42    | 9.2   | 10    | 16   | 22   | 24   | 20   | 13   | 35    |
| 4     | 12    | 12    | 17   | 41    | 18    | 9.9   | 15   | 24   | 23   | 37   | 12   | 30    |
| 5     | 12    | 14    | 16   | 40    | 63    | 9.9   | 18   | 17   | 23   | 20   | 12   | 33    |
| 6     | 14    | 17    | 15   | 88    | 17    | 14    | 16   | 15   | 25   | 19   | e17  | 30    |
| 7     | 15    | 11    | 14   | 111   | 16    | 13    | 17   | 14   | 23   | 24   | 21   | 64    |
| 8     | 46    | 33    | 14   | 53    | 22    | 12    | 19   | 26   | 24   | 23   | 17   | 43    |
| 9     | 21    | 36    | 14   | 60    | 18    | 10    | 16   | 15   | 37   | 22   | 22   | 33    |
| 10    | 17    | 85    | 14   | 70    | 15    | 10    | 16   | 12   | 25   | 21   | 14   | 28    |
| 11    | 28    | 16    | 14   | 40    | 15    | 9.9   | 17   | 12   | 22   | 18   | 13   | 27    |
| 12    | 22    | 14    | 13   | 34    | 15    | 10    | 23   | e11  | 75   | 17   | 13   | 27    |
| 13    | 91    | 12    | 13   | 49    | 14    | 10    | 21   | 15   | 40   | 16   | 14   | 40    |
| 14    | 115   | 12    | 14   | 37    | 14    | 18    | 18   | 23   | 30   | 20   | 14   | 31    |
| 15    | 23    | 14    | 13   | 28    | 14    | 14    | 18   | e32  | 28   | 25   | 15   | 78    |
| 16    | 19    | 27    | 14   | 25    | 13    | 11    | 64   | e26  | 34   | 21   | 20   | 34    |
| 17    | 16    | 26    | 19   | 23    | 13    | 10    | 26   | e13  | 27   | 20   | 23   | 29    |
| 18    | 24    | 32    | 16   | 22    | 13    | 10    | 34   | e12  | e31  | 18   | 20   | 33    |
| 19    | 14    | 19    | 15   | 20    | 12    | 10    | 26   | e12  | 23   | 24   | 24   | 38    |
| 20    | 12    | 16    | e16  | 19    | 11    | 19    | 28   | e23  | 22   | 20   | 24   | 31    |
| 21    | 11    | 19    | e28  | 18    | 11    | 13    | 25   | e35  | 26   | 18   | 37   | e270  |
| 22    | 11    | 17    | 19   | 17    | 11    | 15    | 22   | e21  | 22   | 17   | 29   | 139   |
| 23    | 10    | 16    | 22   | 16    | 11    | 13    | 22   | 21   | 20   | 18   | 25   | 55    |
| 24    | 9.9   | 25    | 19   | 15    | 10    | 12    | 22   | 20   | 20   | 42   | 128  | 46    |
| 25    | 9.9   | 23    | 19   | 14    | 10    | 13    | 21   | 20   | 20   | 19   | 93   | 42    |
| 26    | 9.6   | 144   | 19   | 13    | 10    | 15    | 21   | 47   | 19   | 17   | e57  | 39    |
| 27    | 9.7   | 32    | 21   | 12    | 10    | 15    | 25   | 38   | 19   | 16   | 50   | 36    |
| 28    | 9.6   | 25    | 20   | 12    | 10    | 15    | 23   | 26   | 21   | 15   | 37   | 34    |
| 29    | 9.5   | 23    | 20   | 11    | ---   | 15    | 20   | 42   | 19   | 15   | 35   | 33    |
| 30    | 9.7   | 25    | 20   | 11    | ---   | 29    | 19   | 70   | 18   | 14   | 33   | 32    |
| 31    | 9.8   | ---   | 22   | 10    | ---   | 18    | ---  | 34   | ---  | 15   | 31   | ---   |
| TOTAL | 724.7 | 776.9 | 540  | 1032  | 415.2 | 403.6 | 665  | 735  | 798  | 628  | 890  | 1488  |
| MEAN  | 23.4  | 25.9  | 17.4 | 33.3  | 14.8  | 13.0  | 22.2 | 23.7 | 26.6 | 20.3 | 28.7 | 49.6  |
| MAX   | 115   | 144   | 28   | 111   | 63    | 29    | 64   | 70   | 75   | 42   | 128  | 270   |
| MIN   | 9.5   | 9.9   | 13   | 10    | 9.2   | 9.9   | 15   | 11   | 18   | 14   | 12   | 27    |
| AC-FT | 1440  | 1540  | 1070 | 2050  | 824   | 801   | 1320 | 1460 | 1580 | 1250 | 1770 | 2950  |
| CFSM  | 6.34  | 7.02  | 4.72 | 9.02  | 4.02  | 3.53  | 6.01 | 6.43 | 7.21 | 5.49 | 7.78 | 13.4  |
| IN.   | 7.31  | 7.83  | 5.44 | 10.40 | 4.19  | 4.07  | 6.70 | 7.41 | 8.04 | 6.33 | 8.97 | 15.00 |

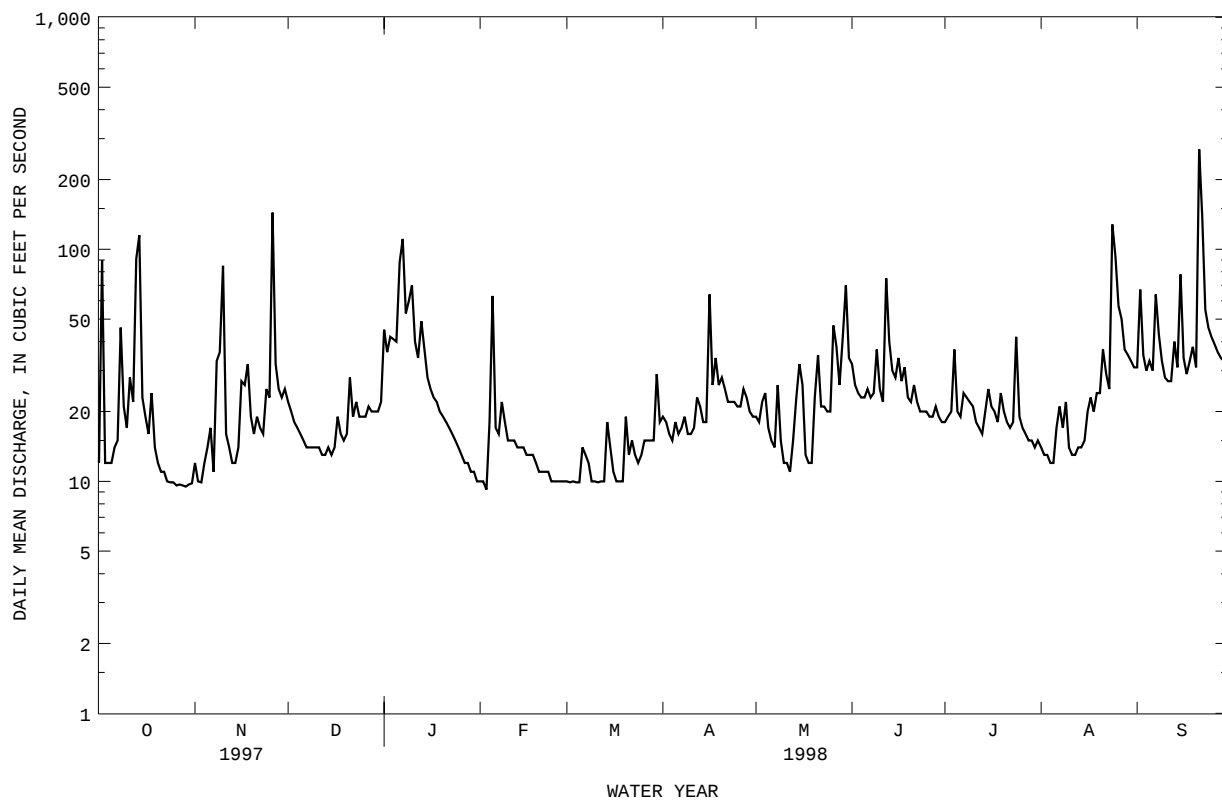
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 22.4 | 33.5 | 24.0 | 40.5 | 22.1 | 13.4 | 15.4 | 22.3 | 29.7 | 25.9 | 29.5 | 67.3 |
| MAX  | 23.4 | 54.6 | 28.4 | 49.9 | 33.6 | 14.5 | 22.2 | 30.2 | 50.3 | 42.4 | 41.1 | 121  |
| (WY) | 1998 | 1997 | 1996 | 1996 | 1997 | 1997 | 1998 | 1996 | 1996 | 1996 | 1996 | 1996 |
| MIN  | 20.4 | 20.1 | 17.4 | 33.3 | 14.8 | 12.6 | 10.1 | 12.9 | 12.2 | 15.1 | 18.7 | 31.9 |
| (WY) | 1997 | 1996 | 1998 | 1998 | 1998 | 1996 | 1997 | 1997 | 1997 | 1997 | 1997 | 1997 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1996 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 7688.6                 | 9096.4              |                         |
| ANNUAL MEAN              | 21.1                   | 24.9                | 28.8                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 37.5                    |
| LOWEST ANNUAL MEAN       |                        |                     | 23.9                    |
| HIGHEST DAILY MEAN       | 430                    | Sep 26              | 1700                    |
| LOWEST DAILY MEAN        | 7.0                    | Apr 21              | 7.0                     |
| ANNUAL SEVEN-DAY MINIMUM | 7.2                    | Apr 20              | 7.2                     |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 5110                    |
| INSTANTANEOUS PEAK STAGE |                        |                     | 10.72                   |
| INSTANTANEOUS LOW FLOW   |                        |                     | 7.0                     |
| ANNUAL RUNOFF (AC-FT)    | 15250                  | 18040               | 20860                   |
| ANNUAL RUNOFF (CFSM)     | 5.71                   | 6.75                | 7.80                    |
| ANNUAL RUNOFF (INCHES)   | 77.51                  | 91.70               | 106.03                  |
| 10 PERCENT EXCEEDS       | 29                     | 40                  | 47                      |
| 50 PERCENT EXCEEDS       | 15                     | 19                  | 17                      |
| 90 PERCENT EXCEEDS       | 8.4                    | 11                  | 9.8                     |

e Estimated

RIO FAJARDO BASIN  
50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued



## RIO FAJARDO BASIN

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1996 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1995 to current year .

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1995.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,020 mg/L September 21, 1998; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, e5,320 tons (e4,803 tonnes) September 21, 1998; Minimum daily mean, 0.01 tons (0.01 tonnes) several years.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,020 mg/L September 21, 1998; minimum daily mean, 1 mg/L several days .

SEDIMENT LOADS : Maximum daily mean, e5,320 tons (e4,803 tonnes) September 21, 1998; minimum daily mean .03 ton (.02 tonne) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 12                         | 1                                    | .04                                 | 12                         | 2                                    | .05                                 | 22                         | 1                                    | .06                                 |
| 2       | 90                         | 222                                  | 246                                 | 10                         | 1                                    | .03                                 | 20                         | 2                                    | .10                                 |
| 3       | 12                         | 3                                    | .09                                 | 9.9                        | 1                                    | .03                                 | 18                         | 4                                    | .20                                 |
| 4       | 12                         | 3                                    | .10                                 | 12                         | 2                                    | .07                                 | 17                         | 4                                    | .19                                 |
| 5       | 12                         | 5                                    | .15                                 | 14                         | 3                                    | .08                                 | 16                         | 3                                    | .14                                 |
| 6       | 14                         | 5                                    | .18                                 | 17                         | 7                                    | .16                                 | 15                         | 2                                    | .09                                 |
| 7       | 15                         | 2                                    | .09                                 | 11                         | 3                                    | .09                                 | 14                         | 1                                    | .05                                 |
| 8       | 46                         | 61                                   | 59                                  | 33                         | 23                                   | 7.7                                 | 14                         | 1                                    | .04                                 |
| 9       | 21                         | 9                                    | .57                                 | 36                         | 18                                   | 3.7                                 | 14                         | 1                                    | .04                                 |
| 10      | 17                         | 5                                    | .25                                 | 85                         | 102                                  | 92                                  | 14                         | 1                                    | .04                                 |
| 11      | 28                         | 19                                   | 5.6                                 | 16                         | 3                                    | .13                                 | 14                         | 2                                    | .06                                 |
| 12      | 22                         | 12                                   | 1.0                                 | 14                         | 2                                    | .07                                 | 13                         | 2                                    | .07                                 |
| 13      | 91                         | 98                                   | 72                                  | 12                         | 2                                    | .07                                 | 13                         | 2                                    | .08                                 |
| 14      | 115                        | 212                                  | 248                                 | 12                         | 1                                    | .04                                 | 14                         | 3                                    | .10                                 |
| 15      | 23                         | 2                                    | .15                                 | 14                         | 2                                    | .13                                 | 13                         | 3                                    | .10                                 |
| 16      | 19                         | 2                                    | .09                                 | 27                         | 4                                    | .74                                 | 14                         | 2                                    | .09                                 |
| 17      | 16                         | 1                                    | .05                                 | 26                         | 10                                   | 1.0                                 | 19                         | 2                                    | .10                                 |
| 18      | 24                         | 9                                    | .77                                 | 32                         | 19                                   | 3.4                                 | 16                         | 1                                    | .06                                 |
| 19      | 14                         | 5                                    | .19                                 | 19                         | 9                                    | .55                                 | 15                         | 1                                    | .05                                 |
| 20      | 12                         | 1                                    | .04                                 | 16                         | 2                                    | .06                                 | e16                        | 2                                    | e.13                                |
| 21      | 11                         | 1                                    | .03                                 | 19                         | 1                                    | .06                                 | e28                        | 11                                   | e1.0                                |
| 22      | 11                         | 1                                    | .04                                 | 17                         | 1                                    | .05                                 | 19                         | 1                                    | .06                                 |
| 23      | 10                         | 3                                    | .07                                 | 16                         | 1                                    | .05                                 | 22                         | 4                                    | .27                                 |
| 24      | 9.9                        | 4                                    | .11                                 | 25                         | 4                                    | .41                                 | 19                         | 1                                    | .06                                 |
| 25      | 9.9                        | 3                                    | .07                                 | 23                         | 5                                    | .62                                 | 19                         | 1                                    | .05                                 |
| 26      | 9.6                        | 2                                    | .04                                 | 144                        | 106                                  | 77                                  | 19                         | 1                                    | .05                                 |
| 27      | 9.7                        | 1                                    | .03                                 | 32                         | 1                                    | .12                                 | 21                         | 4                                    | .24                                 |
| 28      | 9.6                        | 1                                    | .03                                 | 25                         | 1                                    | .07                                 | 20                         | 3                                    | .15                                 |
| 29      | 9.5                        | 1                                    | .03                                 | 23                         | 1                                    | .06                                 | 20                         | 1                                    | .06                                 |
| 30      | 9.7                        | 2                                    | .04                                 | 25                         | 1                                    | .42                                 | 20                         | 2                                    | .08                                 |
| 31      | 9.8                        | 2                                    | .05                                 | ---                        | ---                                  | ---                                 | 22                         | 3                                    | .16                                 |
| TOTAL   | 724.7                      | ---                                  | 634.90                              | 776.9                      | ---                                  | 188.96                              | 540                        | ---                                  | 3.97                                |

## RIO FAJARDO BASIN

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 45                         | 35                              | 11                                  | 10                         | 2                               | .06                                 | 10                         | 2                               | .04                                 |
| 2       | 36                         | 8                               | .96                                 | 10                         | 3                               | .07                                 | 9.9                        | 1                               | .03                                 |
| 3       | 42                         | 9                               | 1.6                                 | 9.2                        | 8                               | .20                                 | 10                         | 1                               | .03                                 |
| 4       | 41                         | 8                               | 1.2                                 | 18                         | 72                              | 108                                 | 9.9                        | 1                               | .03                                 |
| 5       | 40                         | 2                               | .18                                 | 63                         | 115                             | 72                                  | 9.9                        | 1                               | .04                                 |
| 6       | 88                         | 78                              | 29                                  | 17                         | 3                               | .12                                 | 14                         | 4                               | .20                                 |
| 7       | 111                        | 68                              | 36                                  | 16                         | 2                               | .10                                 | 13                         | 2                               | .07                                 |
| 8       | 53                         | 17                              | 2.5                                 | 22                         | 7                               | .86                                 | 12                         | 2                               | .05                                 |
| 9       | 60                         | 34                              | 6.2                                 | 18                         | 4                               | .24                                 | 10                         | 2                               | .06                                 |
| 10      | 70                         | 39                              | 8.1                                 | 15                         | 2                               | .06                                 | 10                         | 2                               | .05                                 |
| 11      | 40                         | 10                              | 1.1                                 | 15                         | 1                               | .05                                 | 9.9                        | 2                               | .05                                 |
| 12      | 34                         | 3                               | .29                                 | 15                         | 2                               | .06                                 | 10                         | 2                               | .05                                 |
| 13      | 49                         | 16                              | 2.7                                 | 14                         | 2                               | .07                                 | 10                         | 2                               | .05                                 |
| 14      | 37                         | 3                               | .40                                 | 14                         | 2                               | .09                                 | 18                         | 5                               | .38                                 |
| 15      | 28                         | 2                               | .11                                 | 14                         | 1                               | .08                                 | 14                         | 4                               | .18                                 |
| 16      | 25                         | 1                               | .08                                 | 13                         | 1                               | .04                                 | 11                         | 1                               | .04                                 |
| 17      | 23                         | 1                               | .09                                 | 13                         | 2                               | .05                                 | 10                         | 1                               | .03                                 |
| 18      | 22                         | 4                               | .23                                 | 13                         | 2                               | .06                                 | 10                         | 1                               | .03                                 |
| 19      | 20                         | 8                               | .41                                 | 12                         | 1                               | .04                                 | 10                         | 1                               | .03                                 |
| 20      | 19                         | 5                               | .24                                 | 11                         | 1                               | .04                                 | 19                         | 7                               | .49                                 |
| 21      | 18                         | 3                               | .14                                 | 11                         | 2                               | .05                                 | 13                         | 3                               | .10                                 |
| 22      | 17                         | 2                               | .11                                 | 11                         | 3                               | .08                                 | 15                         | 4                               | .19                                 |
| 23      | 16                         | 2                               | .09                                 | 11                         | 3                               | .09                                 | 13                         | 4                               | .12                                 |
| 24      | 15                         | 3                               | .13                                 | 10                         | 2                               | .05                                 | 12                         | 2                               | .06                                 |
| 25      | 14                         | 5                               | .19                                 | 10                         | 1                               | .04                                 | 13                         | 1                               | .04                                 |
| 26      | 13                         | 5                               | .20                                 | 10                         | 3                               | .08                                 | 15                         | 1                               | .04                                 |
| 27      | 12                         | 2                               | .08                                 | 10                         | 5                               | .14                                 | 15                         | 2                               | .11                                 |
| 28      | 12                         | 1                               | .04                                 | 10                         | 3                               | .08                                 | 15                         | 2                               | .08                                 |
| 29      | 11                         | 2                               | .05                                 | ---                        | ---                             | ---                                 | 15                         | 2                               | .08                                 |
| 30      | 11                         | 2                               | .06                                 | ---                        | ---                             | ---                                 | 29                         | 15                              | 2.5                                 |
| 31      | 10                         | 3                               | .08                                 | ---                        | ---                             | ---                                 | 18                         | 4                               | .22                                 |
| TOTAL   | 1032                       | ---                             | 103.56                              | 415.2                      | ---                             | 182.90                              | 403.6                      | ---                             | 5.47                                |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | 19                         | 4                               | .18                                 | 19                         | 1                               | .05                                 | 32                         | 15                              | 1.5                                 |
| 2       | 18                         | 4                               | .18                                 | 18                         | 1                               | .05                                 | 26                         | 19                              | 1.3                                 |
| 3       | 16                         | 4                               | .19                                 | 22                         | 4                               | .28                                 | 24                         | 12                              | .79                                 |
| 4       | 15                         | 3                               | .11                                 | 24                         | 9                               | .64                                 | 23                         | 3                               | .20                                 |
| 5       | 18                         | 2                               | .21                                 | 17                         | 4                               | .18                                 | 23                         | 1                               | .06                                 |
| 6       | 16                         | 2                               | .09                                 | 15                         | 1                               | .04                                 | 25                         | 1                               | .07                                 |
| 7       | 17                         | 5                               | .34                                 | 14                         | 1                               | .04                                 | 23                         | 1                               | .06                                 |
| 8       | 19                         | 16                              | .86                                 | 26                         | 13                              | 2.7                                 | 24                         | 1                               | .06                                 |
| 9       | 16                         | 4                               | .17                                 | 15                         | 4                               | .16                                 | 37                         | 13                              | 2.7                                 |
| 10      | 16                         | 1                               | .05                                 | 12                         | 3                               | .09                                 | 25                         | 3                               | .23                                 |
| 11      | 17                         | 1                               | .05                                 | 12                         | 2                               | .06                                 | 22                         | 2                               | .12                                 |
| 12      | 23                         | 8                               | .58                                 | e11                        | 2                               | e.07                                | 75                         | 162                             | 99                                  |
| 13      | 21                         | 3                               | .17                                 | 15                         | 5                               | .37                                 | 40                         | 13                              | 2.0                                 |
| 14      | 18                         | 1                               | .06                                 | 23                         | 15                              | 2.5                                 | 30                         | 3                               | .24                                 |
| 15      | 18                         | 1                               | .07                                 | e32                        | 29                              | e8.3                                | 28                         | 3                               | .22                                 |
| 16      | 64                         | 53                              | 13                                  | e26                        | 10                              | e1.1                                | 34                         | 5                               | .48                                 |
| 17      | 26                         | 5                               | .35                                 | e13                        | 2                               | e.07                                | 27                         | 1                               | .08                                 |
| 18      | 34                         | 16                              | 2.3                                 | e12                        | 1                               | e.05                                | e31                        | 1                               | e.81                                |
| 19      | 26                         | 6                               | .40                                 | e12                        | 4                               | e.13                                | 23                         | 1                               | .06                                 |
| 20      | 28                         | 6                               | .54                                 | e23                        | 14                              | e1.9                                | 22                         | 1                               | .06                                 |
| 21      | 25                         | 3                               | .22                                 | e35                        | 17                              | e1.7                                | 26                         | 4                               | .34                                 |
| 22      | 22                         | 2                               | .14                                 | e21                        | 7                               | e.39                                | 22                         | 2                               | .14                                 |
| 23      | 22                         | 2                               | .10                                 | 21                         | 4                               | .24                                 | 20                         | 1                               | .07                                 |
| 24      | 22                         | 1                               | .06                                 | 20                         | 3                               | .15                                 | 20                         | 1                               | .05                                 |
| 25      | 21                         | 1                               | .08                                 | 20                         | 2                               | .11                                 | 20                         | 1                               | .05                                 |
| 26      | 21                         | 2                               | .10                                 | 47                         | 44                              | 9.1                                 | 19                         | 1                               | .05                                 |
| 27      | 25                         | 4                               | .24                                 | 38                         | 13                              | 3.0                                 | 19                         | 1                               | .05                                 |
| 28      | 23                         | 2                               | .12                                 | 26                         | 3                               | .24                                 | 21                         | 1                               | .06                                 |
| 29      | 20                         | 1                               | .06                                 | 42                         | 22                              | 6.2                                 | 19                         | 1                               | .05                                 |
| 30      | 19                         | 1                               | .05                                 | 70                         | 59                              | 16                                  | 18                         | 1                               | .05                                 |
| 31      | ---                        | ---                             | ---                                 | 34                         | 11                              | 1.0                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 665                        | ---                             | 21.07                               | 735                        | ---                             | 56.91                               | 798                        | ---                             | 110.95                              |

## RIO FAJARDO BASIN

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 18                         | 1                                    | .05                                 | 14                         | 2                                    | .06                                 | 31                         | 9                                    | .80                                 |
| 2     | 19                         | 2                                    | .11                                 | 13                         | 1                                    | .04                                 | 67                         | 45                                   | 11                                  |
| 3     | 20                         | 4                                    | .20                                 | 13                         | 1                                    | .04                                 | 35                         | 11                                   | 1.1                                 |
| 4     | 37                         | 17                                   | 2.9                                 | 12                         | 1                                    | .03                                 | 30                         | 4                                    | .34                                 |
| 5     | 20                         | 4                                    | .22                                 | 12                         | 1                                    | .03                                 | 33                         | 5                                    | .89                                 |
| 6     | 19                         | 2                                    | .11                                 | e17                        | 4                                    | e.19                                | 30                         | 7                                    | .65                                 |
| 7     | 24                         | 8                                    | .58                                 | 21                         | 11                                   | 1.1                                 | 64                         | 62                                   | 23                                  |
| 8     | 23                         | 7                                    | .43                                 | 17                         | 3                                    | .15                                 | 43                         | 25                                   | 3.8                                 |
| 9     | 22                         | 2                                    | .30                                 | 22                         | 2                                    | .14                                 | 33                         | 10                                   | .93                                 |
| 10    | 21                         | 6                                    | .34                                 | 14                         | 2                                    | .07                                 | 28                         | 5                                    | .41                                 |
| 11    | 18                         | 4                                    | .17                                 | 13                         | 1                                    | .05                                 | 27                         | 4                                    | .26                                 |
| 12    | 17                         | 2                                    | .08                                 | 13                         | 1                                    | .04                                 | 27                         | 7                                    | .50                                 |
| 13    | 16                         | 1                                    | .05                                 | 14                         | 1                                    | .04                                 | 40                         | 16                                   | 2.3                                 |
| 14    | 20                         | 3                                    | .24                                 | 14                         | 1                                    | .04                                 | 31                         | 6                                    | .51                                 |
| 15    | 25                         | 8                                    | .55                                 | 15                         | 1                                    | .04                                 | 78                         | 50                                   | 28                                  |
| 16    | 21                         | 4                                    | .28                                 | 20                         | 2                                    | .27                                 | 34                         | 14                                   | 1.3                                 |
| 17    | 20                         | 4                                    | .23                                 | 23                         | 6                                    | .45                                 | 29                         | 11                                   | .86                                 |
| 18    | 18                         | 2                                    | .11                                 | 20                         | 6                                    | .31                                 | 33                         | 12                                   | 1.2                                 |
| 19    | 24                         | 1                                    | .09                                 | 24                         | 9                                    | .77                                 | 38                         | 18                                   | 2.1                                 |
| 20    | 20                         | 2                                    | .13                                 | 24                         | 6                                    | .41                                 | 31                         | 7                                    | .60                                 |
| 21    | 18                         | 2                                    | .12                                 | 37                         | 18                                   | 2.5                                 | e270                       | 1020                                 | e5320                               |
| 22    | 17                         | 2                                    | .09                                 | 29                         | 5                                    | .38                                 | 139                        | 139                                  | 89                                  |
| 23    | 18                         | 6                                    | .30                                 | 25                         | 2                                    | .14                                 | 55                         | 6                                    | .85                                 |
| 24    | 42                         | 23                                   | 4.2                                 | 128                        | 142                                  | 107                                 | 46                         | 4                                    | .46                                 |
| 25    | 19                         | 12                                   | .61                                 | 93                         | 28                                   | 22                                  | 42                         | 3                                    | .34                                 |
| 26    | 17                         | 10                                   | .46                                 | e57                        | 9                                    | e1.3                                | 39                         | 3                                    | .32                                 |
| 27    | 16                         | 6                                    | .27                                 | 50                         | 8                                    | 1.1                                 | 36                         | 3                                    | .29                                 |
| 28    | 15                         | 1                                    | .05                                 | 37                         | 7                                    | .70                                 | 34                         | 3                                    | .28                                 |
| 29    | 15                         | 1                                    | .04                                 | 35                         | 7                                    | .70                                 | 33                         | 3                                    | .27                                 |
| 30    | 14                         | 2                                    | .06                                 | 33                         | 8                                    | .68                                 | 32                         | 3                                    | .26                                 |
| 31    | 15                         | 2                                    | .08                                 | 31                         | 8                                    | .67                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 628                        | ---                                  | 13.45                               | 890                        | ---                                  | 141.44                              | 1488                       | ---                                  | 5492.62                             |
| YEAR  | 9096.4                     |                                      | 6956.20                             |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 16... | 0101 | 515                                                                   | 949                                                   | 1320                                                                      | 66                                                                       |
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 0315 | 190                                                                   | 258                                                   | 132                                                                       | 90                                                                       |
| 26... | 0434 | 347                                                                   | 424                                                   | 397                                                                       | 85                                                                       |
| 26... | 1330 | 164                                                                   | 68                                                    | 30                                                                        | 74                                                                       |
| JAN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 0129 | 395                                                                   | 618                                                   | 659                                                                       | 90                                                                       |
| 07... | 0700 | 127                                                                   | 25                                                    | 8.6                                                                       | 92                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 0044 | 224                                                                   | 950                                                   | 575                                                                       | 82                                                                       |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 29... | 2315 | 162                                                                   | 185                                                   | 81                                                                        | 91                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 15... | 1315 | 190                                                                   | 322                                                   | 165                                                                       | 92                                                                       |

## RIO FAJARDO BASIN

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

## WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327)  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328)  |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| FEB<br>04... | 2359 | 876                                                                     | 4270                                                                    | 10100                                                                    | 20                                                                       | 25                                                                       | 36                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
| FEB<br>04... | 46   | 59                                                                      | 67                                                                      | 88                                                                       | 97                                                                       | 98                                                                       | 99                                                                       |                                                                          |

## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR

LOCATION.--Lat 18°17'56", long 65°41'42", Hydrologic Unit 21010005, on left bank off Highway 976, 0.1 mi (0.2 km) upstream from Highway 977 bridge, 0.3 mi (0.5 km) downstream from Quebrada Peñón, 1.1 mi (1.8 km) northeast of Colonia Paraiso, and 3.3 mi (5.3 km) southwest of Fajardo.

DRAINAGE AREA.--14.9 mi<sup>2</sup> (38.6 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1960-61 (occasional low and peak-flow measurements only), March 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 137.60 ft (41.940 m) above mean sea level. Due to flood damage, gage datum has had changes as follows: Mar. 24, 1961 to May 5, 1969, 138.95 ft (42.352 m); May 6, 1969 to Mar. 16, 1972, 135.05 ft (41.163 m); Mar. 17, 1972 to Mar 25, 1975, 138.60 ft (42.245 m).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low-flow affected by diversions for water supply about 1,312.3 ft (400 m) upstream from gaging station (estimated mean daily discharges is 9.0 ft<sup>3</sup>/s (0.255 m<sup>3</sup>/s). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|
| 1     | 13    | 27    | 109  | 197  | 12   | 15   | 78   | 19   | 114  | 15   | 18   | 28    |
| 2     | 575   | 21    | 91   | 42   | 14   | 14   | 51   | 16   | 54   | 17   | 14   | 378   |
| 3     | 37    | 18    | 88   | 50   | 12   | 13   | 34   | 32   | 36   | 21   | 13   | 99    |
| 4     | 22    | 24    | 82   | 37   | 24   | 13   | 26   | 57   | 28   | 243  | 12   | 37    |
| 5     | 15    | 32    | 74   | 35   | 707  | 12   | 161  | 24   | 23   | 43   | 11   | 41    |
| 6     | 14    | 43    | 69   | 521  | 68   | 47   | 44   | 17   | 30   | 25   | e46  | 36    |
| 7     | 13    | 23    | 66   | 775  | 39   | 341  | 45   | 20   | 21   | 65   | e74  | 315   |
| 8     | 152   | 199   | 63   | 97   | 208  | 41   | 67   | 152  | 20   | 56   | 40   | 162   |
| 9     | 58    | 515   | 62   | 214  | 152  | 21   | 28   | 51   | 129  | 47   | 94   | 80    |
| 10    | 18    | 868   | 59   | 356  | 44   | 17   | 26   | 21   | 41   | 42   | 29   | 39    |
| 11    | 71    | 50    | 56   | 52   | 33   | 15   | 26   | 16   | 17   | 23   | 17   | 28    |
| 12    | 66    | 29    | 50   | 38   | 33   | 13   | 78   | 14   | 421  | 43   | 15   | 23    |
| 13    | 688   | 20    | 49   | 75   | 27   | 12   | 86   | 29   | 240  | 20   | 17   | 112   |
| 14    | 1250  | 16    | 49   | 58   | 27   | 145  | 31   | 208  | 61   | 26   | 15   | 60    |
| 15    | 236   | 23    | 49   | 32   | 31   | 74   | 27   | 253  | 51   | 99   | 15   | 491   |
| 16    | 144   | 144   | 45   | 26   | 23   | 35   | 659  | 137  | 168  | 67   | 36   | 114   |
| 17    | 91    | 95    | 75   | 24   | 23   | 17   | 89   | 36   | 51   | 53   | 65   | 48    |
| 18    | 147   | 163   | 50   | 22   | 24   | 15   | 165  | 25   | e101 | 41   | 29   | 64    |
| 19    | 71    | 58    | 45   | 22   | 21   | 12   | 54   | 26   | e46  | 101  | 45   | 192   |
| 20    | 49    | 23    | 42   | 21   | 19   | 97   | 64   | 48   | 36   | 54   | 46   | 58    |
| 21    | 42    | 26    | 111  | 20   | 18   | 29   | 61   | 55   | 81   | 41   | 143  | e762  |
| 22    | 38    | 21    | 69   | 18   | 17   | 33   | 30   | 22   | 55   | 26   | 50   | e452  |
| 23    | 37    | 17    | 67   | 18   | 16   | 23   | 26   | 21   | 31   | 36   | 28   | e109  |
| 24    | 32    | 65    | 54   | 18   | 15   | 15   | 26   | 20   | 29   | 329  | 833  | e92   |
| 25    | 30    | 19    | 43   | 17   | 13   | 15   | 21   | 20   | 27   | 56   | 493  | e84   |
| 26    | 30    | 1700  | 41   | 15   | 13   | 25   | 22   | 189  | 23   | 31   | 102  | e80   |
| 27    | 27    | 349   | 47   | 15   | 13   | 32   | 36   | 238  | 21   | 24   | 219  | e73   |
| 28    | 22    | 171   | 41   | 14   | 13   | 26   | 31   | 55   | 31   | 22   | 61   | e69   |
| 29    | 22    | 126   | 35   | 13   | ---  | 44   | 21   | 198  | 21   | 20   | 58   | 63    |
| 30    | 21    | 156   | 33   | 13   | ---  | 262  | 20   | 674  | 17   | 19   | 34   | 57    |
| 31    | 20    | ---   | 34   | 14   | ---  | 101  | ---  | 134  | ---  | 22   | 37   | ---   |
| TOTAL | 4051  | 5041  | 1848 | 2869 | 1659 | 1574 | 2133 | 2827 | 2024 | 1727 | 2709 | 4246  |
| MEAN  | 131   | 168   | 59.6 | 92.5 | 59.3 | 50.8 | 71.1 | 91.2 | 67.5 | 55.7 | 87.4 | 142   |
| MAX   | 1250  | 1700  | 111  | 775  | 707  | 341  | 659  | 674  | 421  | 329  | 833  | 762   |
| MIN   | 13    | 16    | 33   | 13   | 12   | 12   | 20   | 14   | 17   | 15   | 11   | 23    |
| AC-FT | 8040  | 10000 | 3670 | 5690 | 3290 | 3120 | 4230 | 5610 | 4010 | 3430 | 5370 | 8420  |
| CFSM  | 8.77  | 11.3  | 4.00 | 6.21 | 3.98 | 3.41 | 4.77 | 6.12 | 4.53 | 3.74 | 5.86 | 9.50  |
| IN.   | 10.11 | 12.59 | 4.61 | 7.16 | 4.14 | 3.93 | 5.33 | 7.06 | 5.05 | 4.31 | 6.76 | 10.60 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 92.1 | 106  | 79.1 | 49.0 | 39.3 | 35.4 | 44.1 | 90.0 | 59.4 | 50.7 | 56.8 | 89.3 |
| MAX  | 260  | 295  | 237  | 150  | 80.4 | 109  | 129  | 399  | 166  | 132  | 159  | 421  |
| (WY) | 1971 | 1975 | 1976 | 1996 | 1982 | 1987 | 1963 | 1979 | 1962 | 1969 | 1979 | 1989 |
| MIN  | 19.1 | 26.0 | 14.9 | 15.4 | 10.8 | 9.70 | 4.02 | 17.7 | 10.0 | 11.4 | 9.70 | 18.9 |
| (WY) | 1969 | 1994 | 1990 | 1977 | 1983 | 1977 | 1984 | 1973 | 1985 | 1994 | 1994 | 1994 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

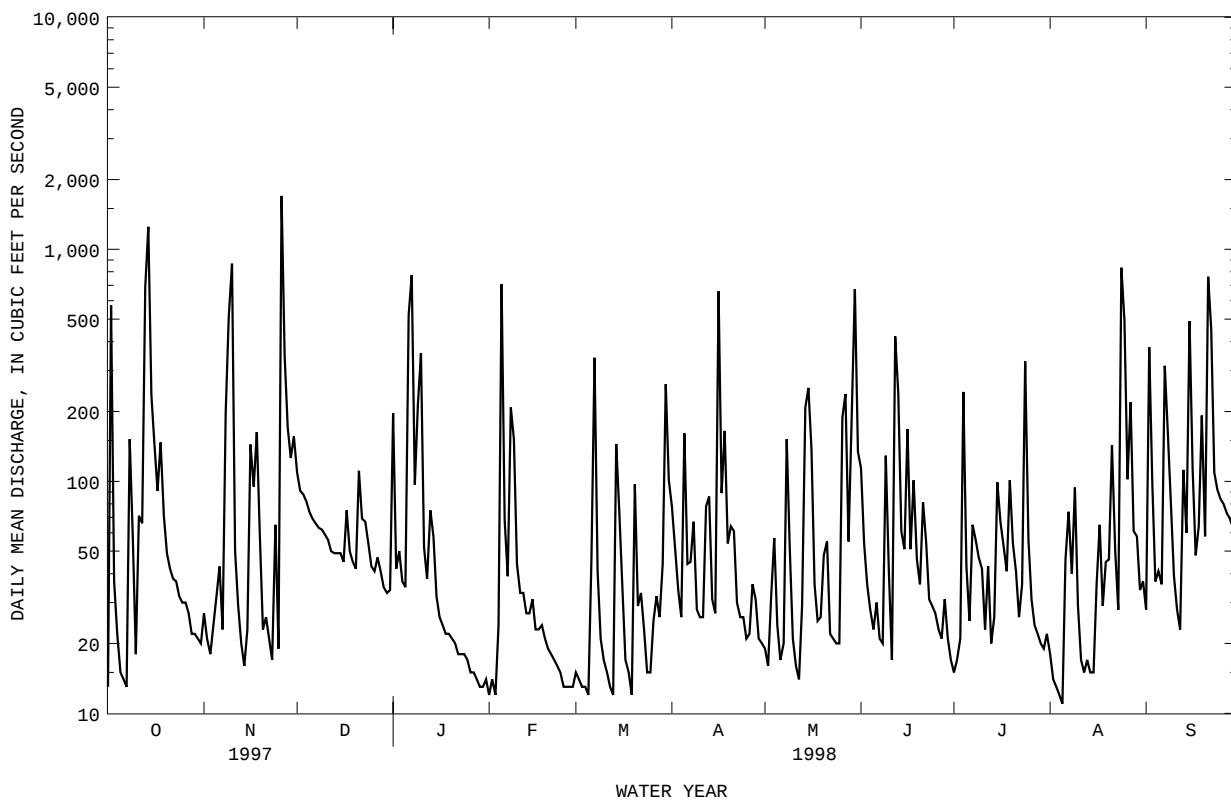
## FOR 1998 WATER YEAR

## WATER YEARS 1961 - 1998

|                          |         |       |       |
|--------------------------|---------|-------|-------|
| ANNUAL TOTAL             | 23004.6 | 32708 |       |
| ANNUAL MEAN              | 63.0    | 89.6  | 66.4  |
| HIGHEST ANNUAL MEAN      |         |       | 140   |
| LOWEST ANNUAL MEAN       |         |       | 19.0  |
| HIGHEST DAILY MEAN       | 1700    | 1700  | 8800  |
| LOWEST DAILY MEAN        | 6.5     | 11    | 1.0   |
| ANNUAL SEVEN-DAY MINIMUM | 7.2     | 13    | 1.5   |
| INSTANTANEOUS PEAK FLOW  |         | 8480  | 21700 |
| INSTANTANEOUS PEAK STAGE |         | 10.99 | 20.00 |
| INSTANTANEOUS LOW FLOW   |         |       | .86   |
| ANNUAL RUNOFF (AC-FT)    | 45630   | 64880 | 48080 |
| ANNUAL RUNOFF (CFSM)     | 4.23    | 6.01  | 4.45  |
| ANNUAL RUNOFF (INCHES)   | 57.43   | 81.66 | 60.52 |
| 10 PERCENT EXCEEDS       | 124     | 194   | 129   |
| 50 PERCENT EXCEEDS       | 27      | 38    | 32    |
| 90 PERCENT EXCEEDS       | 12      | 15    | 11    |

e Estimated

RIO FAJARDO BASIN  
50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued



## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1982 to September 1986 and October 1995 to current year.

INSTRUMENTATION.--Automatic sediment sampler since October 1983.

EXTREMES FOR PERIOD OF RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,210 mg/L October 6, 1985; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 22,100 tons (20,000 tonnes) October 6, 1985; Minimum daily mean, 0.01 tons (0.01 tonnes) May 06, 1996.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 354 mg/L November 10, 1997; minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, e2,110 tons (e1,910 tonnes) September 21, 1998; minimum daily 0.04 tons (0.03 tonnes) February 26 and March 4, 1998.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME                                                    | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)   | PH WATER WHOLE FIELD (STAND-ARD) (UNITS) (00400)        | TEMPER-ATURE WATER (DEG C) (00010)        | TUR-BID-ITY (NTU) (00076)                              | OXYGEN, DIS-SOLVED (MG/L) (00300)             | OXYGEN, DIS-SOLVED (PER-CENT (HIGH LEVEL) (MG/L) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) |
|-----------|---------------------------------------------------------|-------------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|
| OCT 27... | 1000                                                    | 31                                              | 127                                       | 7.3                                                     | 27.0                                      | .57                                                    | 7.5                                           | 93                                                       | <10                                                  | 210                                                 |
| MAR 30... | 0915                                                    | 22                                              | 117                                       | 6.6                                                     | 24.0                                      | 3.0                                                    | 8.8                                           | 106                                                      | <10                                                  | K1800                                               |
| JUN 03... | 0930                                                    | 37                                              | 104                                       | 6.9                                                     | 26.0                                      | 2.1                                                    | 8.0                                           | 99                                                       | <10                                                  | 40                                                  |
| AUG 25... | 1010                                                    | 278                                             | 60                                        | 6.2                                                     | 24.5                                      | 21                                                     | 8.0                                           | 96                                                       | <10                                                  | 2400                                                |
| DATE      | STREP-TOCOCCHI FECAL, (COLS. PER 100 ML) (31679)        | HARD-NESS TOTAL (MG/L AS CAC03) (00900)         | CALCIUM DIS-SOLVED (MG/L AS CA) (00915)   | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)             | SODIUM, DIS-SOLVED (MG/L AS NA) (00930)   | SODIUM AD-SORP-TION RATIO (00931)                      | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)    | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410)      | SULFIDE TOTAL (MG/L AS S) (00745)                    | SULFATE DIS-SOLVED (MG/L AS S04) (00945)            |
| OCT 27... | 860                                                     | 34                                              | 7.5                                       | 3.7                                                     | 12                                        | .9                                                     | 1.1                                           | 39                                                       | <.5                                                  | 3.3                                                 |
| MAR 30... | 40                                                      | --                                              | --                                        | --                                                      | --                                        | --                                                     | --                                            | 44                                                       | --                                                   | --                                                  |
| JUN 03... | 70                                                      | 27                                              | 5.8                                       | 3.0                                                     | 9.5                                       | .8                                                     | .95                                           | 34                                                       | --                                                   | 3.1                                                 |
| AUG 25... | 4900                                                    | 14                                              | 3.0                                       | 1.5                                                     | 5.7                                       | .7                                                     | 1.3                                           | 13                                                       | <1.0                                                 | 2.7                                                 |
| DATE      | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)              | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)       | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)  | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)             | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)         | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)        |
| OCT 27... | 13                                                      | <.10                                            | 25                                        | 89                                                      | 7.46                                      | <1                                                     | <.010                                         | .080                                                     | <.010                                                | --                                                  |
| MAR 30... | --                                                      | --                                              | --                                        | --                                                      | --                                        | <1                                                     | <.010                                         | .180                                                     | .020                                                 | <.02                                                |
| JUN 03... | 11                                                      | <.10                                            | 24                                        | 78                                                      | 7.68                                      | 3                                                      | <.010                                         | .170                                                     | <.010                                                | --                                                  |
| AUG 25... | 7.5                                                     | <.10                                            | 12                                        | 41                                                      | 31.0                                      | 18                                                     | <.010                                         | .230                                                     | .060                                                 | .35                                                 |
| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600)            | NITRO-GEN, TOTAL (MG/L AS N03) (71887)    | PHOS-PHORUS TOTAL (MG/L AS P) (00665)                   | ARSENIC TOTAL (UG/L AS AS) (01002)        | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)        | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)         | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)   | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)     |
| OCT 27... | .33                                                     | .41                                             | 1.8                                       | .040                                                    | <1                                        | <100                                                   | 20                                            | <1                                                       | <1                                                   | <10                                                 |
| MAR 30... | <.20                                                    | .33                                             | 1.5                                       | <.020                                                   | --                                        | --                                                     | --                                            | --                                                       | --                                                   | --                                                  |
| JUN 03... | <.20                                                    | --                                              | --                                        | <.020                                                   | <1                                        | <100                                                   | 30                                            | <1                                                       | <1                                                   | <10                                                 |
| AUG 25... | .41                                                     | .64                                             | 2.8                                       | .050                                                    | --                                        | --                                                     | --                                            | --                                                       | --                                                   | --                                                  |

## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045) | LEAD,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS PB)<br>(01051) | MANGA-<br>NESE,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS MN)<br>(01055) | MERCURY<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS HG)<br>(71900) | SELE-<br>NIUM,<br>TOTAL<br>(UG/L<br>AS SE)<br>(01147) | SILVER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS AG)<br>(01077) | ZINC,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS ZN)<br>(01092) | CYANIDE<br>TOTAL<br>(MG/L<br>AS CN)<br>(00720) | PHENOLS<br>TOTAL<br>(UG/L)<br>(32730) | METHY-<br>LENE<br>BLUE<br>ACTIVE<br>SUB-<br>STANCE<br>(MG/L)<br>(38260) |
|-----------|------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------|
| OCT 27... | 220                                                              | <1                                                               | 12                                                                         | <.10                                                               | <1                                                    | <1                                                                 | <10                                                              | <.010                                          | 3                                     | .04                                                                     |
| MAR 30... | --                                                               | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                             | --                                    | --                                                                      |
| JUN 03... | 170                                                              | <1                                                               | 10                                                                         | <.10                                                               | <1                                                    | <1                                                                 | <10                                                              | <.010                                          | <1                                    | <.02                                                                    |
| AUG 25... | --                                                               | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                             | --                                    | --                                                                      |

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 13                         | 7                                    | .24                                 | 27                         | 17                                   | 1.2                                 | 109                        | 6                                    | 1.8                                 |
| 2       | 575                        | 228                                  | 1020                                | 21                         | 16                                   | .92                                 | 91                         | 6                                    | 1.5                                 |
| 3       | 37                         | 13                                   | 1.6                                 | 18                         | 15                                   | .74                                 | 88                         | 6                                    | 1.5                                 |
| 4       | 22                         | 4                                    | .22                                 | 24                         | 15                                   | 1.0                                 | 82                         | 7                                    | 1.5                                 |
| 5       | 15                         | 8                                    | .33                                 | 32                         | 16                                   | 1.4                                 | 74                         | 7                                    | 1.4                                 |
| 6       | 14                         | 12                                   | .44                                 | 43                         | 21                                   | 2.5                                 | 69                         | 7                                    | 1.3                                 |
| 7       | 13                         | 15                                   | .54                                 | 23                         | 17                                   | 1.0                                 | 66                         | 7                                    | 1.3                                 |
| 8       | 152                        | 64                                   | 80                                  | 199                        | 75                                   | 103                                 | 63                         | 7                                    | 1.2                                 |
| 9       | 58                         | 26                                   | 4.6                                 | 515                        | 128                                  | 214                                 | 62                         | 7                                    | 1.2                                 |
| 10      | 18                         | 18                                   | .85                                 | 868                        | 354                                  | 1800                                | 59                         | 8                                    | 1.2                                 |
| 11      | 71                         | 31                                   | 21                                  | 50                         | 22                                   | 3.2                                 | 56                         | 8                                    | 1.2                                 |
| 12      | 66                         | 28                                   | 9.1                                 | 29                         | 11                                   | .92                                 | 50                         | 8                                    | 1.1                                 |
| 13      | 688                        | 173                                  | 738                                 | 20                         | 6                                    | .32                                 | 49                         | 8                                    | 1.1                                 |
| 14      | 1250                       | 189                                  | 1660                                | 16                         | 6                                    | .25                                 | 49                         | 8                                    | 1.1                                 |
| 15      | 236                        | 5                                    | 3.2                                 | 23                         | 17                                   | 1.9                                 | 49                         | 9                                    | 1.1                                 |
| 16      | 144                        | 5                                    | 1.9                                 | 144                        | 49                                   | 35                                  | 45                         | 9                                    | 2.0                                 |
| 17      | 91                         | 3                                    | .82                                 | 95                         | 20                                   | 8.9                                 | 75                         | 9                                    | 5.3                                 |
| 18      | 147                        | 29                                   | 17                                  | 163                        | 35                                   | 52                                  | 50                         | 9                                    | 2.4                                 |
| 19      | 71                         | 33                                   | 6.7                                 | 58                         | 17                                   | 4.3                                 | 45                         | 10                                   | 2.0                                 |
| 20      | 49                         | 9                                    | 1.2                                 | 23                         | 6                                    | .35                                 | 42                         | 10                                   | 1.8                                 |
| 21      | 42                         | 11                                   | 1.2                                 | 26                         | 8                                    | .62                                 | 111                        | 10                                   | 12                                  |
| 22      | 38                         | 21                                   | 2.1                                 | 21                         | 5                                    | .27                                 | 69                         | 10                                   | 4.5                                 |
| 23      | 37                         | 19                                   | 1.9                                 | 17                         | 6                                    | .26                                 | 67                         | 10                                   | 4.8                                 |
| 24      | 32                         | 16                                   | 1.4                                 | 65                         | 25                                   | 6.1                                 | 54                         | 11                                   | 2.8                                 |
| 25      | 30                         | 15                                   | 1.2                                 | 19                         | 16                                   | .86                                 | 43                         | 11                                   | 1.8                                 |
| 26      | 30                         | 15                                   | 1.2                                 | 1700                       | 155                                  | 737                                 | 41                         | 11                                   | 1.7                                 |
| 27      | 27                         | 15                                   | 1.1                                 | 349                        | 54                                   | 59                                  | 47                         | 11                                   | 2.2                                 |
| 28      | 22                         | 16                                   | .96                                 | 171                        | 10                                   | 4.7                                 | 41                         | 12                                   | 1.6                                 |
| 29      | 22                         | 17                                   | .97                                 | 126                        | 6                                    | 2.0                                 | 35                         | 12                                   | 1.2                                 |
| 30      | 21                         | 17                                   | .96                                 | 156                        | 12                                   | 6.0                                 | 33                         | 12                                   | 1.1                                 |
| 31      | 20                         | 18                                   | .95                                 | ---                        | ---                                  | ---                                 | 34                         | 13                                   | 1.2                                 |
| TOTAL   | 4051                       | ---                                  | 3581.68                             | 5041                       | ---                                  | 3049.71                             | 1848                       | ---                                  | 67.9                                |

## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 197                        | 58                                   | 99                                  | 12                         | 9                                    | .29                                 | 15                         | 3                                    | .11                                 |
| 2       | 42                         | 30                                   | 5.3                                 | 14                         | 12                                   | .44                                 | 14                         | 4                                    | .14                                 |
| 3       | 50                         | 26                                   | 6.9                                 | 12                         | 8                                    | .26                                 | 13                         | 2                                    | .08                                 |
| 4       | 37                         | 20                                   | 2.4                                 | 24                         | 6                                    | 3.5                                 | 13                         | 1                                    | .04                                 |
| 5       | 35                         | 11                                   | 1.2                                 | 707                        | 289                                  | 1040                                | 12                         | 1                                    | .05                                 |
| 6       | 521                        | 134                                  | 372                                 | 68                         | 9                                    | 2.0                                 | 47                         | 24                                   | 4.5                                 |
| 7       | 775                        | 223                                  | 671                                 | 39                         | 3                                    | .32                                 | 341                        | 122                                  | 247                                 |
| 8       | 97                         | 21                                   | 6.8                                 | 208                        | 38                                   | 93                                  | 41                         | 6                                    | .84                                 |
| 9       | 214                        | 59                                   | 65                                  | 152                        | 67                                   | 45                                  | 21                         | 2                                    | .12                                 |
| 10      | 356                        | 80                                   | 111                                 | 44                         | 4                                    | .47                                 | 17                         | 2                                    | .09                                 |
| 11      | 52                         | 10                                   | 1.7                                 | 33                         | 2                                    | .18                                 | 15                         | 2                                    | .09                                 |
| 12      | 38                         | 6                                    | .62                                 | 33                         | 2                                    | .18                                 | 13                         | 2                                    | .08                                 |
| 13      | 75                         | 20                                   | 7.1                                 | 27                         | 2                                    | .14                                 | 12                         | 3                                    | .09                                 |
| 14      | 58                         | 23                                   | 4.5                                 | 27                         | 3                                    | .21                                 | 145                        | 46                                   | 38                                  |
| 15      | 32                         | 14                                   | 1.2                                 | 31                         | 4                                    | .36                                 | 74                         | 32                                   | 7.5                                 |
| 16      | 26                         | 7                                    | .49                                 | 23                         | 3                                    | .21                                 | 35                         | 7                                    | .83                                 |
| 17      | 24                         | 4                                    | .24                                 | 23                         | 4                                    | .27                                 | 17                         | 4                                    | .18                                 |
| 18      | 22                         | 6                                    | .35                                 | 24                         | 6                                    | .41                                 | 15                         | 4                                    | .16                                 |
| 19      | 22                         | 11                                   | .63                                 | 21                         | 5                                    | .26                                 | 12                         | 4                                    | .13                                 |
| 20      | 21                         | 8                                    | .43                                 | 19                         | 3                                    | .15                                 | 97                         | 37                                   | 19                                  |
| 21      | 20                         | 4                                    | .20                                 | 18                         | 2                                    | .08                                 | 29                         | 11                                   | .89                                 |
| 22      | 18                         | 3                                    | .15                                 | 17                         | 1                                    | .05                                 | 33                         | 11                                   | 1.4                                 |
| 23      | 18                         | 3                                    | .16                                 | 16                         | 1                                    | .06                                 | 23                         | 16                                   | 1.0                                 |
| 24      | 18                         | 6                                    | .28                                 | 15                         | 2                                    | .07                                 | 15                         | 8                                    | .31                                 |
| 25      | 17                         | 11                                   | .51                                 | 13                         | 2                                    | .05                                 | 15                         | 8                                    | .33                                 |
| 26      | 15                         | 9                                    | .39                                 | 13                         | 1                                    | .04                                 | 25                         | 15                                   | 1.3                                 |
| 27      | 15                         | 6                                    | .26                                 | 13                         | 1                                    | .05                                 | 32                         | 13                                   | 1.2                                 |
| 28      | 14                         | 4                                    | .17                                 | 13                         | 2                                    | .07                                 | 26                         | 7                                    | .54                                 |
| 29      | 13                         | 3                                    | .12                                 | ---                        | ---                                  | ---                                 | 44                         | 20                                   | 3.6                                 |
| 30      | 13                         | 4                                    | .14                                 | ---                        | ---                                  | ---                                 | 262                        | 101                                  | 164                                 |
| 31      | 14                         | 6                                    | .22                                 | ---                        | ---                                  | ---                                 | 101                        | 57                                   | 20                                  |
| TOTAL   | 2869                       | ---                                  | 1360.46                             | 1659                       | ---                                  | 1188.12                             | 1574                       | ---                                  | 513.60                              |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 78                         | 13                                   | 3.5                                 | 19                         | 15                                   | .76                                 | 114                        | 23                                   | 12                                  |
| 2       | 51                         | 14                                   | 2.3                                 | 16                         | 12                                   | .52                                 | 54                         | 5                                    | .75                                 |
| 3       | 34                         | 17                                   | 1.6                                 | 32                         | 13                                   | 1.5                                 | 36                         | 4                                    | .41                                 |
| 4       | 26                         | 12                                   | .87                                 | 57                         | 23                                   | 5.0                                 | 28                         | 4                                    | .30                                 |
| 5       | 161                        | 59                                   | 63                                  | 24                         | 19                                   | 1.3                                 | 23                         | 4                                    | .25                                 |
| 6       | 44                         | 16                                   | 2.1                                 | 17                         | 7                                    | .33                                 | 30                         | 12                                   | 1.0                                 |
| 7       | 45                         | 13                                   | 3.8                                 | 20                         | 5                                    | .26                                 | 21                         | 11                                   | .64                                 |
| 8       | 67                         | 33                                   | 7.7                                 | 152                        | 36                                   | 38                                  | 20                         | 9                                    | .48                                 |
| 9       | 28                         | 9                                    | .66                                 | 51                         | 13                                   | 2.7                                 | 129                        | 38                                   | 35                                  |
| 10      | 26                         | 8                                    | .57                                 | 21                         | 6                                    | .33                                 | 41                         | 23                                   | 3.1                                 |
| 11      | 26                         | 10                                   | .69                                 | 16                         | 6                                    | .26                                 | 17                         | 6                                    | .28                                 |
| 12      | 78                         | 28                                   | 7.4                                 | 14                         | 5                                    | .21                                 | 421                        | 170                                  | 445                                 |
| 13      | 86                         | 19                                   | 7.0                                 | 29                         | 11                                   | 1.4                                 | 240                        | 71                                   | 76                                  |
| 14      | 31                         | 11                                   | .94                                 | 208                        | 74                                   | 87                                  | 61                         | 19                                   | 3.3                                 |
| 15      | 27                         | 21                                   | 1.5                                 | 253                        | 69                                   | 102                                 | 51                         | 9                                    | 1.2                                 |
| 16      | 659                        | 128                                  | 297                                 | 137                        | 51                                   | 34                                  | 168                        | 56                                   | 38                                  |
| 17      | 89                         | 12                                   | 3.8                                 | 36                         | 10                                   | 1.0                                 | 51                         | 9                                    | 1.4                                 |
| 18      | 165                        | 47                                   | 52                                  | 25                         | 6                                    | .42                                 | e101                       | 34                                   | e10                                 |
| 19      | 54                         | 11                                   | 1.8                                 | 26                         | 4                                    | .31                                 | e46                        | 12                                   | e1.7                                |
| 20      | 64                         | 32                                   | 6.3                                 | 48                         | 14                                   | 4.9                                 | 36                         | 6                                    | .60                                 |
| 21      | 61                         | 16                                   | 4.0                                 | 55                         | 31                                   | 5.2                                 | 81                         | 17                                   | 6.9                                 |
| 22      | 30                         | 5                                    | .44                                 | 22                         | 12                                   | .72                                 | 55                         | 20                                   | 3.2                                 |
| 23      | 26                         | 6                                    | .41                                 | 21                         | 5                                    | .29                                 | 31                         | 7                                    | .63                                 |
| 24      | 26                         | 6                                    | .45                                 | 20                         | 8                                    | .42                                 | 29                         | 4                                    | .35                                 |
| 25      | 21                         | 7                                    | .39                                 | 20                         | 16                                   | .84                                 | 27                         | 3                                    | .24                                 |
| 26      | 22                         | 6                                    | .35                                 | 189                        | 235                                  | 283                                 | 23                         | 3                                    | .21                                 |
| 27      | 36                         | 5                                    | .45                                 | 238                        | 57                                   | 108                                 | 21                         | 4                                    | .23                                 |
| 28      | 31                         | 5                                    | .40                                 | 55                         | 13                                   | 2.9                                 | 31                         | 10                                   | .94                                 |
| 29      | 21                         | 6                                    | .33                                 | 198                        | 104                                  | 77                                  | 21                         | 4                                    | .25                                 |
| 30      | 20                         | 9                                    | .50                                 | 674                        | 96                                   | 185                                 | 17                         | 3                                    | .12                                 |
| 31      | ---                        | ---                                  | ---                                 | 134                        | 36                                   | 13                                  | ---                        | ---                                  | ---                                 |
| TOTAL   | 2133                       | ---                                  | 472.25                              | 2827                       | ---                                  | 958.57                              | 2024                       | ---                                  | 644.48                              |

## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 15                         | 2                               | .09                                 | 18                         | 5                               | .26                                 | 28                         | 17                              | 1.3                                 |
| 2     | 17                         | 4                               | .18                                 | 14                         | 6                               | .24                                 | 378                        | 112                             | 176                                 |
| 3     | 21                         | 6                               | .36                                 | 13                         | 10                              | .35                                 | 99                         | 28                              | 11                                  |
| 4     | 243                        | 81                              | 124                                 | 12                         | 15                              | .49                                 | 37                         | 6                               | .62                                 |
| 5     | 43                         | 7                               | .96                                 | 11                         | 10                              | .29                                 | 41                         | 10                              | 1.7                                 |
| 6     | 25                         | 2                               | .13                                 | e46                        | 22                              | e1.7                                | 36                         | 20                              | 2.0                                 |
| 7     | 65                         | 12                              | 3.2                                 | e74                        | 45                              | e7.2                                | 315                        | 109                             | 178                                 |
| 8     | 56                         | 25                              | 5.1                                 | 40                         | 11                              | 1.4                                 | 162                        | 65                              | 43                                  |
| 9     | 47                         | 12                              | 1.7                                 | 94                         | 11                              | 9.4                                 | 80                         | 15                              | 3.2                                 |
| 10    | 42                         | 10                              | 1.4                                 | 29                         | 12                              | .99                                 | 39                         | 16                              | 1.7                                 |
| 11    | 23                         | 3                               | .18                                 | 17                         | 8                               | .34                                 | 28                         | 13                              | .95                                 |
| 12    | 43                         | 14                              | 3.1                                 | 15                         | 7                               | .28                                 | 23                         | 11                              | .71                                 |
| 13    | 20                         | 8                               | .51                                 | 17                         | 4                               | .20                                 | 112                        | 36                              | 22                                  |
| 14    | 26                         | 5                               | .95                                 | 15                         | 2                               | .10                                 | 60                         | 34                              | 6.6                                 |
| 15    | 99                         | 7                               | 10                                  | 15                         | 2                               | .10                                 | 491                        | 132                             | 362                                 |
| 16    | 67                         | 10                              | 5.1                                 | 36                         | 13                              | 2.3                                 | 114                        | 66                              | 22                                  |
| 17    | 53                         | 14                              | 3.2                                 | 65                         | 27                              | 7.2                                 | 48                         | 28                              | 3.8                                 |
| 18    | 41                         | 17                              | 1.8                                 | 29                         | 8                               | .75                                 | 64                         | 30                              | 7.5                                 |
| 19    | 101                        | 20                              | 10                                  | 45                         | 12                              | 4.7                                 | 192                        | 68                              | 54                                  |
| 20    | 54                         | 22                              | 3.0                                 | 46                         | 11                              | 1.7                                 | 58                         | 22                              | 3.6                                 |
| 21    | 41                         | 8                               | 1.0                                 | 143                        | 50                              | 33                                  | e762                       | 293                             | e2110                               |
| 22    | 26                         | 4                               | .35                                 | 50                         | 6                               | .74                                 | e452                       | 139                             | e239                                |
| 23    | 36                         | 15                              | 1.8                                 | 28                         | 4                               | .26                                 | e109                       | 36                              | e11                                 |
| 24    | 329                        | 88                              | 114                                 | 833                        | 337                             | 1650                                | e92                        | 31                              | e11                                 |
| 25    | 56                         | 4                               | .72                                 | 493                        | 156                             | 138                                 | e84                        | 29                              | e3.2                                |
| 26    | 31                         | 3                               | .27                                 | 102                        | 34                              | 11                                  | e80                        | 27                              | e3.2                                |
| 27    | 24                         | 5                               | .34                                 | 219                        | 69                              | 84                                  | e73                        | 26                              | e1.4                                |
| 28    | 22                         | 6                               | .34                                 | 61                         | 11                              | 2.1                                 | e69                        | 24                              | e3.8                                |
| 29    | 20                         | 4                               | .25                                 | 58                         | 17                              | 3.1                                 | 63                         | 22                              | 3.8                                 |
| 30    | 19                         | 4                               | .21                                 | 34                         | 6                               | .52                                 | 57                         | 21                              | 3.2                                 |
| 31    | 22                         | 4                               | .26                                 | 37                         | 9                               | .85                                 | ---                        | ---                             | ---                                 |
| TOTAL | 1727                       | ---                             | 294.50                              | 2709                       | ---                             | 1963.56                             | 4246                       | ---                             | 3291.28                             |
| YEAR  | 32708                      |                                 | 17386.11                            |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

|       |      | SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT                           |                                                                          |                                                                           |                                                                          |
|-------|------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|       |      |                                                                       |                                                                          |                                                                           |                                                                          |
| NOV   |      |                                                                       |                                                                          |                                                                           |                                                                          |
| 09... | 0930 | 840                                                                   | 177                                                                      | 401                                                                       | 100                                                                      |
| 26... | 1340 | 1940                                                                  | 231                                                                      | 1210                                                                      | 95                                                                       |
| MAY   |      |                                                                       |                                                                          |                                                                           |                                                                          |
| 08... | 1545 | 71                                                                    | 98                                                                       | 19                                                                        | 96                                                                       |
| 29... | 1915 | 490                                                                   | 181                                                                      | 239                                                                       | 99                                                                       |
| 30... | 1845 | 598                                                                   | 60                                                                       | 97                                                                        | 98                                                                       |
| AUG   |      |                                                                       |                                                                          |                                                                           |                                                                          |
| 24... | 1718 | 3880                                                                  | 1230                                                                     | 12900                                                                     | 88                                                                       |

## RIO FAJARDO BASIN

50072500 RIO FAJARDO BELOW FAJARDO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'35", Long 65°38'47", 1.2 mi (1.9 km) southwest of Playa de Fajardo, and 0.5 mi (0.8 km) east of Fajardo plaza.

DRAINAGE AREA.--23.4 mi<sup>2</sup> (60.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 27... | 1235 | 21                                              | 154                                     | 7.4                                            | 29.0                               | .60                       | 8.8                               | 114                                               | <10                                                  | 470                                                 | 200                                              |
| MAR 30... | 1045 | 31                                              | 129                                     | 6.8                                            | 25.5                               | 36                        | 8.4                               | 102                                               | <10                                                  | 2400                                                | 2200                                             |
| JUN 03... | 1100 | 50                                              | 125                                     | 7.0                                            | 28.5                               | 3.6                       | 8.6                               | 111                                               | <10                                                  | 340                                                 | 80                                               |
| AUG 25... | 1200 | 304                                             | 73                                      | 7.1                                            | 26.5                               | 52                        | 7.3                               | 91                                                | <10                                                  | 6000                                                | 5700                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 27... | 42                                      | 9.2                                     | 4.6                                         | 14                                      | .9                                | 1.3                                        | 46                                                  | <.5                               | 4.9                                      | 16                                         |
| MAR 30... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 48                                                  | --                                | --                                       | --                                         |
| JUN 03... | 33                                      | 7.1                                     | 3.8                                         | 11                                      | .8                                | 1.2                                        | 39                                                  | --                                | 4.0                                      | 13                                         |
| AUG 25... | 16                                      | 3.5                                     | 1.8                                         | 6.9                                     | .7                                | 1.6                                        | 45                                                  | <1.0                              | 3.6                                      | 8.8                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 27... | <.10                                      | 19                                        | 96                                                      | 5.40                                      | <1                                                     | --                                           | <.010                                        | .060                                         | .020                                         | --                                           |
| MAR 30... | --                                        | --                                        | --                                                      | --                                        | 17                                                     | --                                           | --                                           | --                                           | --                                           | --                                           |
| JUN 03... | <.10                                      | 22                                        | 85                                                      | 11.6                                      | 2                                                      | --                                           | <.010                                        | .180                                         | .010                                         | --                                           |
| AUG 25... | <.10                                      | 13                                        | 66                                                      | 53.9                                      | 40                                                     | .219                                         | .011                                         | .230                                         | .060                                         | .41                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 27... | <.20                                                    | --                                   | --                                     | .040                                  | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| MAR 30... | --                                                      | --                                   | --                                     | --                                    | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 03... | <.20                                                    | --                                   | --                                     | <.020                                 | <1                                 | <100                                            | 30                                            | <1                                               | <1                                                 | <10                                             |
| AUG 25... | .47                                                     | .70                                  | 3.1                                    | .070                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO FAJARDO BASIN

50072500 RIO FAJARDO BELOW FAJARDO, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO BLANCO BASIN

50074950 QUEBRADA GUABA NEAR NAGUABO, PR

LOCATION.--Lat 18°17'02", long 65°47'20", Hydrologic Unit 21010005, on right bank, off Highway 191 at El Yunque Caribbean National Forest, 4.8 mi (7.7 km) southeast of Campamento Eliza Colberg, 1.3 mi (2.1 km) southeast of Mt. Britton, 2.0 mi (3.2 km) northwest of Pico del Este and 7.3 mi (11.7 km) southeast of Rio Grande Plaza.

DRAINAGE AREA.--0.05 mi<sup>2</sup> (0.13 km<sup>2</sup>).

PERIOD OF RECORD.--June 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,100 ft (640 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB  | MAR  | APR  | MAY   | JUN  | JUL   | AUG   | SEP   |
|-------|-------|-------|-------|-------|------|------|------|-------|------|-------|-------|-------|
| 1     | .35   | e.55  | .48   | .92   | .35  | .13  | .18  | .12   | .31  | .18   | .23   | .43   |
| 2     | 2.3   | e.41  | .45   | .61   | .32  | .11  | .35  | .13   | .27  | .18   | .21   | 1.1   |
| 3     | .57   | e.44  | .41   | .91   | .28  | .10  | .13  | .25   | .28  | .22   | .21   | .42   |
| 4     | .44   | e.50  | .37   | .70   | 1.3  | .09  | .11  | .51   | .24  | .32   | .20   | .37   |
| 5     | .43   | e.56  | .39   | .60   | 1.7  | .09  | .11  | .17   | .24  | .20   | .20   | .38   |
| 6     | .34   | e.62  | .35   | 1.6   | .37  | .10  | .08  | .16   | .27  | .26   | e.45  | .43   |
| 7     | .34   | e.37  | .34   | 3.4   | .30  | .29  | .14  | .18   | .19  | .35   | e.68  | 1.0   |
| 8     | 1.7   | e.84  | .34   | .85   | .45  | .20  | .14  | .80   | .20  | .28   | .40   | .44   |
| 9     | .54   | e1.0  | .33   | .95   | .34  | .12  | .09  | .32   | .55  | .32   | .55   | .40   |
| 10    | .41   | e2.5  | .27   | 1.1   | .27  | .10  | .08  | .19   | .22  | .24   | .30   | .35   |
| 11    | 1.3   | e.40  | .25   | .63   | .30  | .09  | .10  | .17   | .15  | .22   | .24   | .33   |
| 12    | .80   | e.30  | .27   | .52   | .27  | .09  | .40  | .17   | 1.4  | .21   | .28   | .39   |
| 13    | 4.4   | .28   | .27   | .64   | .24  | .09  | .23  | .79   | .30  | .19   | .25   | 1.0   |
| 14    | 4.0   | .26   | .27   | .58   | .21  | .25  | .12  | .91   | .22  | .36   | .22   | .54   |
| 15    | e.80  | .28   | .23   | .57   | .18  | .18  | .11  | .70   | .20  | .63   | .22   | 1.4   |
| 16    | e.76  | .45   | .23   | .49   | .16  | .12  | 1.9  | .46   | .23  | .34   | .32   | .48   |
| 17    | e.70  | .46   | .30   | .46   | .14  | .10  | .21  | .40   | .26  | .32   | .26   | .41   |
| 18    | e.78  | .67   | .40   | .46   | .14  | .10  | .25  | .30   | e.35 | .29   | .23   | .46   |
| 19    | e.70  | .40   | .29   | .41   | .11  | .10  | .39  | .28   | .25  | .44   | .85   | .45   |
| 20    | e.68  | .31   | .34   | .41   | .11  | .47  | .23  | e.42  | .24  | .35   | .34   | .50   |
| 21    | e.67  | .57   | .41   | .38   | .11  | .16  | .14  | e.25  | .29  | .30   | .77   | 14    |
| 22    | e.65  | .35   | .27   | .35   | .10  | .18  | .12  | e.22  | .25  | .25   | .38   | 6.0   |
| 23    | e.60  | .30   | .52   | .31   | .10  | .13  | .11  | e.24  | .23  | .33   | .28   | .86   |
| 24    | e.54  | .38   | .39   | .31   | .08  | .10  | .10  | e.25  | .22  | 1.6   | 2.9   | .68   |
| 25    | e.45  | .31   | .35   | .30   | .09  | .15  | .12  | e.31  | .21  | .37   | 1.5   | .65   |
| 26    | e.43  | 3.3   | .30   | .28   | .10  | .20  | .13  | .92   | .20  | .32   | .52   | .62   |
| 27    | e.40  | .50   | .28   | .30   | .12  | .30  | .22  | .50   | .22  | .31   | .48   | .64   |
| 28    | e.40  | .41   | .25   | .29   | .13  | .16  | .18  | .29   | .22  | .29   | .41   | .61   |
| 29    | e.38  | .47   | .22   | .29   | ---  | .12  | .14  | .78   | .19  | .27   | .45   | .51   |
| 30    | e.40  | .61   | .22   | .33   | ---  | .23  | .15  | .67   | .18  | .27   | .41   | .53   |
| 31    | e.39  | ---   | .37   | .40   | ---  | .16  | ---  | .48   | ---  | .32   | .38   | ---   |
| TOTAL | 27.65 | 18.80 | 10.16 | 20.35 | 8.37 | 4.81 | 6.76 | 12.34 | 8.58 | 10.53 | 15.12 | 36.38 |
| MEAN  | .89   | .63   | .33   | .66   | .30  | .16  | .23  | .40   | .29  | .34   | .49   | 1.21  |
| MAX   | 4.4   | 3.3   | .52   | 3.4   | 1.7  | .47  | 1.9  | .92   | 1.4  | 1.6   | 2.9   | 14    |
| MIN   | .34   | .26   | .22   | .28   | .08  | .09  | .08  | .12   | .15  | .18   | .20   | .33   |
| AC-FT | 55    | 37    | 20    | 40    | 17   | 9.5  | 13   | 24    | 17   | 21    | 30    | 72    |
| CFSM  | 7.43  | 5.22  | 2.73  | 5.47  | 2.49 | 1.29 | 1.88 | 3.32  | 2.38 | 2.83  | 4.06  | 10.1  |
| IN.   | 8.57  | 5.83  | 3.15  | 6.31  | 2.59 | 1.49 | 2.10 | 3.83  | 2.66 | 3.26  | 4.69  | 11.28 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

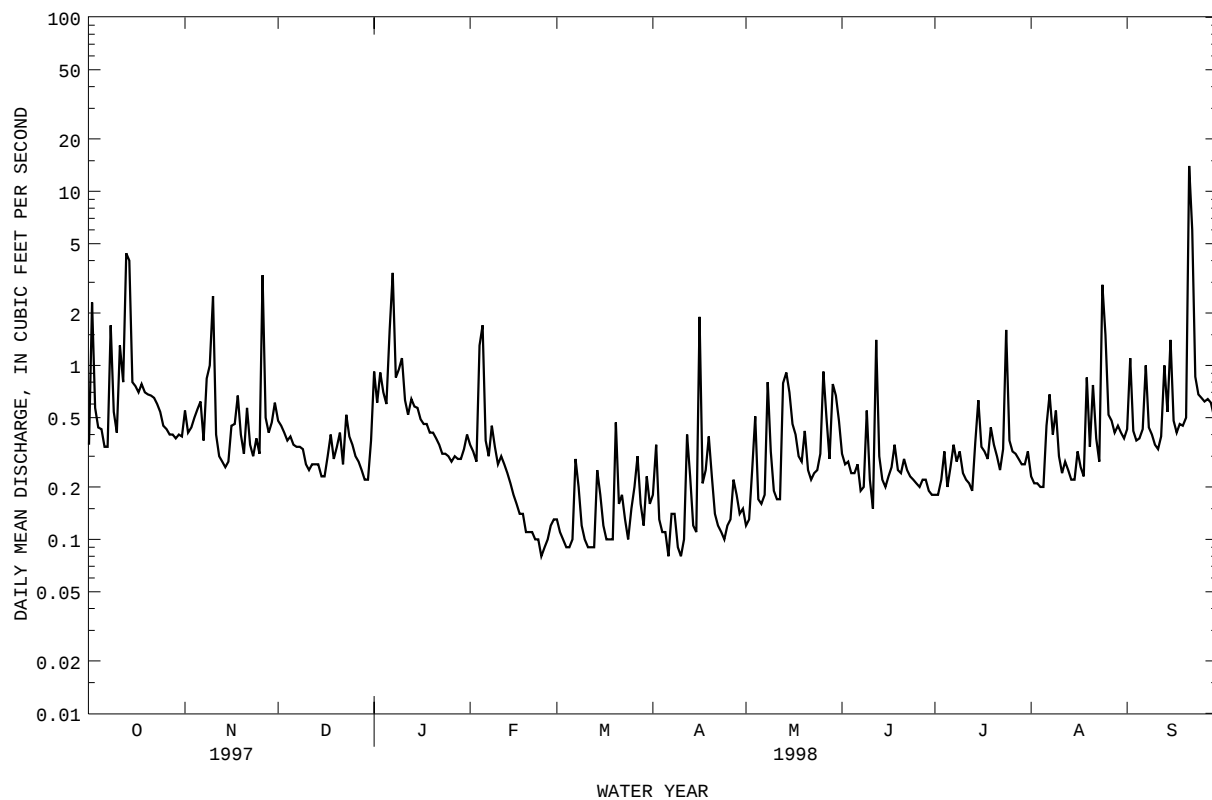
|      | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|------|------|------|------|------|------|------|------|
| MEAN | .42  | .51  | .39  | .50  | .41  | .26  | .27  |
| MAX  | .89  | .76  | .61  | .67  | .60  | .30  | .33  |
| (WY) | 1998 | 1993 | 1993 | 1997 | 1994 | 1995 | 1994 |
| MIN  | .25  | .32  | .22  | .28  | .30  | .16  | .21  |
| (WY) | 1993 | 1995 | 1994 | 1994 | 1998 | 1995 | 1996 |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1992 - 1998

|                          | 1997 CALENDAR YEAR | 1998 WATER YEAR | WATER YEARS 1992 - 1998 |
|--------------------------|--------------------|-----------------|-------------------------|
| ANNUAL TOTAL             | 162.95             | 179.85          |                         |
| ANNUAL MEAN              | .45                | .49             | .42                     |
| HIGHEST ANNUAL MEAN      |                    |                 | .49                     |
| LOWEST ANNUAL MEAN       |                    |                 | .32                     |
| HIGHEST DAILY MEAN       | 5.3 Jun 2          | 14 Sep 21       | 23 Sep 10 1996          |
| LOWEST DAILY MEAN        | .08 May 5          | .08 Feb 24      | .08 May 5 1997          |
| ANNUAL SEVEN-DAY MINIMUM | .09 Apr 30         | .10 Feb 20      | .09 Apr 30 1997         |
| INSTANTANEOUS PEAK FLOW  |                    | 104 Sep 21      | 104 Sep 21 1998         |
| INSTANTANEOUS PEAK STAGE |                    | 10.78 Sep 21    | 10.78 Sep 21 1998       |
| INSTANTANEOUS LOW FLOW   |                    |                 | .05 May 1 1997          |
| ANNUAL RUNOFF (AC-FT)    | 323                | 357             | 301                     |
| ANNUAL RUNOFF (CFSM)     | 3.72               | 4.11            | 3.47                    |
| ANNUAL RUNOFF (INCHES)   | 50.51              | 55.75           | 47.11                   |
| 10 PERCENT EXCEEDS       | .70                | .79             | .71                     |
| 50 PERCENT EXCEEDS       | .34                | .32             | .29                     |
| 90 PERCENT EXCEEDS       | .16                | .12             | .15                     |

e Estimated

RIO BLANCO BASIN  
50074950 QUEBRADA GUABA NEAR NAGUABO, PR--Continued



## RIO BLANCO BASIN

50075000 RIO ICACOS NEAR NAGUABO, PR

LOCATION.--Lat 18°16'38", long 65°47'09", Hydrologic Unit 21010005, in Caribbean National Forest, at Highway 191, at El Yunque, 1.6 mi (2.6 km) upstream from confluence with Rio Cubuy, 2.8 mi (4.5 km) north of Florida, and 5.3 mi (8.5 km) northwest of Naguabo Plaza.

DRAINAGE AREA.--1.26 mi<sup>2</sup> (3.26 km<sup>2</sup>).

PERIOD OF RECORD.--July 1945 to March 1953 (operated by Puerto Rico Water Resources Authority), annual maximum, water years 1953-62, annual low-flow measurements 1962-66, October 1979 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested weir. Elevation of gage is 2,020 ft (616 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1     | 6.4   | 11    | 11    | 32    | 5.7   | 4.7   | 10    | 5.8   | 12    | 4.5   | 6.0   | 14    |
| 2     | 81    | 6.1   | 9.0   | 17    | 5.7   | 4.6   | 21    | 5.5   | 8.9   | 4.3   | 5.6   | 54    |
| 3     | 11    | 6.7   | 8.0   | 28    | 5.7   | 4.6   | 7.6   | 11    | 7.7   | 6.0   | 5.2   | 15    |
| 4     | 8.0   | 8.8   | 6.8   | 25    | 20    | 4.5   | 5.7   | 21    | 6.9   | 21    | 5.0   | 11    |
| 5     | 6.6   | 9.9   | 6.4   | 18    | 92    | 4.4   | 5.1   | 7.1   | 6.7   | 9.0   | 5.0   | 14    |
| 6     | 5.8   | 12    | 5.7   | 65    | 8.8   | 5.1   | 4.5   | 6.0   | 10    | 15    | 19    | e26   |
| 7     | 6.1   | 5.5   | 5.7   | 131   | 6.6   | 27    | 7.2   | 5.7   | 6.9   | 22    | 36    | e103  |
| 8     | 70    | 17    | 5.1   | 23    | 16    | 9.0   | 6.8   | 33    | 9.8   | 17    | 25    | e32   |
| 9     | 21    | 23    | 5.1   | 26    | 9.7   | 5.8   | 4.5   | 11    | 32    | 19    | 34    | e44   |
| 10    | 10    | 87    | 5.1   | 39    | 6.2   | 5.7   | 4.2   | 8.7   | 10    | 11    | 13    | e22   |
| 11    | 41    | 7.4   | 4.8   | 15    | 8.8   | 5.4   | 4.1   | 7.5   | 6.7   | 6.6   | 8.7   | e12   |
| 12    | 16    | 6.0   | 4.5   | 14    | 8.6   | 5.4   | 21    | 8.2   | 85    | 5.0   | 11    | 13    |
| 13    | 132   | 5.8   | 4.7   | 22    | 6.5   | 5.9   | 10    | 29    | 22    | 4.7   | 9.3   | 52    |
| 14    | 152   | 5.7   | 4.8   | 17    | 9.6   | 17    | 4.6   | 31    | 10    | 14    | 7.1   | 32    |
| 15    | 16    | 7.8   | 4.5   | 11    | 7.2   | 10    | 5.1   | 23    | 7.3   | 28    | 6.6   | 70    |
| 16    | 15    | 23    | 4.6   | 9.5   | 6.4   | 6.7   | 92    | 12    | 12    | 21    | 20    | e17   |
| 17    | 12    | 26    | 7.7   | 9.0   | 6.3   | 6.0   | 11    | 9.4   | 7.9   | 16    | 18    | 11    |
| 18    | 18    | 35    | 11    | 8.5   | 6.0   | 5.9   | 18    | 6.9   | 14    | 14    | 9.6   | 17    |
| 19    | 12    | 15    | 4.1   | 8.8   | 5.7   | 5.7   | 32    | 7.4   | 6.9   | 24    | 31    | e15   |
| 20    | 11    | 10    | 8.4   | 8.2   | 5.7   | 30    | 15    | 17    | 6.0   | 21    | 15    | 18    |
| 21    | 11    | 27    | 15    | 8.0   | 5.7   | 8.2   | 7.2   | 9.4   | 12    | 13    | 39    | 254   |
| 22    | 10    | 11    | 4.9   | 8.0   | 5.4   | 8.9   | 6.1   | 6.5   | 8.6   | 11    | 17    | 158   |
| 23    | 8.5   | 7.9   | 9.8   | 7.3   | 5.1   | 5.4   | 7.2   | 7.1   | 6.0   | 14    | 6.5   | 24    |
| 24    | 7.2   | 16    | 4.8   | 7.2   | 5.1   | 4.5   | 5.8   | 7.5   | 5.8   | 72    | 117   | 16    |
| 25    | 7.2   | 11    | 4.3   | 7.2   | 4.9   | 7.4   | 5.9   | 9.4   | 6.0   | 12    | e72   | 15    |
| 26    | 7.0   | 139   | 4.0   | 7.0   | 4.8   | 9.4   | 5.8   | 42    | 6.4   | 8.3   | e25   | 14    |
| 27    | 6.4   | 14    | 4.2   | 6.6   | 4.5   | 11    | 14    | 19    | 7.4   | 7.7   | 23    | 12    |
| 28    | 6.4   | 11    | 4.4   | 6.4   | 4.6   | 5.9   | 10    | 6.6   | 7.8   | 7.8   | 14    | 11    |
| 29    | 6.0   | 16    | 4.5   | 6.4   | ---   | 4.5   | 6.5   | 36    | 5.1   | 6.4   | 14    | 10    |
| 30    | 6.2   | 18    | 4.5   | 5.9   | ---   | 22    | 6.1   | 40    | 4.7   | 6.3   | 12    | 10    |
| 31    | 6.0   | ---   | 8.5   | 6.0   | ---   | 7.8   | ---   | 25    | ---   | 10    | 10    | ---   |
| TOTAL | 732.8 | 599.6 | 195.9 | 603.0 | 287.3 | 268.4 | 364.0 | 474.7 | 358.5 | 451.6 | 639.6 | 1116  |
| MEAN  | 23.6  | 20.0  | 6.32  | 19.5  | 10.3  | 8.66  | 12.1  | 15.3  | 11.9  | 14.6  | 20.6  | 37.2  |
| MAX   | 152   | 139   | 15    | 131   | 92    | 30    | 92    | 42    | 85    | 72    | 117   | 254   |
| MIN   | 5.8   | 5.5   | 4.0   | 5.9   | 4.5   | 4.4   | 4.1   | 5.5   | 4.7   | 4.3   | 5.0   | 10    |
| AC-FT | 1450  | 1190  | 389   | 1200  | 570   | 532   | 722   | 942   | 711   | 896   | 1270  | 2210  |
| CFSM  | 18.8  | 15.9  | 5.02  | 15.4  | 8.14  | 6.87  | 9.63  | 12.2  | 9.48  | 11.6  | 16.4  | 29.5  |
| IN.   | 21.64 | 17.70 | 5.78  | 17.80 | 8.48  | 7.92  | 10.75 | 14.01 | 10.58 | 13.33 | 18.88 | 32.95 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1998, BY WATER YEAR (WY)

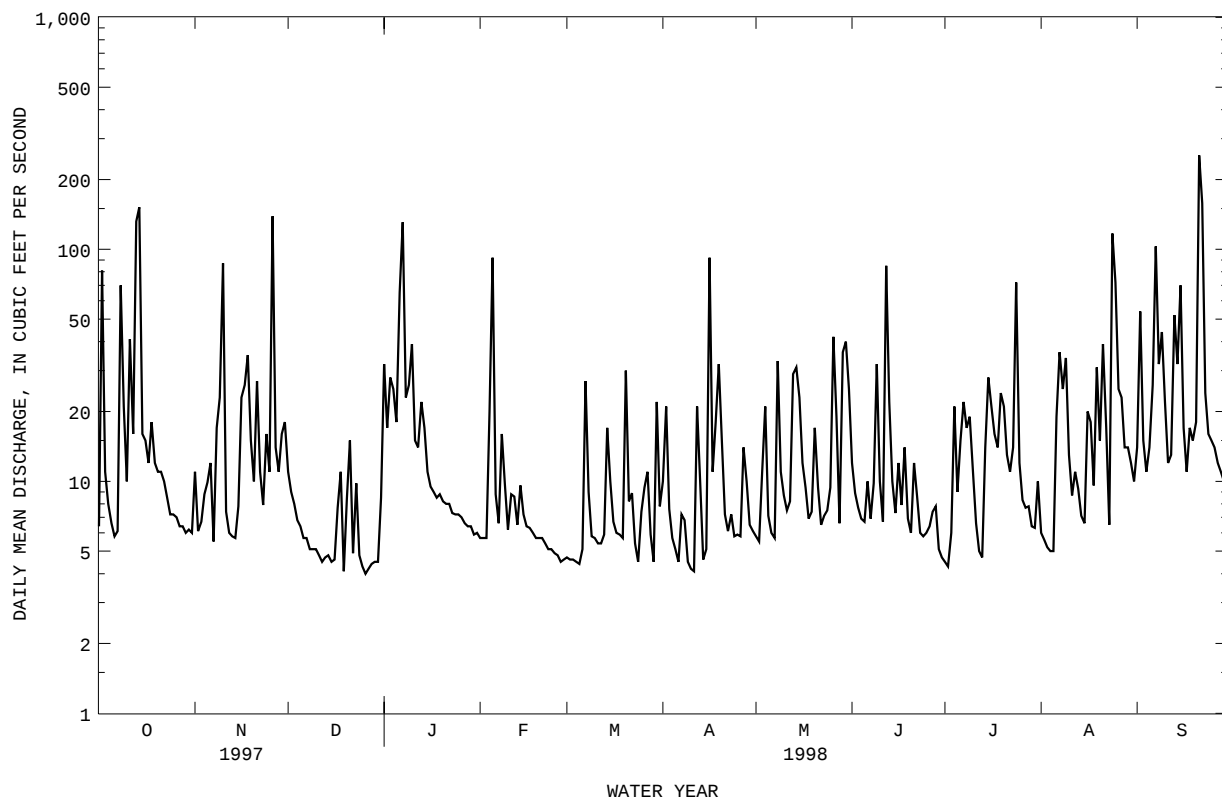
|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 15.6 | 19.1 | 15.2 | 14.2 | 14.3 | 10.5 | 12.1 | 16.4 | 12.7 | 13.8 | 14.9 | 18.7 |
| MAX  | 32.1 | 46.9 | 31.3 | 28.4 | 44.0 | 26.2 | 34.4 | 26.6 | 23.7 | 39.0 | 24.5 | 51.7 |
| (WY) | 1986 | 1951 | 1988 | 1996 | 1950 | 1949 | 1950 | 1948 | 1996 | 1952 | 1945 | 1996 |
| MIN  | 4.78 | 8.03 | 4.99 | 6.65 | 4.86 | 3.90 | 4.77 | 6.84 | 5.19 | 7.21 | 5.91 | 7.03 |
| (WY) | 1993 | 1948 | 1990 | 1994 | 1983 | 1951 | 1984 | 1994 | 1985 | 1994 | 1993 | 1986 |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1945 - 1998

|                          |        |        |        |
|--------------------------|--------|--------|--------|
| ANNUAL TOTAL             | 6106.0 | 6091.4 |        |
| ANNUAL MEAN              | 16.7   | 16.7   | 14.8   |
| HIGHEST ANNUAL MEAN      |        |        | 21.1   |
| LOWEST ANNUAL MEAN       |        |        | 8.00   |
| HIGHEST DAILY MEAN       | 172    | Jun 2  | 737    |
| LOWEST DAILY MEAN        | 2.7    | Jul 11 | 1.5    |
| ANNUAL SEVEN-DAY MINIMUM | 3.2    | Jul 6  | 2.0    |
| INSTANTANEOUS PEAK FLOW  |        |        | 2180   |
| INSTANTANEOUS PEAK STAGE |        |        | 8.14   |
| INSTANTANEOUS LOW FLOW   |        |        | 3.5    |
| ANNUAL RUNOFF (AC-FT)    | 12110  | 12080  | 10700  |
| ANNUAL RUNOFF (CFSM)     | 13.3   | 13.2   | 11.7   |
| ANNUAL RUNOFF (INCHES)   | 180.27 | 179.84 | 159.31 |
| 10 PERCENT EXCEEDS       | 31     | 31     | 29     |
| 50 PERCENT EXCEEDS       | 10     | 9.0    | 8.4    |
| 90 PERCENT EXCEEDS       | 4.8    | 5.0    | 4.6    |

e Estimated

RIO BLANCO BASIN  
50075000 RIO ICACOS NEAR NAGUABO, PR



66°06'33"

66°53'19"

# EXPLANATION

- 0920 ▲ SURFACE-WATER STATION AND NUMBER
- 0920 ▼ QUALITY-OF-WATER STATION AND NUMBER
- HW-TW-01 ● WELL AND WELL NUMBER
- 093050 △ LAKE-ELEVATION STATION AND NUMBER
- TOWN OR CITY
- TUNNEL FLOW DIRECTION
- CHANNELS FLOW DIRECTION
- DRAINAGE BASIN BOUNDARY

18°08'59"

CAYEY

17°57'

CARIBBEAN SEA

0 1 2 3 4 5 KILOMETERS  
0 1 2 3 4 5 MILES

Figure 20. Southeastern river basins -- Río Humacao to Quebrada Aguas Verdes basins.

## RIO HUMACAO BASIN

50081000 RIO HUMACAO AT LAS PIEDRAS, PR

LOCATION.--Lat 18°10'27", long 65°52'11", Hydrologic unit 21010005, on left bank at downstream side of bridge on Highway 921, 0.6 mi (1.0 km) southeast of junction with Highway 30, 0.8 mi (1.3 km) downstream from Quebrada Blanca and 0.8 mi (1.3 km) south of Las Piedras.

DRAINAGE AREA.--6.65 mi<sup>2</sup> (17.22 km<sup>2</sup>).

PERIOD OF RECORD.--September 1958 to December 1967 (monthly discharge measurements), July 1974 to September 1977, October 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (79 m), from topographic map. Prior to July 1974, crest-stage gage at different datum. July 1974 to September 1977 at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair except those for estimated daily discharges, and above 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s), which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR   | MAY   | JUN   | JUL   | AUG    | SEP   |
|-------|------|------|------|------|------|------|-------|-------|-------|-------|--------|-------|
| 1     | 17   | 20   | 20   | 15   | 18   | 13   | 14    | 9.8   | 11    | 10    | 9.6    | 19    |
| 2     | 112  | 19   | 17   | 20   | 18   | 13   | 13    | 9.5   | 12    | 9.6   | 9.2    | 20    |
| 3     | 24   | 19   | 16   | 16   | 18   | 14   | 12    | 11    | 9.9   | 11    | 9.2    | 28    |
| 4     | 21   | 18   | 16   | 20   | 19   | 13   | 12    | 13    | 10    | 27    | 9.1    | 22    |
| 5     | 19   | 18   | 16   | 15   | 168  | 13   | 13    | 12    | 10    | 21    | 9.1    | 19    |
| 6     | 18   | 18   | 16   | 166  | 23   | 13   | 12    | 11    | 10    | 12    | 9.0    | 93    |
| 7     | 18   | 18   | 15   | 211  | 18   | 27   | 12    | 11    | 9.7   | 13    | 9.2    | 29    |
| 8     | 17   | 19   | 15   | 54   | 19   | 18   | 12    | 12    | 12    | 12    | 9.2    | 118   |
| 9     | 17   | 26   | 15   | 71   | 19   | 13   | 11    | 12    | 12    | 23    | 15     | 38    |
| 10    | 17   | 170  | 14   | 85   | 18   | 12   | 10    | 11    | 11    | 12    | 12     | e31   |
| 11    | 17   | 25   | 14   | 32   | 17   | 12   | 10    | 10    | 11    | 11    | 12     | 22    |
| 12    | 40   | 22   | 15   | 38   | e16  | 12   | 13    | 11    | 16    | 12    | 12     | e20   |
| 13    | 104  | 28   | 14   | 29   | e16  | 12   | 10    | 12    | 14    | 11    | 11     | 68    |
| 14    | 567  | 21   | 14   | 27   | e18  | 14   | 9.6   | 11    | 11    | 14    | 11     | 56    |
| 15    | 50   | 20   | 14   | 24   | e17  | 13   | 9.4   | 9.8   | 10    | 14    | 12     | 72    |
| 16    | 33   | 21   | 15   | 23   | e17  | 12   | 13    | 10    | 11    | 11    | 13     | 42    |
| 17    | 27   | 20   | 17   | 22   | e17  | 12   | 11    | 9.5   | 11    | 13    | 50     | 31    |
| 18    | 25   | 19   | 18   | 22   | e17  | 11   | 9.5   | 9.8   | e31   | 16    | 21     | 32    |
| 19    | 24   | 20   | 14   | 21   | e16  | 12   | 11    | 9.6   | e21   | 16    | 14     | 36    |
| 20    | 23   | 20   | 14   | 21   | e16  | 13   | 18    | 14    | 13    | 89    | 23     | 37    |
| 21    | 22   | 23   | 15   | 21   | e16  | 13   | 12    | 11    | 15    | 26    | 20     | e316  |
| 22    | 21   | 28   | 14   | 21   | e15  | 12   | 11    | 10    | 19    | 14    | 34     | 591   |
| 23    | 21   | 20   | 14   | 20   | e15  | 12   | 10    | 16    | 12    | 12    | 16     | 90    |
| 24    | 21   | 21   | 15   | 20   | e14  | 11   | 9.9   | 12    | 11    | 16    | 228    | e63   |
| 25    | 22   | 19   | 13   | 20   | e14  | 13   | 9.6   | 9.7   | 19    | 12    | e235   | e54   |
| 26    | 20   | 146  | 13   | 20   | e14  | 12   | 10    | 11    | 14    | 11    | e59    | 52    |
| 27    | 20   | 28   | 12   | 19   | 14   | 13   | 10    | 17    | 12    | 13    | 28     | 50    |
| 28    | 19   | 21   | 12   | 19   | 14   | 12   | 17    | 10    | 12    | 18    | 21     | 49    |
| 29    | 19   | 20   | 12   | 19   | ---  | 13   | 11    | 12    | 11    | 12    | 51     | 45    |
| 30    | 19   | 20   | 13   | 19   | ---  | 33   | 10    | 157   | 10    | 11    | 22     | 43    |
| 31    | 19   | ---  | 12   | 19   | ---  | 24   | ---   | 17    | ---   | 11    | 20     | ---   |
| TOTAL | 1413 | 907  | 454  | 1149 | 621  | 440  | 346.0 | 501.7 | 391.6 | 513.6 | 1013.6 | 2186  |
| MEAN  | 45.6 | 30.2 | 14.6 | 37.1 | 22.2 | 14.2 | 11.5  | 16.2  | 13.1  | 16.6  | 32.7   | 72.9  |
| MAX   | 567  | 170  | 20   | 211  | 168  | 33   | 18    | 157   | 31    | 89    | 235    | 591   |
| MIN   | 17   | 18   | 12   | 15   | 14   | 11   | 9.4   | 9.5   | 9.7   | 9.6   | 9.0    | 19    |
| AC-FT | 2800 | 1800 | 901  | 2280 | 1230 | 873  | 686   | 995   | 777   | 1020  | 2010   | 4340  |
| CFSM  | 6.85 | 4.55 | 2.20 | 5.57 | 3.34 | 2.13 | 1.73  | 2.43  | 1.96  | 2.49  | 4.92   | 11.0  |
| IN.   | 7.90 | 5.07 | 2.54 | 6.43 | 3.47 | 2.46 | 1.94  | 2.81  | 2.19  | 2.87  | 5.67   | 12.23 |

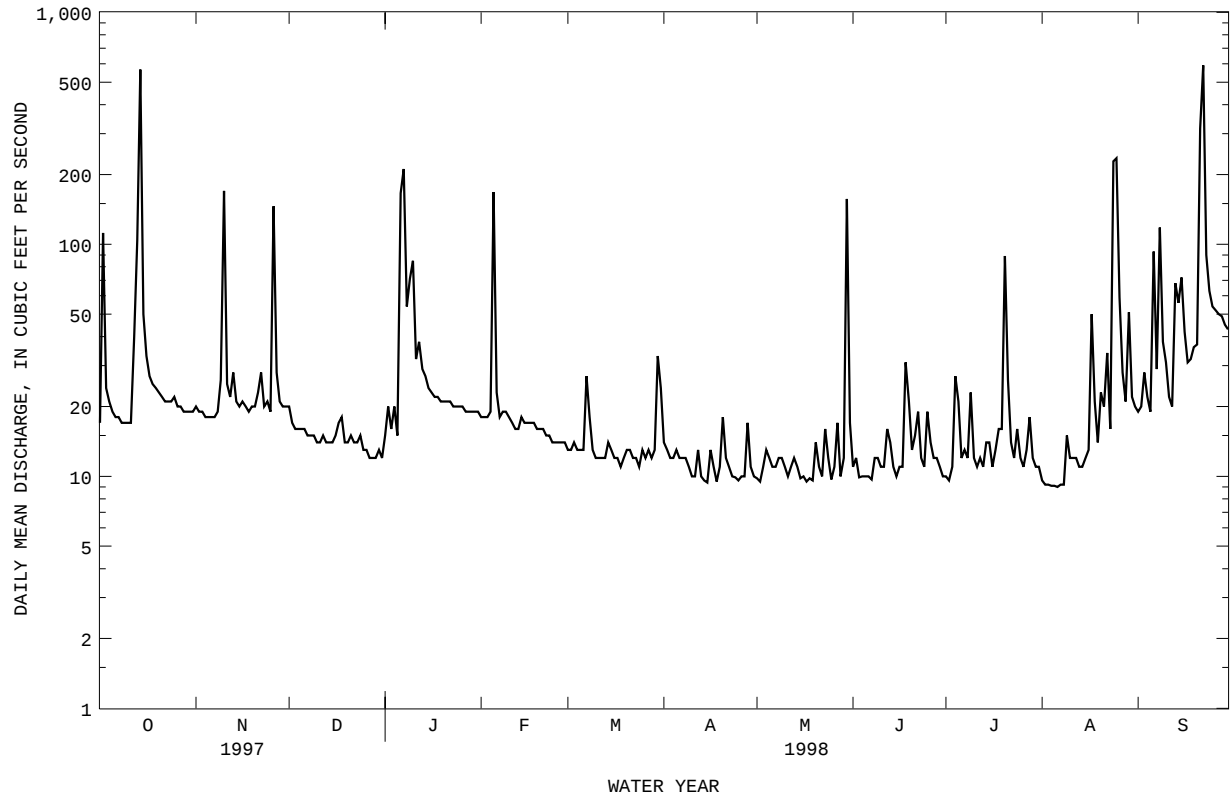
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 29.7 | 36.4 | 28.9 | 20.2 | 16.2 | 11.8 | 9.75 | 14.1 | 17.2 | 19.5 | 20.9 | 38.9 |
| MAX  | 74.9 | 126  | 112  | 37.1 | 22.2 | 16.4 | 15.1 | 42.2 | 41.1 | 38.1 | 34.7 | 121  |
| (WY) | 1975 | 1988 | 1988 | 1988 | 1997 | 1989 | 1997 | 1992 | 1996 | 1993 | 1996 | 1996 |
| MIN  | 12.8 | 13.4 | 11.5 | 10.5 | 11.0 | 8.87 | 5.88 | 7.26 | 5.91 | 7.95 | 9.45 | 10.0 |
| (WY) | 1995 | 1996 | 1992 | 1995 | 1977 | 1996 | 1977 | 1990 | 1977 | 1990 | 1974 | 1990 |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1974 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 7598.6                 | 9936.5              |                         |
| ANNUAL MEAN              | 20.8                   | 27.2                | 22.1                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 37.6                    |
| LOWEST ANNUAL MEAN       |                        |                     | 12.1                    |
| HIGHEST DAILY MEAN       | 567                    | Oct 14              | 2010                    |
| LOWEST DAILY MEAN        | 6.3                    | Jul 15              | 2.2                     |
| ANNUAL SEVEN-DAY MINIMUM | 7.0                    | Jun 29              | 9.1                     |
| INSTANTANEOUS PEAK FLOW  |                        |                     | 2180                    |
| INSTANTANEOUS PEAK STAGE |                        |                     | 6.57                    |
| ANNUAL RUNOFF (AC-FT)    | 15070                  | 19710               | 16020                   |
| ANNUAL RUNOFF (CFSM)     | 3.13                   | 4.09                | 3.32                    |
| ANNUAL RUNOFF (INCHES)   | 42.51                  | 55.58               | 45.18                   |
| 10 PERCENT EXCEEDS       | 25                     | 39                  | 32                      |
| 50 PERCENT EXCEEDS       | 15                     | 16                  | 13                      |
| 90 PERCENT EXCEEDS       | 9.1                    | 10                  | 7.3                     |

e Estimated

RIO HUMACAO BASIN  
50081000 RIO HUMACAO AT LAS PIEDRAS, PR--Continued



## RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°08'49", Long 65°49'37", at bridge on Highway 3, 300 ft (91 m) downstream from Quebrada Mariana, and 0.4 mi (0.6 km) south of Humacao.

DRAINAGE AREA.--17.3 mi<sup>2</sup> (44.8 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-66, 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| NOV 06... | 1150 | 26                                              | 321                                     | 6.9                                            | 28.5                               | 73                        | 7.0                               | 90                                                | <10                                                  | 4500                                                | 3800                                            |
| MAR 09... | 1120 | 22                                              | 300                                     | 7.1                                            | 27.0                               | 19                        | 7.6                               | 95                                                | <10                                                  | 420                                                 | 520                                             |
| MAY 18... | 1120 | 10                                              | 379                                     | 7.0                                            | 29.0                               | 3.1                       | 7.0                               | 91                                                | <10                                                  | K6100                                               | 270                                             |
| AUG 18... | 1020 | 23                                              | 237                                     | 6.6                                            | 27.7                               | 59                        | 6.7                               | 85                                                | <10                                                  | K15000                                              | 2400                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 06... | 100                                     | 29                                      | 8.0                                         | 9.2                                     | .4                                | 2.5                                        | 106                                                 | <.5                               | 18                                       | 10                                         |
| MAR 09... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 110                                                 | --                                | --                                       | --                                         |
| MAY 18... | 110                                     | 33                                      | 7.9                                         | 30                                      | 1                                 | 1.8                                        | 120                                                 | --                                | 12                                       | 42                                         |
| AUG 18... | 67                                      | 19                                      | 5.1                                         | 18                                      | 1                                 | 3.3                                        | 79                                                  | <1.0                              | 8.3                                      | 26                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 06... | <.10                                      | 28                                        | 162                                                     | 11.4                                      | 42                                                     | .584                                         | .026                                         | .610                                         | .080                                         | .13                                          |
| MAR 09... | --                                        | --                                        | --                                                      | --                                        | 38                                                     | .700                                         | .010                                         | .710                                         | .060                                         | .19                                          |
| MAY 18... | .18                                       | 41                                        | 240                                                     | 6.54                                      | <1                                                     | .328                                         | .012                                         | .340                                         | .010                                         | --                                           |
| AUG 18... | <.10                                      | 29                                        | 155                                                     | 9.80                                      | 62                                                     | .494                                         | .026                                         | .520                                         | .100                                         | .40                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 06... | .21                                                     | .82                                  | 3.6                                    | 1.70                                  | <1                                 | <100                                            | 60                                            | <1                                               | <1                                                 | <10                                             |
| MAR 09... | .25                                                     | .96                                  | 4.2                                    | .070                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 18... | <.20                                                    | --                                   | --                                     | .050                                  | <1                                 | <100                                            | 40                                            | <1                                               | <1                                                 | <10                                             |
| AUG 18... | .50                                                     | 1.0                                  | 4.5                                    | .080                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'33", Long 65°54'03", at bridge on Highway 182, 1.4 mi (2.2 km) west-northwest of Yabucoa plaza.

DRAINAGE AREA.--17.2 mi<sup>2</sup> (44.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-62, 1968-70, 1980 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | TIME   | DIS-CHARGE,<br>INST. CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)                 | SPE-CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095)      | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010)                                       | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076)                      | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300)                              | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) |                                                                    |
|--------------|--------|--------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|
|              |        |                                                                                |                                                               |                                                                      |                                                                                       |                                                              |                                                                             |                                                                           |                                                                            |                                                                            |                                                                    |
| NOV<br>06... | 1010   | 39                                                                             | 187                                                           | 6.8                                                                  | 24.5                                                                                  | 4.9                                                          | 7.2                                                                         | 86                                                                        | 10                                                                         | 2800                                                                       |                                                                    |
| MAR<br>06... | 0930   | 30                                                                             | 190                                                           | 7.0                                                                  | 23.5                                                                                  | 4.7                                                          | 7.4                                                                         | 87                                                                        | <10                                                                        | 4000                                                                       |                                                                    |
| MAY<br>18... | 0925   | 22                                                                             | 189                                                           | 7.0                                                                  | 26.0                                                                                  | 9.0                                                          | 6.9                                                                         | 84                                                                        | <10                                                                        | K860                                                                       |                                                                    |
| AUG<br>28... | 1045   | 63                                                                             | 157                                                           | 6.6                                                                  | 26.0                                                                                  | 14                                                           | 6.5                                                                         | 81                                                                        | <10                                                                        | 2200                                                                       |                                                                    |
| DATE         |        | STREP-<br>TOCOCCHI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679)            | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CAC03)<br>(00900)    | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915)              | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925)                       | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930)      | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931)                          | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935)            | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CAC03<br>(00410)     | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745)                              | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS SO4)<br>(00945)           |
|              |        |                                                                                |                                                               |                                                                      |                                                                                       |                                                              |                                                                             |                                                                           |                                                                            |                                                                            |                                                                    |
| NOV<br>06... | K1500  | 88                                                                             | 26                                                            | 5.7                                                                  | 9.5                                                                                   | .4                                                           | 2.3                                                                         | 80                                                                        | <.5                                                                        | 8.0                                                                        |                                                                    |
| MAR<br>06... | K16000 | --                                                                             | --                                                            | --                                                                   | --                                                                                    | --                                                           | --                                                                          | 77                                                                        | --                                                                         | --                                                                         |                                                                    |
| MAY<br>18... | 790    | 58                                                                             | 15                                                            | 5.1                                                                  | 16                                                                                    | .9                                                           | 1.6                                                                         | 75                                                                        | --                                                                         | 5.0                                                                        |                                                                    |
| AUG<br>28... | 7100   | 47                                                                             | 12                                                            | 4.1                                                                  | 13                                                                                    | .8                                                           | 1.8                                                                         | 56                                                                        | <1.0                                                                       | 4.0                                                                        |                                                                    |
| DATE         |        | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940)                 | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955)         | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L<br>DAY)<br>(70301) | SOLIDS,<br>DIS-<br>SOLVED<br>(TONS<br>PER<br>DAY)<br>(70302) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615)           | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630)            | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610)            | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605)    |
|              |        |                                                                                |                                                               |                                                                      |                                                                                       |                                                              |                                                                             |                                                                           |                                                                            |                                                                            |                                                                    |
| NOV<br>06... | 12     | <.10                                                                           | 25                                                            | 151                                                                  | 16.0                                                                                  | 14                                                           | <.010                                                                       | .440                                                                      | .040                                                                       | .22                                                                        |                                                                    |
| MAR<br>06... | --     | --                                                                             | --                                                            | --                                                                   | --                                                                                    | 4                                                            | <.010                                                                       | .440                                                                      | .030                                                                       | --                                                                         |                                                                    |
| MAY<br>18... | 14     | .16                                                                            | 35                                                            | 136                                                                  | 7.98                                                                                  | 18                                                           | <.010                                                                       | .310                                                                      | <.010                                                                      | --                                                                         |                                                                    |
| AUG<br>28... | 12     | <.10                                                                           | 32                                                            | 113                                                                  | 19.4                                                                                  | 28                                                           | <.010                                                                       | .460                                                                      | .020                                                                       | .23                                                                        |                                                                    |
| DATE         |        | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600)          | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887)               | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665)                                 | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002)               | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007)          | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022)          | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027)         | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034)  | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) |
|              |        |                                                                                |                                                               |                                                                      |                                                                                       |                                                              |                                                                             |                                                                           |                                                                            |                                                                            |                                                                    |
| NOV<br>06... | .26    | .70                                                                            | 3.1                                                           | .080                                                                 | <1                                                                                    | <100                                                         | 30                                                                          | <1                                                                        | <1                                                                         | 12                                                                         |                                                                    |
| MAR<br>06... | <.20   | --                                                                             | --                                                            | .050                                                                 | --                                                                                    | --                                                           | --                                                                          | --                                                                        | --                                                                         | --                                                                         |                                                                    |
| MAY<br>18... | .25    | .56                                                                            | 2.5                                                           | .030                                                                 | <1                                                                                    | <100                                                         | 30                                                                          | <1                                                                        | <1                                                                         | <10                                                                        |                                                                    |
| AUG<br>28... | .25    | .71                                                                            | 3.1                                                           | .070                                                                 | --                                                                                    | --                                                           | --                                                                          | --                                                                        | --                                                                         | --                                                                         |                                                                    |

## RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'45", long 65°49'42", at old railroad crossing, 0.2 mi (0.3 km) from mouth, 0.4 mi (0.6 km) west of Playa de Guayanes, and 3.5 mi (5.6 km) northeast of Yabucoa plaza.

DRAINAGE AREA.--34.0 mi<sup>2</sup> (88.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | TIME | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095)  | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010)                                | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076)                                          | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300)                     | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) |                                                                               |
|--------------|------|---------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------|
|              |      | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CAC03)<br>(00900)    | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915)              | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925)                | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930)                          | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931)                 | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935)            | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CAC03<br>(00410)     | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745)                              | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS SO4)<br>(00945)           | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940)                |
| NOV<br>13... | 1215 | 471                                                           | 7.4                                                                  | 28.0                                                                           | 4.3                                                                              | 7.2                                                                | 92                                                                        | <10                                                                        | 5100                                                                       | 2400                                                               |                                                                               |
| MAR<br>06... | 1040 | 200                                                           | 7.2                                                                  | 24.5                                                                           | 4.9                                                                              | 7.1                                                                | 85                                                                        | <10                                                                        | K900                                                                       | 810                                                                |                                                                               |
| MAY<br>19... | 1115 | 253                                                           | 6.8                                                                  | 29.5                                                                           | 15                                                                               | 4.0                                                                | 52                                                                        | <10                                                                        | 4300                                                                       | 430                                                                |                                                                               |
| AUG<br>18... | 0845 | 225                                                           | 6.4                                                                  | 26.5                                                                           | 21                                                                               | 3.9                                                                | 48                                                                        | <10                                                                        | 3000                                                                       | 5200                                                               |                                                                               |
| DATE         |      | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955)         | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>D<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620)    | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615)           | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630)            | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610)            | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605)    | NITRO-<br>GEN,AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) |
| NOV<br>13... | .17  | 27                                                            | 280                                                                  | 6                                                                              | .700                                                                             | .130                                                               | .830                                                                      | .240                                                                       | .42                                                                        | .66                                                                |                                                                               |
| MAR<br>06... | --   | --                                                            | --                                                                   | <1                                                                             | --                                                                               | <.010                                                              | .470                                                                      | .020                                                                       | --                                                                         | <.20                                                               |                                                                               |
| MAY<br>19... | .16  | 31                                                            | 217                                                                  | 14                                                                             | .222                                                                             | .018                                                               | .240                                                                      | .060                                                                       | .38                                                                        | .44                                                                |                                                                               |
| AUG<br>18... | .14  | 3.1                                                           | 126                                                                  | 40                                                                             | .247                                                                             | .013                                                               | .260                                                                      | .060                                                                       | .72                                                                        | .78                                                                |                                                                               |
| DATE         |      | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600)          | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887)               | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665)                          | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002)                                   | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022)          | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027)         | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034)  | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045)              |
| NOV<br>13... | 1.5  | 6.6                                                           | .270                                                                 | 2                                                                              | <100                                                                             | 40                                                                 | <1                                                                        | <1                                                                         | <10                                                                        | 340                                                                |                                                                               |
| MAR<br>06... | --   | --                                                            | .040                                                                 | --                                                                             | --                                                                               | --                                                                 | --                                                                        | --                                                                         | --                                                                         | --                                                                 |                                                                               |
| MAY<br>19... | .68  | 3.0                                                           | .140                                                                 | <1                                                                             | <100                                                                             | 40                                                                 | <1                                                                        | <1                                                                         | <10                                                                        | 1300                                                               |                                                                               |
| AUG<br>18... | 1.0  | 4.6                                                           | .130                                                                 | --                                                                             | --                                                                               | --                                                                 | --                                                                        | --                                                                         | --                                                                         | --                                                                 |                                                                               |

## RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO MAUNABO BASIN

50090500 RIO MAUNABO AT LIZAS, PR

LOCATION.--Lat 18°01'38", long 65°56'24", Hydrologic Unit 21010005, on right bank, off Highway 759 at Lizas, about 1.0 mi (1.6km) downstream from Quebrada Coroco, and about 3.0 mi (4.8 km) northwest of Maunabo.

DRAINAGE AREA.--5.38 mi<sup>2</sup> (13.93 km<sup>2</sup>).

PERIOD OF RECORD.--February 1971 to January 1985, February 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR   | APR   | MAY  | JUN   | JUL   | AUG    | SEP   |
|-------|-------|------|------|------|------|-------|-------|------|-------|-------|--------|-------|
| 1     | 12    | 25   | 29   | 30   | 15   | 12    | 8.8   | 11   | 11    | 6.6   | 7.7    | 16    |
| 2     | 212   | 22   | 21   | 20   | 14   | 11    | 9.2   | 11   | 10    | 6.9   | 6.9    | 17    |
| 3     | 31    | 22   | 18   | 28   | 14   | 12    | 9.4   | 12   | 11    | 8.5   | 6.5    | 18    |
| 4     | 24    | 20   | 18   | 30   | 13   | 11    | 9.6   | 11   | 11    | 21    | 6.2    | 15    |
| 5     | 20    | 19   | 18   | 35   | 40   | 10    | 18    | 10   | 11    | 9.8   | 6.1    | 14    |
| 6     | 18    | 20   | 17   | 220  | 19   | 10    | 11    | 15   | 21    | 7.7   | e14    | 24    |
| 7     | 16    | 20   | 16   | 240  | 16   | 45    | 12    | 12   | 47    | 27    | e6.9   | 27    |
| 8     | 15    | 20   | 16   | 70   | 25   | 30    | 11    | 13   | 21    | 12    | 6.2    | 37    |
| 9     | 15    | 39   | 17   | 51   | 33   | 14    | 9.5   | 12   | 20    | 9.9   | 7.6    | 45    |
| 10    | 14    | 72   | 17   | 66   | 18   | 11    | 9.3   | 11   | 26    | 7.9   | 7.2    | 22    |
| 11    | 14    | 24   | 16   | 33   | 15   | 10    | 9.9   | 11   | 14    | 7.5   | 6.7    | 16    |
| 12    | 24    | 20   | 17   | 29   | 14   | 9.8   | 35    | 11   | 21    | 6.6   | 15     | 14    |
| 13    | 57    | 21   | 18   | 31   | 14   | 9.7   | 12    | 12   | 16    | 6.8   | 7.8    | 38    |
| 14    | 532   | 20   | 18   | 26   | 30   | 12    | 10    | 12   | 13    | 12    | 6.7    | 27    |
| 15    | 163   | 23   | 17   | 23   | 24   | 11    | 10    | 12   | 11    | 10    | 7.1    | 38    |
| 16    | 63    | 25   | 20   | 22   | 16   | 9.4   | 29    | 12   | 22    | 20    | 7.5    | 21    |
| 17    | 41    | 23   | 30   | 22   | 15   | 8.8   | 16    | 12   | 16    | 11    | 15     | 17    |
| 18    | 34    | 21   | 22   | 20   | 15   | 8.4   | 11    | 12   | e17   | 13    | 8.5    | 24    |
| 19    | 29    | 39   | 20   | 20   | 14   | 9.8   | 15    | 12   | e14   | 21    | 7.7    | 17    |
| 20    | 26    | 29   | 19   | 20   | 14   | 40    | 30    | 12   | 13    | 14    | 11     | 17    |
| 21    | 24    | 28   | 30   | 19   | 14   | 17    | 12    | 11   | 12    | 13    | 11     | 289   |
| 22    | 22    | 33   | 20   | 19   | 13   | 13    | 11    | 11   | 19    | 8.4   | 40     | 670   |
| 23    | 20    | 41   | 27   | 20   | 13   | 9.9   | 11    | 12   | 9.9   | 7.5   | 12     | 73    |
| 24    | 20    | 36   | 21   | 20   | 12   | 8.3   | 11    | 14   | 9.0   | 9.4   | 302    | 47    |
| 25    | 19    | 23   | 19   | e25  | 12   | 11    | 13    | 11   | 10    | 11    | 315    | 37    |
| 26    | 19    | 38   | 18   | 21   | 12   | 9.8   | 13    | 87   | 8.6   | 7.9   | 122    | 32    |
| 27    | 19    | 28   | 20   | 18   | 12   | 10    | 12    | 73   | 8.2   | 35    | 36     | 65    |
| 28    | 19    | 22   | 19   | 17   | 12   | 10    | 12    | 14   | 8.3   | 28    | 24     | 34    |
| 29    | 19    | 44   | 19   | 19   | ---  | 9.5   | 11    | 10   | 7.7   | 12    | 27     | 28    |
| 30    | 19    | 102  | 19   | 16   | ---  | 9.5   | 11    | 30   | 7.1   | 9.6   | 19     | 26    |
| 31    | 20    | ---  | 22   | 15   | ---  | 10    | ---   | 27   | ---   | 11    | 17     | ---   |
| TOTAL | 1580  | 919  | 618  | 1245 | 478  | 412.9 | 402.7 | 536  | 445.8 | 392.0 | 1093.3 | 1765  |
| MEAN  | 51.0  | 30.6 | 19.9 | 40.2 | 17.1 | 13.3  | 13.4  | 17.3 | 14.9  | 12.6  | 35.3   | 58.8  |
| MAX   | 532   | 102  | 30   | 240  | 40   | 45    | 35    | 87   | 47    | 35    | 315    | 670   |
| MIN   | 12    | 19   | 16   | 15   | 12   | 8.3   | 8.8   | 10   | 7.1   | 6.6   | 6.1    | 14    |
| AC-FT | 3130  | 1820 | 1230 | 2470 | 948  | 819   | 799   | 1060 | 884   | 778   | 2170   | 3500  |
| CFSM  | 9.47  | 5.69 | 3.71 | 7.46 | 3.17 | 2.48  | 2.50  | 3.21 | 2.76  | 2.35  | 6.56   | 10.9  |
| IN.   | 10.92 | 6.35 | 4.27 | 8.61 | 3.31 | 2.85  | 2.78  | 3.71 | 3.08  | 2.71  | 7.56   | 12.20 |

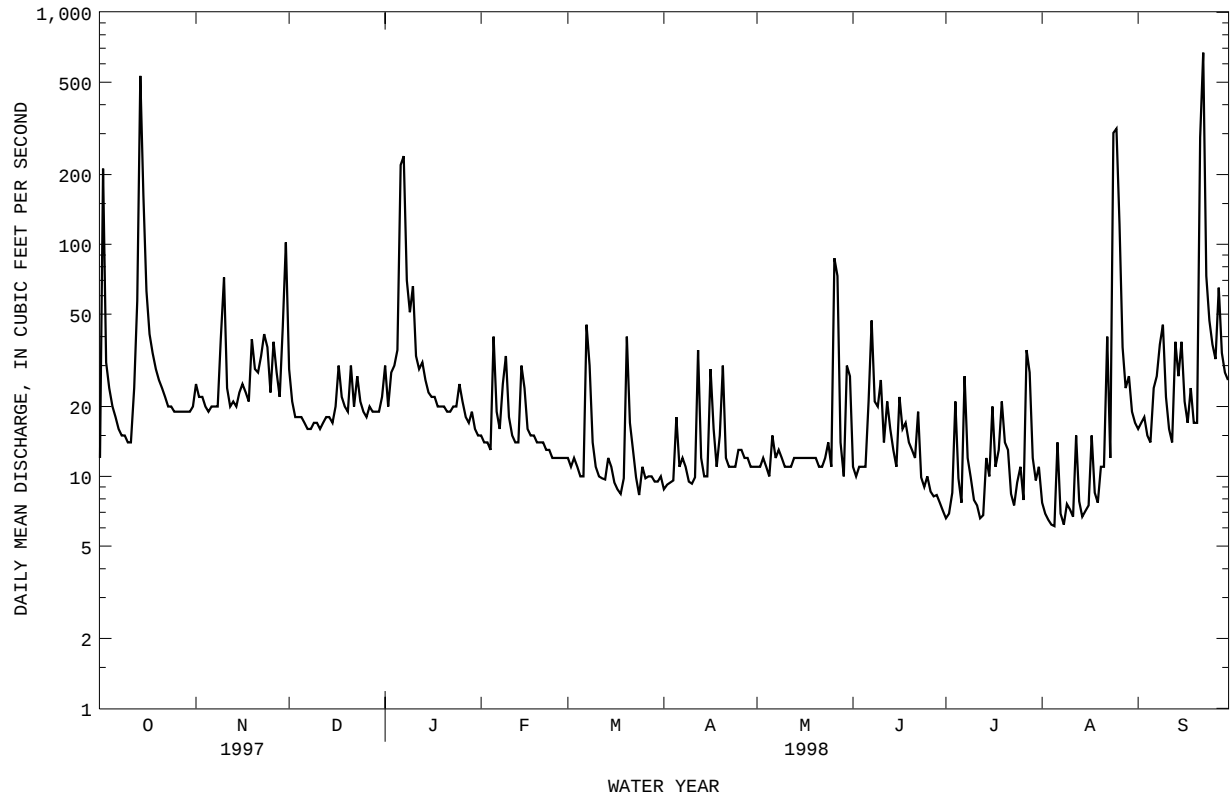
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

|      | MEAN | 27.9 | 31.1 | 17.8 | 14.4 | 12.8 | 9.96 | 7.49 | 13.0 | 17.8 | 17.4 | 23.2 | 30.0 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 52.6 | 88.9 | 35.2 | 40.2 | 24.5 | 18.9 | 13.4 | 25.1 | 47.1 | 40.2 | 131  | 94.6 |      |
| (WY) | 1979 | 1978 | 1978 | 1998 | 1982 | 1976 | 1998 | 1979 | 1979 | 1993 | 1979 | 1996 |      |
| MIN  | 10.4 | 7.46 | 8.74 | 7.79 | 6.10 | 4.32 | 3.92 | 5.13 | 4.40 | 3.70 | 6.18 | 7.99 |      |
| (WY) | 1994 | 1982 | 1994 | 1981 | 1979 | 1979 | 1979 | 1974 | 1974 | 1974 | 1974 | 1980 |      |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1971 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 6449.8                 | 9887.7              |                         |
| ANNUAL MEAN              | 17.7                   | 27.1                | 18.7                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 36.7                    |
| LOWEST ANNUAL MEAN       |                        |                     | 10.8                    |
| HIGHEST DAILY MEAN       | 532                    | Oct 14              | 2480                    |
| LOWEST DAILY MEAN        | 3.3                    | Jul 4               | 2.2                     |
| ANNUAL SEVEN-DAY MINIMUM | 3.7                    | Jul 2               | 2.8                     |
| INSTANTANEOUS PEAK FLOW  |                        | 2550                | 9950                    |
| INSTANTANEOUS PEAK STAGE |                        | 10.47               | 17.46                   |
| ANNUAL RUNOFF (AC-FT)    | 12790                  | 19610               | 13520                   |
| ANNUAL RUNOFF (CFSM)     | 3.28                   | 5.04                | 3.47                    |
| ANNUAL RUNOFF (INCHES)   | 44.60                  | 68.37               | 47.13                   |
| 10 PERCENT EXCEEDS       | 29                     | 37                  | 33                      |
| 50 PERCENT EXCEEDS       | 10                     | 16                  | 11                      |
| 90 PERCENT EXCEEDS       | 5.2                    | 8.9                 | 5.3                     |

e Estimated

RIO MAUNABO BASIN  
50090500 RIO MAUNABO AT LIZAS, PR--Continued



## RIO MAUNABO BASIN

50091000 RIO MAUNABO AT MAUNABO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'24", Long 65°54'19", at bridge on Highway 3, 0.4 mi (0.6 km) southwest of Maunabo plaza, and 1.3 mi (2.1 km) upstream from mouth.

DRAINAGE AREA.--12.4 mi<sup>2</sup> (32.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-66, 1975 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| NOV 13... | 1030 | 48                                              | 475                                     | 7.2                                      | 27.5                               | 25                        | 6.6                               | 84                                                | <10                                                  | 4200                                                | 3300                                            |
| MAR 09... | 0925 | 15                                              | 248                                     | 7.2                                      | 24.0                               | 4.0                       | 7.3                               | 87                                                | <10                                                  | 3900                                                | 2100                                            |
| MAY 19... | 0940 | 9.3                                             | 263                                     | 7.0                                      | 28.0                               | 13                        | 7.6                               | 97                                                | <10                                                  | K1500                                               | 9200                                            |
| AUG 28... | 0900 | 41                                              | 223                                     | 6.6                                      | 26.5                               | 6.4                       | 7.0                               | 87                                                | <10                                                  | K1900                                               | 5400                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 13... | 170                                     | 58                                      | 6.1                                         | 19                                      | .6                                | .90                                        | 178                                                 | <.5                               | 46                                       | 8.0                                        |
| MAR 09... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 92                                                  | --                                | --                                       | --                                         |
| MAY 19... | 110                                     | 20                                      | 7.6                                         | 22                                      | 1                                 | 1.3                                        | 97                                                  | --                                | 8.7                                      | 21                                         |
| AUG 28... | 65                                      | 16                                      | 6.1                                         | 18                                      | 1                                 | 1.4                                        | 75                                                  | <1.0                              | 9.1                                      | 19                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 13... | .20                                       | 24                                        | 258                                                     | 33.0                                      | 23                                                     | .570                                         | .190                                         | .760                                         | 1.70                                         | .40                                          |
| MAR 09... | --                                        | --                                        | --                                                      | --                                        | 11                                                     | --                                           | <.010                                        | .630                                         | .020                                         | --                                           |
| MAY 19... | .15                                       | 37                                        | 217                                                     | 5.45                                      | 6                                                      | --                                           | <.010                                        | .190                                         | .030                                         | --                                           |
| AUG 28... | <.10                                      | 34                                        | 149                                                     | 16.5                                      | 17                                                     | --                                           | <.010                                        | .780                                         | .020                                         | .19                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 13... | 2.1                                                     | 2.9                                  | 13                                     | .340                                  | 2                                  | <100                                            | 40                                            | <1                                               | <1                                                 | <10                                             |
| MAR 09... | <.20                                                    | --                                   | --                                     | .040                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 19... | <.20                                                    | --                                   | --                                     | .040                                  | <1                                 | <100                                            | 10                                            | <1                                               | <1                                                 | <10                                             |
| AUG 28... | .21                                                     | .99                                  | 4.4                                    | .060                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO CHICO BASIN

50091800 RIO CHICO AT PROVIDENCIA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 17°59'16", Long 66°00'18", at flat low bridge 200 ft (61 m) south of Highway 3, 0.5 mi (0.8 km) above mouth, and 1.5 mi (2.4 km) southeast of Patillas plaza.

DRAINAGE AREA.--4.9 mi<sup>2</sup> (12.8 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DEMAND, (PER-CENT (HIGH LEVEL) (00301) | OXYGEN, DEMAND, (PER-CENT (HIGH LEVEL) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 16... | 1200 | 46                                              | 263                                     | 6.7                                      | 27.0                               | 27                        | 5.1                               | 64                                             | 11                                             | 8200                                                | K15000                                          |
| MAR 05... | 0915 | 1.5                                             | 448                                     | 7.2                                      | 26.5                               | 3.0                       | 5.9                               | 73                                             | 36                                             | 20                                                  | 64                                              |
| MAY 21... | 0915 | .68                                             | 415                                     | 6.8                                      | 31.0                               | .60                       | 6.6                               | 89                                             | <10                                            | 930                                                 | 320                                             |
| AUG 19... | 0915 | .78                                             | 445                                     | 6.2                                      | 31.0                               | 2.0                       | 5.0                               | 67                                             | 32                                             | 2000                                                | 3700                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 16... | 70                                      | 16                                      | 7.3                                         | 23                                      | 1                                 | 1.5                                        | 69                                                  | .7                                | 14                                       | 27                                         |
| MAR 05... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 110                                                 | --                                | --                                       | --                                         |
| MAY 21... | 42                                      | 9.6                                     | 4.3                                         | 12                                      | .8                                | .60                                        | 46                                                  | --                                | 8.1                                      | 11                                         |
| AUG 19... | 63                                      | 15                                      | 5.9                                         | 55                                      | 3                                 | 10                                         | 56                                                  | <1.0                              | 26                                       | 56                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 16... | .14                                       | 31                                        | 161                                                     | 20.1                                      | 32                                                     | 1.20                                         | .050                                         | 1.30                                         | .200                                         | .62                                          |
| MAR 05... | --                                        | --                                        | --                                                      | --                                        | 5                                                      | 3.90                                         | .400                                         | 4.30                                         | 4.00                                         | --                                           |
| MAY 21... | <.10                                      | 21                                        | 95                                                      | .17                                       | 7                                                      | 9.11                                         | .390                                         | 9.50                                         | .270                                         | 2.7                                          |
| AUG 19... | .16                                       | 25                                        | 227                                                     | .48                                       | 10                                                     | 8.28                                         | .220                                         | 8.50                                         | .150                                         | 2.2                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM, TOTAL UNFLTRD (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 16... | .83                                                     | 2.1                                  | 9.4                                    | 1.80                                  | <1                                 | <100                                            | 40                                            | <1                                          | <1                                                 | <10                                             |
| MAR 05... | 3.8                                                     | 8.1                                  | 36                                     | 2.10                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |
| MAY 21... | 3.0                                                     | 13                                   | 55                                     | 3.10                                  | <1                                 | <100                                            | 110                                           | <1                                          | <1                                                 | <10                                             |
| AUG 19... | 2.3                                                     | 11                                   | 48                                     | 3.40                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |



## RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR

LOCATION.--Lat 18°02'04", long 66°01'58", Hydrologic Unit 21010004, on left bank, off Highway 184, 1.2 mi (1.9 km) upstream from Lago Patillas Dam and 2.2 mi (3.5 km) northwest of Patillas.

DRAINAGE AREA.--18.3 mi<sup>2</sup> (47.4 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to October 1965 (annual low-flow and occasional measurements only), January 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 235 ft (72 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 1     | 29   | 39   | 37   | e32  | 28   | 22   | 38   | 27   | 35   | 20   | 25   | 25    |
| 2     | 99   | 35   | 34   | e42  | 26   | 22   | 44   | 27   | 32   | 20   | 24   | 28    |
| 3     | 61   | 34   | 33   | e37  | 25   | 25   | 43   | 26   | 30   | 21   | 24   | 43    |
| 4     | 52   | 34   | 32   | e64  | 26   | 24   | 33   | 31   | 27   | 35   | 24   | 40    |
| 5     | 37   | 32   | 31   | e60  | 233  | 22   | 49   | 26   | 26   | 33   | 24   | 30    |
| 6     | 31   | 31   | 31   | e400 | 66   | 21   | 39   | 26   | 40   | 22   | e31  | 69    |
| 7     | 27   | 30   | 30   | e360 | 41   | 353  | 47   | 23   | 35   | 23   | e27  | 111   |
| 8     | 28   | 33   | 30   | 145  | 39   | 144  | 42   | 22   | 31   | 21   | 32   | 72    |
| 9     | 28   | 49   | 29   | 95   | 44   | 43   | 34   | 25   | 33   | 21   | 43   | 83    |
| 10    | 26   | 436  | 29   | 113  | 33   | 33   | 32   | 27   | 31   | 19   | 38   | 67    |
| 11    | 37   | 73   | 28   | 66   | 30   | 29   | 51   | 19   | 26   | 18   | 27   | 48    |
| 12    | 38   | 51   | 30   | 56   | 28   | 28   | 157  | 19   | 33   | 19   | 36   | 43    |
| 13    | 487  | 43   | 29   | 49   | 27   | 27   | 61   | 61   | 37   | 19   | 30   | 87    |
| 14    | 1320 | 40   | 29   | 45   | 52   | 28   | 45   | 52   | 26   | 19   | 26   | 63    |
| 15    | 544  | 38   | 28   | 38   | 49   | 29   | 39   | 64   | 24   | 20   | 24   | 76    |
| 16    | 256  | 40   | 28   | 36   | 34   | 27   | 42   | 49   | 43   | 23   | 26   | 56    |
| 17    | 143  | 39   | 35   | 34   | 34   | 25   | 47   | 34   | 39   | 20   | 67   | e49   |
| 18    | 107  | 35   | 29   | 32   | 31   | 25   | 51   | 29   | e29  | 25   | 31   | e42   |
| 19    | 81   | 37   | 29   | 30   | 28   | 26   | 46   | 26   | e28  | 32   | 25   | e48   |
| 20    | 68   | 37   | 29   | 30   | 27   | 129  | 56   | 25   | 26   | 53   | 25   | e49   |
| 21    | 60   | 38   | 35   | 29   | 27   | 58   | 42   | 24   | 34   | 52   | 26   | e2390 |
| 22    | 54   | 44   | 30   | 29   | 26   | 54   | 39   | 23   | 49   | 31   | 190  | e4500 |
| 23    | 50   | 56   | 29   | 28   | 25   | 44   | 35   | 23   | 33   | 24   | 33   | e2000 |
| 24    | 46   | 53   | 28   | 31   | 24   | 35   | 33   | 25   | 29   | 30   | 705  | e600  |
| 25    | 44   | 44   | 27   | 40   | 24   | 39   | 34   | 25   | 30   | 28   | 751  | e500  |
| 26    | 42   | 41   | 27   | 42   | 24   | 36   | 32   | 145  | 30   | 25   | 175  | e400  |
| 27    | 40   | 40   | 29   | 32   | 22   | 42   | 33   | 160  | 28   | 33   | 59   | e370  |
| 28    | 38   | 36   | 28   | 30   | 22   | 40   | 31   | 51   | 26   | 39   | 39   | e460  |
| 29    | 37   | 35   | 27   | 36   | ---  | 47   | 29   | 38   | 25   | 31   | 36   | e330  |
| 30    | 37   | 45   | 29   | 29   | ---  | 51   | 27   | 46   | 22   | 28   | 30   | e290  |
| 31    | 35   | ---  | 29   | 27   | ---  | 58   | ---  | 62   | ---  | 27   | 28   | ---   |
| TOTAL | 3982 | 1618 | 928  | 2117 | 1095 | 1586 | 1331 | 1260 | 937  | 831  | 2681 | 12969 |
| MEAN  | 128  | 53.9 | 29.9 | 68.3 | 39.1 | 51.2 | 44.4 | 40.6 | 31.2 | 26.8 | 86.5 | 432   |
| MAX   | 1320 | 436  | 37   | 400  | 233  | 353  | 157  | 160  | 49   | 53   | 751  | 4500  |
| MIN   | 26   | 30   | 27   | 27   | 22   | 21   | 27   | 19   | 22   | 18   | 24   | 25    |
| AC-FT | 7900 | 3210 | 1840 | 4200 | 2170 | 3150 | 2640 | 2500 | 1860 | 1650 | 5320 | 25720 |
| CFSM  | 7.02 | 2.95 | 1.64 | 3.73 | 2.14 | 2.80 | 2.42 | 2.22 | 1.71 | 1.46 | 4.73 | 23.6  |
| IN.   | 8.09 | 3.29 | 1.89 | 4.30 | 2.23 | 3.22 | 2.71 | 2.56 | 1.90 | 1.69 | 5.45 | 26.36 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY)

|      | MEAN | 96.9 | 87.9 | 49.5 | 35.3 | 29.0 | 25.3 | 22.4 | 50.2 | 63.3 | 63.3 | 70.0 | 98.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 593  | 393  | 152  | 125  | 94.6 | 51.2 | 44.4 | 172  | 200  | 164  | 231  | 432  |      |
| (WY) | 1971 | 1978 | 1971 | 1992 | 1982 | 1998 | 1998 | 1969 | 1979 | 1979 | 1979 | 1998 |      |
| MIN  | 14.4 | 16.1 | 8.63 | 14.0 | 7.09 | 6.74 | 9.98 | 10.3 | 13.1 | 14.1 | 17.2 | 12.1 |      |
| (WY) | 1968 | 1968 | 1968 | 1973 | 1973 | 1968 | 1968 | 1974 | 1974 | 1974 | 1994 | 1967 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

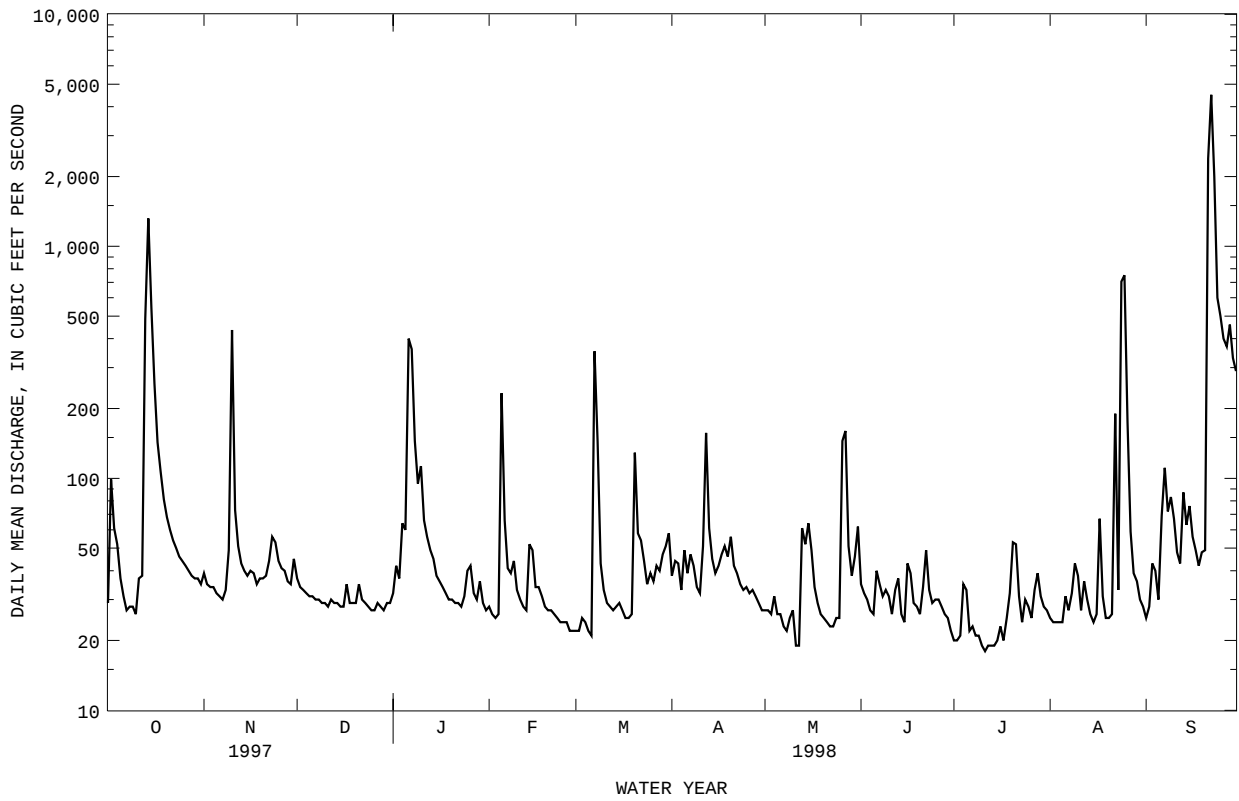
## WATER YEARS 1966 - 1998

|                          |       |        |                |        |  |  |  |  |  |         |        |      |
|--------------------------|-------|--------|----------------|--------|--|--|--|--|--|---------|--------|------|
| ANNUAL TOTAL             | 15685 |        | 31335          |        |  |  |  |  |  |         |        |      |
| ANNUAL MEAN              | 43.0  |        | 85.8           |        |  |  |  |  |  | 57.1    |        |      |
| HIGHEST ANNUAL MEAN      |       |        |                |        |  |  |  |  |  | 117     |        | 1979 |
| LOWEST ANNUAL MEAN       |       |        |                |        |  |  |  |  |  | 19.8    |        | 1994 |
| HIGHEST DAILY MEAN       | 1320  | Oct 14 | 4500           | Sep 22 |  |  |  |  |  | 4780    | Sep 16 | 1975 |
| LOWEST DAILY MEAN        | 10    | Jul 1  | 18             | Jul 11 |  |  |  |  |  | 4.8     | May 9  | 1968 |
| ANNUAL SEVEN-DAY MINIMUM | 12    | Jun 27 | 19             | Jul 9  |  |  |  |  |  | 5.0     | Apr 10 | 1968 |
| INSTANTANEOUS PEAK FLOW  |       |        | Not determined | Sep 21 |  |  |  |  |  | 30900   | Jan 5  | 1992 |
| INSTANTANEOUS PEAK STAGE |       |        | 24.36          | Sep 21 |  |  |  |  |  | unknown | Jan 5  | 1992 |
| INSTANTANEOUS LOW FLOW   |       |        | 18             | Jul 11 |  |  |  |  |  | 4.6     | May 13 | 1968 |
| ANNUAL RUNOFF (AC-FT)    | 31110 |        | 62150          |        |  |  |  |  |  | 41400   |        |      |
| ANNUAL RUNOFF (CFSM)     | 2.35  |        | 4.69           |        |  |  |  |  |  | 3.12    |        |      |
| ANNUAL RUNOFF (INCHES)   | 31.88 |        | 63.70          |        |  |  |  |  |  | 42.43   |        |      |
| 10 PERCENT EXCEEDS       | 60    |        | 85             |        |  |  |  |  |  | 96      |        |      |
| 50 PERCENT EXCEEDS       | 28    |        | 33             |        |  |  |  |  |  | 28      |        |      |
| 90 PERCENT EXCEEDS       | 14    |        | 24             |        |  |  |  |  |  | 12      |        |      |

e Estimated

## RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued



## WATER-QUALITY DATA. WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO PATILLAS BASIN

50093045 LAGO PATILLAS AT DAMSITE NEAR PATILLAS, PR

LOCATION.--Lat 18°01'15", long 66°01'19", Hydrologic Unit 21010004, on right bank, in a concrete tower at Damsite, 1.05 mi (1.69 km) northeast from Patillas plaza, 0.45 mi (0.72 km) northeast from Escuela Segunda Unidad de Real and 2.30 mi (3.70 km) from Escuela Segunda Unidad de Jesús María Rodríguez.

DRAINAGE AREA.--25.2 mi<sup>2</sup> (65.3 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--March 1995 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Patillas was completed in 1914. The dam is a semihydraulic earthfill structure about 147 ft (45 m) height, a top width of 15 ft (4.6 m), maximum pool elevation of 230 ft (70.1 m), a base width of 625 ft (190 m), a crest length of 1,067 ft (325 m) and has maximum pool storage of 17,073 ac-ft (21.05 hm<sup>3</sup>). The Patillas Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and its primary purpose is for irrigation of lands served by the Patillas irrigation canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 225.92 ft (68.86 m), Sept. 10, 1996; minimum elevation, 211.19 ft (64.37 m), May 29, 1995, July 19, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximun elevation, 225.49 ft (68.73 m), Sept. 21; minimum elevation, 216.97 ft (66.13 m), Sept. 21.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 143                | 0                      | 200                | 7,752                  |
| 190                | 5,492                  | 225                | 15,005                 |
|                    |                        | 230                | 16,773                 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | A      | 221.75 | 221.52 | 221.13 | 221.47 | 221.31 | 221.71 | 221.25 | 221.81 | A      | 221.42 | 221.13 |
| 2   | 221.20 | 221.69 | 221.16 | 221.14 | 221.43 | 221.25 | 221.84 | 221.18 | 221.68 | A      | 221.30 | 221.41 |
| 3   | 221.03 | 221.61 | 221.03 | 221.36 | 221.43 | A      | 221.89 | 221.13 | 221.66 | A      | 221.19 | 221.80 |
| 4   | 221.01 | 221.52 | 221.00 | 221.80 | 221.46 | A      | 221.81 | 221.17 | 221.67 | A      | 221.09 | 221.84 |
| 5   | 220.90 | 221.45 | 220.99 | 221.95 | 221.55 | A      | 221.88 | 221.16 | 221.69 | A      | 221.00 | 221.57 |
| 6   | 220.92 | 221.46 | 220.99 | 222.09 | 221.22 | A      | 221.83 | 221.19 | 221.88 | 221.63 | 221.02 | 221.76 |
| 7   | 220.95 | 221.44 | 221.00 | 222.06 | 221.40 | A      | 221.92 | 221.19 | 221.90 | A      | 220.97 | 221.62 |
| 8   | 221.00 | 221.58 | 221.01 | 221.56 | 221.63 | A      | 221.82 | 221.20 | 221.74 | 221.59 | 220.96 | 221.77 |
| 9   | 221.06 | 221.80 | 220.99 | 221.30 | 221.83 | 221.05 | 221.69 | 221.26 | 221.64 | 221.51 | 221.08 | 221.86 |
| 10  | 221.09 | 222.01 | 220.98 | A      | 221.85 | 221.19 | 221.54 | 221.34 | 221.55 | 221.42 | 221.12 | 221.55 |
| 11  | 221.14 | 221.79 | 220.96 | A      | 221.82 | 221.24 | 221.69 | 221.34 | 221.51 | 221.33 | 221.08 | 221.82 |
| 12  | 221.29 | 221.42 | 220.96 | A      | 221.78 | 221.23 | 221.57 | 221.35 | 221.61 | 221.21 | 221.20 | 221.94 |
| 13  | 222.14 | 221.31 | 220.98 | A      | 221.74 | 221.22 | 221.29 | 221.69 | 221.72 | A      | 221.18 | 221.62 |
| 14  | 222.26 | 221.47 | 220.97 | 221.44 | 222.06 | 221.29 | 221.39 | 221.90 | 221.72 | 221.05 | 221.11 | 221.03 |
| 15  | 222.27 | 221.65 | 220.97 | 221.62 | 221.79 | 221.31 | 221.47 | 221.97 | 221.71 | 221.03 | 221.03 | 221.64 |
| 16  | 221.27 | 221.83 | 221.04 | 221.77 | 221.47 | 221.30 | 221.61 | 221.83 | 221.99 | 221.02 | 220.97 | 221.92 |
| 17  | 221.83 | 221.93 | 221.13 | 221.86 | 221.18 | 221.26 | 221.77 | 221.59 | 221.85 | 221.00 | 221.29 | 221.92 |
| 18  | 221.94 | 221.89 | 221.13 | 221.87 | 221.28 | 221.27 | 221.91 | 221.50 | 221.62 | 221.05 | 221.33 | 221.97 |
| 19  | 221.69 | 221.89 | 221.12 | 221.83 | 221.33 | 221.29 | 221.87 | 221.50 | 221.56 | 221.13 | 221.32 | 221.81 |
| 20  | 221.38 | 221.81 | 221.13 | 221.78 | 221.38 | 222.11 | A      | 221.50 | 221.58 | 221.44 | 221.30 | 220.11 |
| 21  | 221.20 | 221.77 | 221.20 | 221.71 | 221.43 | 221.35 | 221.70 | 221.49 | 221.69 | 221.62 | 221.34 | 222.64 |
| 22  | 221.22 | 221.87 | 221.20 | 221.66 | 221.45 | 221.05 | 221.67 | 221.47 | 221.91 | 221.58 | 220.79 | 221.45 |
| 23  | 221.47 | 221.87 | 221.24 | 221.60 | 221.46 | 220.93 | 221.64 | 221.47 | 221.87 | 221.51 | 220.70 | 222.19 |
| 24  | 221.63 | 221.68 | 221.22 | 221.58 | 221.47 | 220.96 | 221.59 | 221.48 | 221.77 | 221.56 | 222.17 | 221.83 |
| 25  | 221.79 | 221.62 | 221.19 | 221.64 | 221.48 | 221.15 | 221.58 | 221.46 | 221.71 | 221.55 | 221.98 | 221.66 |
| 26  | 221.89 | 221.81 | 221.18 | 221.71 | 221.44 | 221.27 | 221.55 | 221.75 | 221.62 | 221.47 | 221.73 | 222.01 |
| 27  | 221.89 | 221.91 | 221.17 | 221.67 | 221.38 | 221.47 | 221.51 | 221.42 | 221.58 | 221.62 | 221.76 | 222.00 |
| 28  | 221.86 | 221.89 | 221.15 | 221.61 | 221.35 | 221.64 | 221.46 | 221.22 | 221.56 | 221.75 | 221.33 | 221.31 |
| 29  | 221.81 | 221.89 | 221.09 | 221.66 | ---    | 221.83 | 221.39 | 221.35 | 221.52 | 221.70 | 220.99 | 221.85 |
| 30  | 221.76 | 221.85 | 221.09 | 221.60 | ---    | 222.00 | 221.33 | 221.67 | 221.46 | 221.62 | 220.75 | 222.01 |
| 31  | 221.72 | ---    | 221.06 | 221.53 | ---    | 221.80 | ---    | 221.94 | ---    | 221.54 | 220.91 | ---    |
| MAX | ---    | 222.01 | 221.52 | ---    | 222.06 | ---    | ---    | 221.97 | 221.99 | ---    | 222.17 | 222.64 |
| MIN | ---    | 221.31 | 220.96 | ---    | 221.18 | ---    | ---    | 221.13 | 221.46 | ---    | 220.70 | 220.11 |

A No gage-height record

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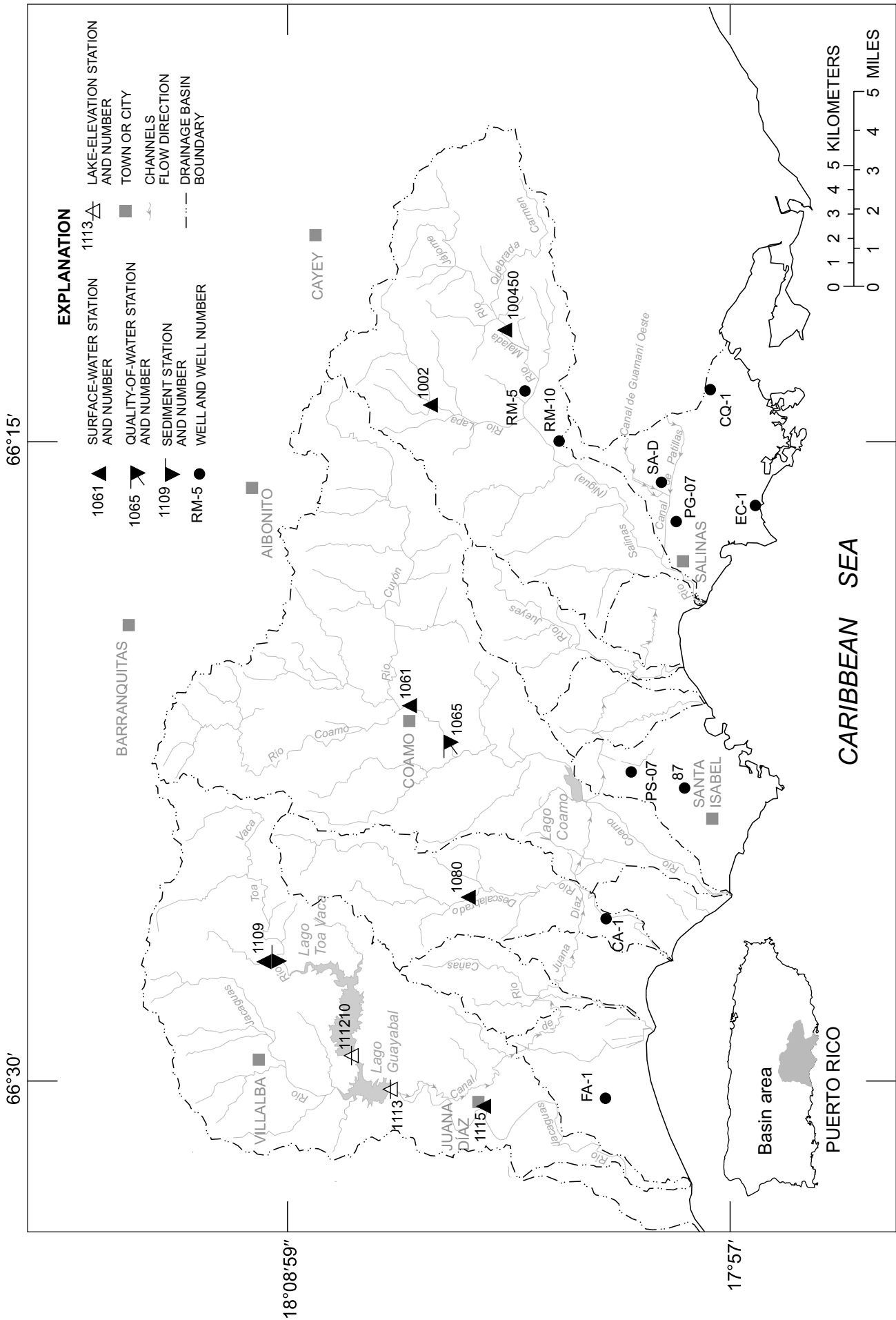


Figure 21. South coast river basins -- Río Salinas to Río Jacaguas basins.

## RIO SALINAS BASIN

50100200 RIO LAPAS NEAR RABO DEL BUEY, PR

LOCATION.--Lat 18°03'36", long 66°14'28", Hydrologic Unit 21010004, on left bank, at bridge on Highway 1, Km 9.7, 1.5 mi (2.4 km) north of Rabo del Buey, and 4.4 mi (7.1 km) northeast of Salinas Plaza.

DRAINAGE AREA.--9.92 mi<sup>2</sup> (25.69 km<sup>2</sup>).

PERIOD OF RECORD.--1953-63 (annual low-flow measurements only), September 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT     | NOV   | DEC  | JAN   | FEB    | MAR   | APR    | MAY   | JUN   | JUL   | AUG    | SEP    |
|-------|---------|-------|------|-------|--------|-------|--------|-------|-------|-------|--------|--------|
| 1     | .01     | 2.8   | 4.5  | 2.0   | .13    | e.96  | e1.8   | e1.4  | e1.4  | e.56  | e.28   | e6.8   |
| 2     | .02     | 2.4   | 4.2  | 2.0   | .11    | e.90  | e13    | e1.2  | e1.1  | e.56  | e.31   | e10    |
| 3     | .43     | 2.2   | 4.1  | 2.4   | .10    | e1.1  | e3.0   | e1.3  | e.76  | e.70  | e.29   | e38    |
| 4     | .00     | 2.1   | 3.7  | 2.7   | .10    | e1.4  | e1.2   | e1.3  | e.70  | e1.1  | e.29   | e56    |
| 5     | .00     | 2.3   | 3.7  | 2.4   | 201    | e1.3  | e.96   | e1.1  | e.72  | e1.4  | e.29   | e22    |
| 6     | .00     | 2.5   | 3.5  | 2.9   | 15     | e1.1  | e.84   | e1.1  | e.98  | e.94  | e.56   | e16    |
| 7     | .00     | 2.5   | 3.6  | 2.9   | 5.5    | e1.0  | e21    | e1.1  | e1.1  | e.92  | e2.0   | e16    |
| 8     | .61     | 2.5   | 3.5  | 2.9   | 5.0    | e.90  | e11    | e1.0  | e.86  | e.84  | e2.3   | e14    |
| 9     | .00     | 49    | 3.5  | 2.4   | 7.0    | e.80  | e2.2   | e2.8  | e.84  | e1.0  | e2.2   | e12    |
| 10    | .00     | e353  | 2.7  | 2.3   | 3.9    | e.76  | e1.2   | e2.0  | e1.0  | e.84  | e1.0   | e9.8   |
| 11    | .00     | 34    | 2.8  | 2.0   | 2.6    | e.76  | e2.2   | e1.6  | e.94  | e.82  | e.78   | e6.8   |
| 12    | .00     | 22    | 2.6  | 1.8   | 2.3    | e.68  | e20    | e2.0  | e.90  | e.70  | e.60   | e5.8   |
| 13    | 631     | 14    | 2.6  | 1.9   | 2.0    | e.68  | e12    | e3.0  | e1.2  | e.54  | e.58   | e5.8   |
| 14    | 791     | 11    | 2.5  | 2.0   | 2.1    | e.68  | e1.4   | e7.4  | e1.4  | e.60  | e.45   | e5.0   |
| 15    | 122     | 8.4   | 2.5  | 1.8   | 2.1    | e.64  | e1.1   | e4.1  | e1.3  | e.52  | e.38   | e5.0   |
| 16    | 44      | 8.6   | 2.5  | 1.6   | 1.8    | e.64  | e.95   | e3.1  | e1.5  | e.60  | e.38   | e4.7   |
| 17    | 20      | 8.2   | 2.7  | 1.7   | e1.9   | e.64  | e1.0   | e2.8  | e1.1  | e.54  | e.50   | e3.3   |
| 18    | 24      | 7.5   | 2.7  | 1.9   | e1.7   | e.56  | e1.1   | e3.8  | e.78  | e.52  | e.72   | e3.6   |
| 19    | 14      | 6.8   | 2.6  | 2.0   | e1.5   | e.46  | e1.2   | e3.6  | e.90  | e.88  | e.56   | e4.6   |
| 20    | 11      | 6.7   | 2.6  | 1.7   | e1.4   | e.76  | e1.3   | e1.8  | e1.1  | e.62  | e.47   | e2.6   |
| 21    | 9.0     | 6.5   | 3.3  | 1.6   | e1.3   | e1.0  | e2.5   | e.92  | e1.0  | e.68  | e.58   | e540   |
| 22    | 7.4     | 6.1   | 2.7  | 1.3   | e1.2   | e.76  | e2.8   | e.82  | e3.4  | e.45  | e16    | e560   |
| 23    | 6.6     | 5.8   | 2.6  | 1.1   | e1.1   | e.80  | e4.7   | e.78  | e.90  | e.32  | e5.2   | e120   |
| 24    | 6.3     | 5.3   | 2.4  | .92   | e1.0   | e.46  | e4.3   | e.78  | e.60  | e.40  | e82    | e66    |
| 25    | 5.8     | 5.4   | 2.2  | .96   | e.98   | e.41  | e2.7   | e.76  | e.54  | e.33  | e160   | e42    |
| 26    | 5.3     | 5.1   | 2.0  | .69   | e.98   | e.42  | e2.6   | e2.1  | e.56  | e.28  | e42    | e36    |
| 27    | 5.0     | 5.0   | 2.2  | .42   | e.98   | e.46  | e2.2   | e4.2  | e.60  | e.27  | e20    | e32    |
| 28    | 4.8     | 4.7   | 2.1  | .31   | e.98   | e.88  | e2.0   | e1.5  | e.56  | e.44  | e12    | e30    |
| 29    | 4.6     | 4.6   | 2.2  | .24   | ---    | e.70  | e1.7   | e1.0  | e.56  | e.60  | e23    | e27    |
| 30    | 4.1     | 4.4   | 2.0  | .20   | ---    | e22   | e1.5   | e1.0  | e.56  | e.45  | e13    | e24    |
| 31    | 3.4     | ---   | 2.0  | .15   | ---    | e11   | ---    | e4.8  | ---   | e.38  | e9.0   | ---    |
| TOTAL | 1720.37 | 601.4 | 88.8 | 51.19 | 265.76 | 55.61 | 125.45 | 66.16 | 29.86 | 19.80 | 397.72 | 1724.8 |
| MEAN  | 55.5    | 20.0  | 2.86 | 1.65  | 9.49   | 1.79  | 4.18   | 2.13  | 1.00  | .64   | 12.8   | 57.5   |
| MAX   | 791     | 353   | 4.5  | 2.9   | 201    | 22    | 21     | 7.4   | 3.4   | 1.4   | 160    | 560    |
| MIN   | .00     | 2.1   | 2.0  | .15   | .10    | .41   | .84    | .76   | .54   | .27   | .28    | 2.6    |
| AC-FT | 3410    | 1190  | 176  | 102   | 527    | 110   | 249    | 131   | 59    | 39    | 789    | 3420   |
| CFSM  | 5.55    | 2.00  | .29  | .17   | .95    | .18   | .42    | .21   | .10   | .06   | 1.28   | 5.75   |
| IN.   | 6.40    | 2.24  | .33  | .19   | .99    | .21   | .47    | .25   | .11   | .07   | 1.48   | 6.42   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

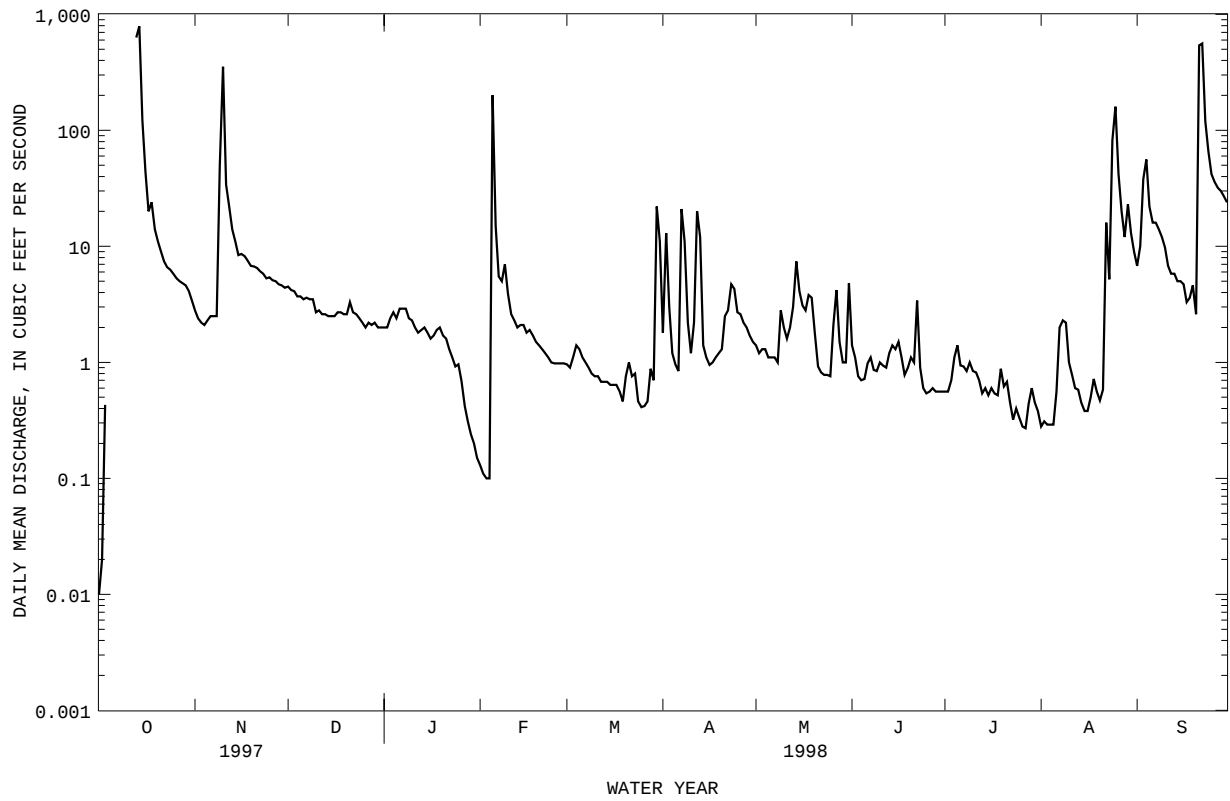
|      | MEAN | 17.7 | 6.78 | 2.14 | 8.14 | 3.42 | 1.03 | 1.35 | 4.42 | 2.19 | 1.79 | 3.41 | 21.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 76.1 | 28.4 | 6.09 | 68.8 | 12.4 | 2.08 | 4.18 | 36.6 | 10.4 | 7.80 | 12.8 | 81.2 |      |
| (WY) | 1991 | 1991 | 1991 | 1992 | 1991 | 1992 | 1998 | 1992 | 1993 | 1993 | 1998 | 1996 |      |
| MIN  | 1.46 | 1.07 | .75  | .47  | .49  | .44  | .28  | .086 | .036 | .009 | .001 | .052 |      |
| (WY) | 1992 | 1994 | 1995 | 1994 | 1990 | 1990 | 1990 | 1994 | 1994 | 1994 | 1994 | 1997 |      |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1988 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 2524.84                | 5146.92             |                         |
| ANNUAL MEAN              | 6.92                   | 14.1                | 6.19                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 14.1                    |
| LOWEST ANNUAL MEAN       |                        |                     | .57                     |
| HIGHEST DAILY MEAN       | 791                    | 791                 | 1900                    |
| LOWEST DAILY MEAN        | .00                    | .00                 | .00                     |
| ANNUAL SEVEN-DAY MINIMUM | .00                    | .07                 | .00                     |
| INSTANTANEOUS PEAK FLOW  |                        | 7320                | 18100                   |
| INSTANTANEOUS PEAK STAGE |                        | 14.30               | 18.65                   |
| ANNUAL RUNOFF (AC-FT)    | 5010                   | 10210               | 4480                    |
| ANNUAL RUNOFF (CFSM)     | .69                    | 1.41                | .62                     |
| ANNUAL RUNOFF (INCHES)   | 9.39                   | 19.15               | 8.41                    |
| 10 PERCENT EXCEEDS       | 4.8                    | 14                  | 6.0                     |
| 50 PERCENT EXCEEDS       | .40                    | 1.8                 | 1.1                     |
| 90 PERCENT EXCEEDS       | .02                    | .45                 | .12                     |

e Estimated

## RIO SALINAS BASIN

50100200 RIO LAPAS NEAR RABO DEL BUEY, PR--Continued



## RIO SALINAS BASIN

50100450 RIO MAJADA AT LA PLENA, PR

LOCATION.--Lat 18°02'40", long 66°12'27", Hydrologic Unit 21010004, on right bank, upstream side of bridge on Hwy 712, about 0.3 mi (0.5 km), southwest of La Plena.

DRAINAGE AREA.--16.7 mi<sup>2</sup> (43.3 km<sup>2</sup>).

PERIOD OF RECORD.--January 1973 to April 1979 (monthly measurements only), September 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map.

REMARKS.-Records fair except those for estimated daily discharges, which are poor. Some regulation at low-flow upstream from station by local residents for agricultural purposes.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV    | DEC   | JAN  | FEB    | MAR    | APR   | MAY   | JUN  | JUL   | AUG    | SEP    |
|-------|--------|--------|-------|------|--------|--------|-------|-------|------|-------|--------|--------|
| 1     | e.00   | e10    | 11    | 6.1  | 1.3    | 2.3    | 2.6   | e2.1  | 4.3  | 1.8   | .86    | 7.4    |
| 2     | e.00   | e9.3   | 11    | 6.7  | 1.2    | 2.2    | 19    | e1.9  | 3.4  | 1.8   | 1.0    | 12     |
| 3     | e.00   | e9.0   | 9.9   | 4.7  | .88    | 2.8    | 4.9   | e2.0  | 2.4  | 2.2   | .91    | 49     |
| 4     | e.00   | e8.8   | 9.1   | 3.6  | .74    | 3.5    | 1.8   | e2.0  | 2.2  | 3.5   | .91    | 84     |
| 5     | e.00   | e9.5   | 8.9   | 3.3  | 36     | 3.0    | 1.4   | e1.7  | 2.3  | 4.7   | .91    | 24     |
| 6     | e.00   | e10    | 8.2   | 4.1  | 13     | 2.6    | 1.2   | 1.6   | 3.1  | 3.0   | 1.7    | 16     |
| 7     | e.00   | e11    | 7.5   | 4.7  | 6.0    | 2.5    | 32    | 1.6   | 3.5  | 2.9   | 6.6    | 15     |
| 8     | e.00   | e11    | 7.3   | 4.1  | 4.3    | 2.1    | 15    | 1.5   | 2.8  | 2.6   | 7.4    | 14     |
| 9     | e.00   | e42    | 7.0   | 3.9  | 6.9    | 1.9    | 3.2   | 4.2   | 2.7  | 3.2   | 7.1    | 12     |
| 10    | e.00   | e400   | 7.0   | 3.5  | 4.5    | 1.8    | 1.8   | 3.1   | 3.3  | 2.7   | 3.2    | 9.3    |
| 11    | e.00   | e35    | 6.6   | 3.5  | 3.9    | 1.8    | 3.3   | 2.3   | 3.0  | 2.6   | 2.4    | 7.2    |
| 12    | e.00   | e30    | 6.2   | 3.8  | 3.6    | 1.6    | 30    | 2.9   | 2.8  | 2.2   | 1.9    | 6.7    |
| 13    | e.00   | e29    | 6.2   | 3.9  | 3.3    | 1.6    | 17    | 4.4   | 3.8  | 1.7   | 1.8    | 6.5    |
| 14    | e547   | e27    | 6.2   | 3.5  | 6.2    | 1.6    | 2.0   | 11    | 4.4  | 1.9   | 1.4    | 6.1    |
| 15    | e98    | e51    | 6.1   | 2.8  | 9.2    | 1.5    | 1.6   | 6.2   | 4.0  | 1.6   | 1.2    | 6.2    |
| 16    | e50    | e43    | 5.7   | 2.5  | 5.4    | 1.5    | 1.4   | 4.4   | 4.9  | 2.0   | 1.2    | 5.7    |
| 17    | e33    | e36    | 8.1   | 2.2  | 4.5    | 1.5    | 1.5   | 4.0   | 3.7  | 1.7   | 1.7    | 4.7    |
| 18    | e36    | e32    | 6.6   | 2.2  | 4.2    | 1.3    | 1.7   | 5.6   | 2.4  | 1.6   | 2.3    | 4.9    |
| 19    | e25    | e31    | 6.7   | 2.2  | 3.6    | 1.1    | 1.8   | 5.3   | 2.9  | 2.8   | 1.8    | 5.7    |
| 20    | e22    | e28    | 5.8   | 2.2  | 3.4    | 1.7    | e1.9  | 3.3   | 3.6  | 1.9   | 1.5    | 4.1    |
| 21    | e18    | 23     | 6.4   | 2.2  | 3.2    | 2.4    | e3.7  | 2.8   | 3.4  | 2.2   | 2.0    | e965   |
| 22    | e17    | 24     | 6.7   | 2.2  | 3.0    | 1.8    | e4.3  | 2.5   | 11   | 1.4   | 50     | 1080   |
| 23    | e15    | 24     | 5.7   | 2.1  | 2.8    | 1.9    | e7.1  | 2.4   | 2.8  | 1.0   | 16     | 224    |
| 24    | e14    | 20     | 5.3   | 2.0  | 2.6    | 1.1    | e6.4  | 2.4   | 1.9  | 1.3   | 151    | 139    |
| 25    | e14    | 16     | 5.6   | 2.1  | 2.4    | .96    | e4.1  | 2.3   | 1.7  | 1.0   | 315    | 81     |
| 26    | e13    | 15     | 5.7   | 2.3  | 2.4    | 1.0    | e3.9  | 7.0   | 1.8  | .87   | 60     | 69     |
| 27    | e12    | 14     | 5.7   | 2.0  | 2.4    | 1.1    | e3.3  | 13    | 1.9  | .85   | 26     | 61     |
| 28    | e11    | 13     | 5.7   | 1.6  | 2.4    | 2.1    | e3.0  | 4.6   | 1.8  | 1.4   | 11     | 57     |
| 29    | e11    | 12     | 5.7   | 1.6  | ---    | 1.6    | e2.6  | 3.1   | 1.8  | 1.9   | 25     | 52     |
| 30    | e11    | 12     | 6.2   | 1.5  | ---    | 32     | e2.3  | 3.1   | 1.8  | 1.4   | 14     | 45     |
| 31    | e11    | ---    | 5.7   | 1.3  | ---    | 16     | ---   | 15    | ---  | 1.2   | 8.8    | ---    |
| TOTAL | 958.00 | 1035.6 | 215.5 | 94.4 | 143.32 | 101.86 | 185.8 | 129.3 | 95.4 | 62.92 | 726.59 | 3073.5 |
| MEAN  | 30.9   | 34.5   | 6.95  | 3.05 | 5.12   | 3.29   | 6.19  | 4.17  | 3.18 | 2.03  | 23.4   | 102    |
| MAX   | 547    | 400    | 11    | 6.7  | 36     | 32     | 32    | 15    | 11   | 4.7   | 315    | 1080   |
| MIN   | .00    | 8.8    | 5.3   | 1.3  | .74    | .96    | 1.2   | 1.5   | 1.7  | .85   | .86    | 4.1    |
| AC-FT | 1900   | 2050   | 427   | 187  | 284    | 202    | 369   | 256   | 189  | 125   | 1440   | 6100   |
| CFSM  | 1.85   | 2.07   | .42   | .18  | .31    | .20    | .37   | .25   | .19  | .12   | 1.40   | 6.13   |
| IN.   | 2.13   | 2.31   | .48   | .21  | .32    | .23    | .41   | .29   | .21  | .14   | 1.62   | 6.85   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 14.4 | 9.33 | 3.61 | 9.07 | 3.27 | 2.06 | 1.90 | 3.82 | 3.18 | 3.09 | 4.29 | 28.2 |
| MAX  | 76.4 | 34.5 | 9.67 | 68.8 | 12.1 | 3.92 | 6.19 | 25.5 | 12.1 | 12.9 | 23.4 | 109  |
| (WY) | 1991 | 1998 | 1991 | 1992 | 1991 | 1991 | 1998 | 1992 | 1992 | 1993 | 1998 | 1996 |
| MIN  | 1.43 | 1.53 | .62  | .37  | .63  | .59  | .30  | .21  | .042 | .012 | .010 | .008 |
| (WY) | 1992 | 1994 | 1995 | 1995 | 1990 | 1990 | 1995 | 1994 | 1994 | 1997 | 1994 | 1997 |

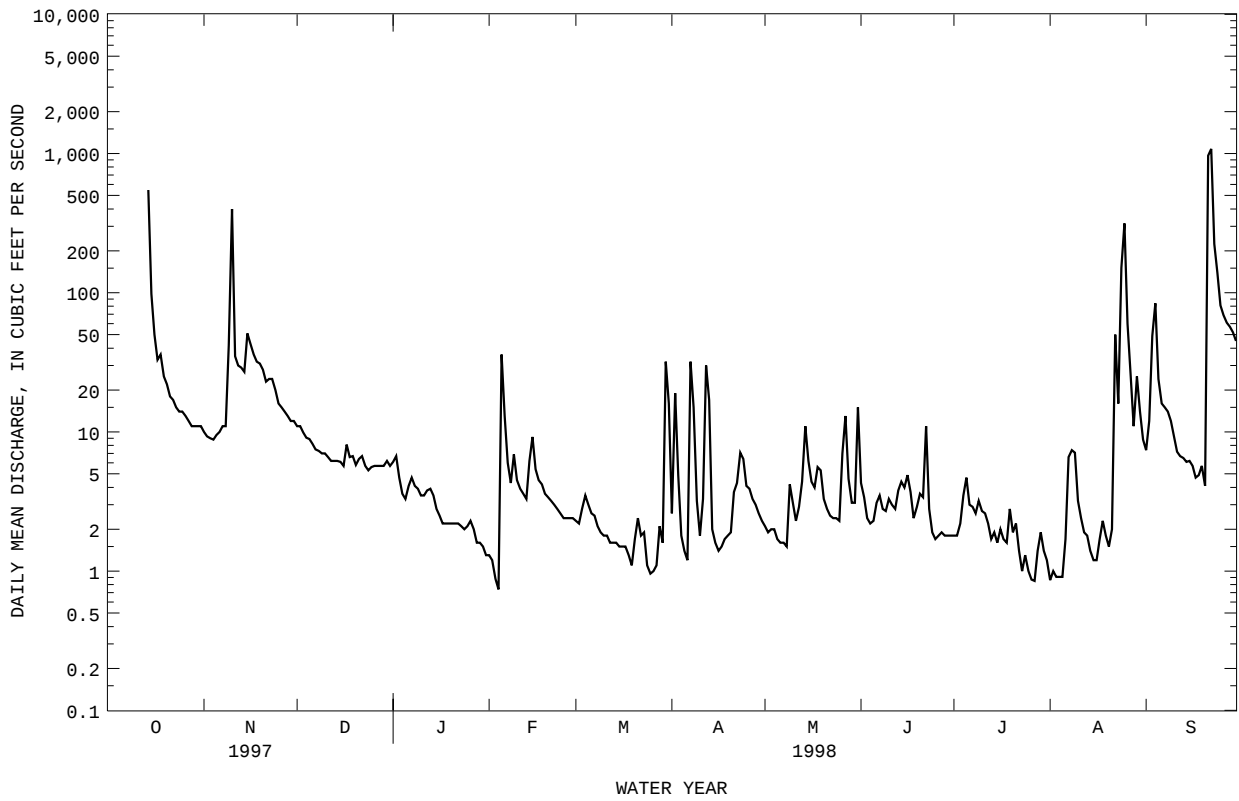
## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1973 - 1998

|                          |         |         |       |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL             | 2335.44 | 6822.19 |       |
| ANNUAL MEAN              | 6.40    | 18.7    |       |
| HIGHEST ANNUAL MEAN      |         |         | 7.17  |
| LOWEST ANNUAL MEAN       |         |         | 18.7  |
| HIGHEST DAILY MEAN       | 547     | Oct 14  | 1080  |
| LOWEST DAILY MEAN        | .00     | Jul 19  | .00   |
| ANNUAL SEVEN-DAY MINIMUM | .00     | Jul 19  | .00   |
| INSTANTANEOUS PEAK FLOW  |         |         | 12800 |
| INSTANTANEOUS PEAK STAGE |         |         | 15.63 |
| ANNUAL RUNOFF (AC-FT)    | 4630    |         | 13530 |
| ANNUAL RUNOFF (CFSM)     | .38     |         | 1.12  |
| ANNUAL RUNOFF (INCHES)   | 5.20    |         | 15.20 |
| 10 PERCENT EXCEEDS       | 11      |         | 27    |
| 50 PERCENT EXCEEDS       | .47     |         | 3.5   |
| 90 PERCENT EXCEEDS       | .00     |         | 1.3   |

e Estimated

## RIO SALINAS BASIN

50100450 RIO MAJADA AT LA PLENA, PR--Continued



## RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR

LOCATION.--Lat 18°05'00", long 66°21'16", Hydrologic Unit 21010004, on Highway 14 bridge, 0.8 mi (1.3 km) northeast from Parque Atlético, 1.2 mi (1.9 km) southeast from (W.C.P.R.) Antena de Radio.

DRAINAGE AREA.--3.5 mi<sup>2</sup> (112.7 km<sup>2</sup>).

PERIOD OF RECORD.--January 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 335 ft (110 m), from topographic map.

REMARKS.--Records poor. Low-flow is affected by domestic discharges about 200 ft (65.6 m), upstream from gaging station. Gage-height and precipitation satellite telemetry at station. The gage-height recovered for the instantaneous peak stage produced by Hurricane Georges was affected by backwater caused by the Hwy. 14 bridge which is about 100 ft.(30.40 m), downstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY    | JUN   | JUL   | AUG   | SEP   |
|-------|--------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| 1     | 2.0    | 8.8   | 8.1   | 5.3   | 7.1   | 9.5   | 11    | 10     | 12    | 5.1   | 2.0   | 15    |
| 2     | 2.0    | 9.0   | 7.7   | 5.0   | 6.4   | 8.8   | 37    | 10     | 9.0   | 4.6   | 2.2   | 37    |
| 3     | 12     | 8.2   | 7.5   | 4.5   | 6.2   | 8.8   | 9.6   | 14     | 9.0   | 4.5   | 2.3   | 75    |
| 4     | 3.4    | 7.7   | 7.3   | 4.9   | 6.2   | 10    | 5.8   | 12     | 38    | 4.6   | 2.1   | 149   |
| 5     | 2.0    | e7.5  | 6.7   | 4.8   | 328   | 8.7   | 5.3   | 10     | 10    | 5.9   | 2.1   | 21    |
| 6     | 2.3    | e7.4  | 6.6   | 4.5   | 42    | 7.3   | 4.9   | 9.6    | 8.2   | 4.0   | 3.2   | 70    |
| 7     | 1.8    | e7.2  | 6.5   | 6.3   | 12    | 7.1   | 31    | 13     | 7.3   | 3.6   | 35    | 63    |
| 8     | 42     | e7.2  | 6.1   | 5.9   | 12    | 6.1   | 11    | 11     | 7.3   | 3.2   | 53    | 44    |
| 9     | 49     | e18   | 5.6   | 5.5   | 43    | 5.8   | 5.7   | 11     | 6.9   | 3.4   | 14    | 35    |
| 10    | 13     | e26   | 5.6   | 5.5   | 26    | 5.2   | 5.4   | 12     | 6.7   | 3.7   | 8.2   | 27    |
| 11    | 23     | e11   | 5.5   | 5.8   | 22    | 4.6   | 14    | 8.8    | 6.3   | 3.9   | 6.2   | 22    |
| 12    | 16     | e9.4  | 5.3   | 19    | 20    | 4.0   | 126   | 7.3    | 5.9   | 3.8   | 5.7   | 20    |
| 13    | 78     | e9.0  | 5.3   | 11    | 16    | 3.7   | 46    | 10     | 6.2   | 3.8   | 4.9   | 18    |
| 14    | 351    | e8.6  | 5.1   | 10    | 15    | 3.5   | 22    | 39     | 6.3   | 3.6   | 4.4   | 16    |
| 15    | 200    | e18   | 5.0   | 11    | 13    | 4.0   | 17    | 75     | 6.3   | 4.6   | 3.9   | 16    |
| 16    | 113    | e14   | 5.0   | 11    | 12    | 3.5   | 14    | 29     | 7.2   | 4.0   | 4.2   | 14    |
| 17    | 60     | e12   | 5.2   | 9.0   | 12    | 3.4   | 13    | 17     | 7.4   | 4.0   | 4.6   | 12    |
| 18    | 51     | e11   | 4.8   | 13    | 13    | 2.8   | 41    | 38     | 7.6   | 4.2   | 4.1   | 14    |
| 19    | 43     | e10   | 5.0   | 13    | 14    | 2.6   | 30    | 43     | 6.7   | 4.5   | 4.1   | 15    |
| 20    | 34     | e9.6  | 5.0   | 9.7   | 13    | 2.5   | 26    | 89     | 6.1   | 4.1   | 4.0   | 13    |
| 21    | 28     | e9.2  | 5.2   | 8.5   | 11    | 3.6   | 24    | 212    | 6.8   | 4.7   | 4.2   | e1550 |
| 22    | 23     | e9.1  | 5.6   | 8.5   | 9.7   | 3.3   | 25    | 200    | 12    | 3.0   | 75    | e4530 |
| 23    | 16     | e9.0  | 5.6   | 8.2   | 9.2   | 3.0   | 20    | 131    | 7.1   | 2.6   | 23    | e694  |
| 24    | 17     | e9.0  | 5.6   | 8.6   | 8.4   | 2.5   | 20    | 93     | 6.2   | 2.4   | 107   | e283  |
| 25    | 15     | e9.0  | 5.6   | 9.0   | 7.7   | 2.4   | 25    | 67     | 5.8   | 2.2   | 348   | e189  |
| 26    | 13     | 12    | 5.6   | 9.7   | 10    | 2.7   | 21    | 54     | 5.8   | 2.3   | 64    | e176  |
| 27    | 12     | 17    | 5.6   | 8.5   | 10    | 2.3   | 18    | 58     | 5.6   | 2.8   | 37    | e177  |
| 28    | 11     | 11    | 5.6   | 7.7   | 9.5   | 2.6   | 14    | 30     | 5.4   | 2.7   | 30    | e172  |
| 29    | 10     | 8.5   | 5.8   | 6.9   | ---   | 3.6   | 13    | 20     | 5.5   | 2.9   | 27    | e144  |
| 30    | 9.0    | 8.5   | 5.7   | 6.7   | ---   | 12    | 12    | 16     | 5.2   | 2.7   | 20    | e116  |
| 31    | 9.0    | ---   | 5.3   | 6.2   | ---   | 26    | ---   | 13     | ---   | 2.8   | 16    | ---   |
| TOTAL | 1261.5 | 321.9 | 180.1 | 253.2 | 714.4 | 175.9 | 667.7 | 1362.7 | 245.8 | 114.2 | 921.4 | 8727  |
| MEAN  | 40.7   | 10.7  | 5.81  | 8.17  | 25.5  | 5.67  | 22.3  | 44.0   | 8.19  | 3.68  | 29.7  | 291   |
| MAX   | 351    | 26    | 8.1   | 19    | 328   | 26    | 126   | 212    | 38    | 5.9   | 348   | 4530  |
| MIN   | 1.8    | 7.2   | 4.8   | 4.5   | 6.2   | 2.3   | 4.9   | 7.3    | 5.2   | 2.2   | 2.0   | 12    |
| AC-FT | 2500   | 638   | 357   | 502   | 1420  | 349   | 1320  | 2700   | 488   | 227   | 1830  | 17310 |
| CFSM  | .94    | .25   | .13   | .19   | .59   | .13   | .51   | 1.01   | .19   | .08   | .68   | 6.69  |
| IN.   | 1.08   | .28   | .15   | .22   | .61   | .15   | .57   | 1.17   | .21   | .10   | .79   | 7.46  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1998, BY WATER YEAR (WY)

|      | MEAN | 54.1 | 25.7 | 16.6 | 17.4 | 10.6 | 5.84 | 11.5 | 18.1 | 13.7 | 6.97 | 10.5 | 50.6 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 274  | 62.9 | 83.8 | 79.0 | 25.5 | 9.79 | 27.6 | 69.6 | 76.1 | 15.5 | 29.7 | 291  |      |
| (WY) | 1991 | 1988 | 1988 | 1992 | 1998 | 1988 | 1987 | 1992 | 1987 | 1988 | 1998 | 1998 |      |
| MIN  | 10.3 | 4.91 | 3.72 | 2.71 | 3.17 | 3.09 | 2.49 | 1.66 | 1.99 | .78  | 1.28 | 1.61 |      |
| (WY) | 1989 | 1995 | 1989 | 1995 | 1989 | 1987 | 1995 | 1989 | 1989 | 1989 | 1994 | 1994 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

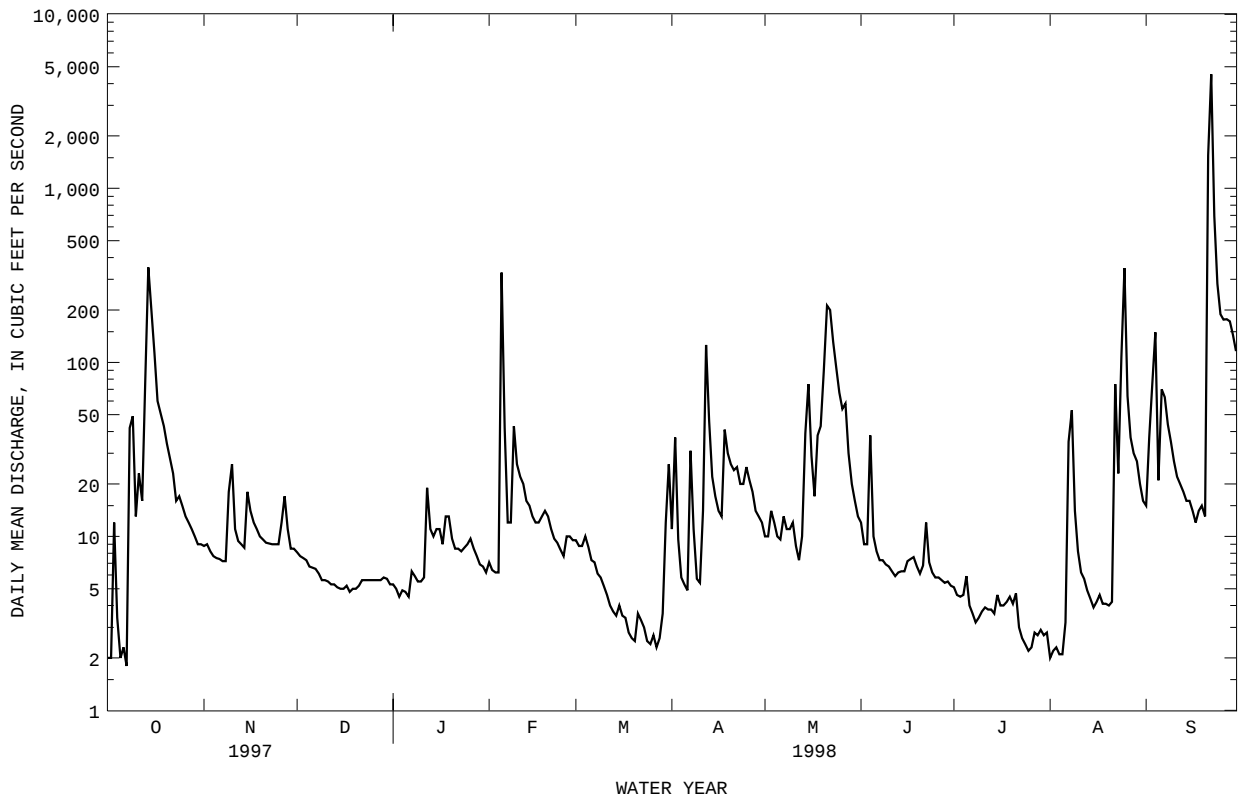
## WATER YEARS 1987 - 1998

|                          |        |         |       |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL             | 3056.1 | 14945.8 |       |
| ANNUAL MEAN              | 8.37   | 40.9    | 19.9  |
| HIGHEST ANNUAL MEAN      |        |         | 40.9  |
| LOWEST ANNUAL MEAN       |        |         | 4.52  |
| HIGHEST DAILY MEAN       | 351    | Oct 14  | 4530  |
| LOWEST DAILY MEAN        | 1.4    | Sep 12  | 1.8   |
| ANNUAL SEVEN-DAY MINIMUM | 1.4    | Sep 16  | 2.3   |
| INSTANTANEOUS PEAK FLOW  |        |         | 52700 |
| INSTANTANEOUS PEAK STAGE |        |         | 25.94 |
| ANNUAL RUNOFF (AC-FT)    | 6060   | 29640   | 14380 |
| ANNUAL RUNOFF (CFSM)     | .19    | .94     | .46   |
| ANNUAL RUNOFF (INCHES)   | 2.61   | 12.78   | 6.20  |
| 10 PERCENT EXCEEDS       | 12     | 50      | 35    |
| 50 PERCENT EXCEEDS       | 4.6    | 9.0     | 6.9   |
| 90 PERCENT EXCEEDS       | 1.8    | 3.5     | 2.2   |

e Estimated

## RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR--Continued



## RIO COAMO BASIN

50106500 RIO COAMO NEAR COAMO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'52", Long 66°22'10", Hydrologic Unit 21010004, on Highway 153 bridge, 0.4 mi (0.6 km) above Río de la Mina, and 1.8 mi (2.9 km) south of Coamo plaza.

DRAINAGE AREA.--46.0 mi<sup>2</sup> (119.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1978 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| NOV 04... | 1240 | 9.1                                             | 638                                     | 8.8                                      | 30.0                               | 4.5                       | 8.6                               | 88                                                | <10                                                  | 210                                                 | K190                                            |
| MAR 13... | 1010 | 6.3                                             | 672                                     | 7.8                                      | 26.5                               | .28                       | 8.2                               | 102                                               | <10                                                  | K130                                                | 50                                              |
| MAY 20... | 1110 | 20                                              | 464                                     | 7.6                                      | 30.0                               | 1.5                       | 7.7                               | 102                                               | <10                                                  | K1900                                               | K160                                            |
| AUG 26... | 0930 | 99                                              | 384                                     | 7.0                                      | 26.0                               | 8.5                       | 7.3                               | 91                                                | 20                                                   | 2400                                                | K1700                                           |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 04... | 240                                     | 24                                      | 44                                          | 13                                      | .4                                | 1.6                                        | 218                                                 | <.5                               | 21                                       | 16                                         |
| MAR 13... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 250                                                 | --                                | --                                       | --                                         |
| MAY 20... | 170                                     | 45                                      | 14                                          | 26                                      | .9                                | .23                                        | 170                                                 | --                                | 25                                       | 28                                         |
| AUG 26... | 200                                     | 31                                      | 30                                          | 16                                      | .5                                | 2.1                                        | 150                                                 | <1.0                              | 18                                       | 17                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 04... | .10                                       | 33                                        | 286                                                     | 7.03                                      | 39                                                     | 1.78                                         | .022                                         | 1.80                                         | .030                                         | .39                                          |
| MAR 13... | --                                        | --                                        | --                                                      | --                                        | 1                                                      | 2.58                                         | .017                                         | 2.60                                         | .030                                         | .28                                          |
| MAY 20... | .38                                       | 31                                        | 272                                                     | 14.5                                      | 2                                                      | 1.58                                         | .018                                         | 1.60                                         | .040                                         | --                                           |
| AUG 26... | .20                                       | 33                                        | 270                                                     | 6.63                                      | 12                                                     | --                                           | <.010                                        | 2.50                                         | .020                                         | .32                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 04... | .42                                                     | 2.2                                  | 9.8                                    | .210                                  | <1                                 | <100                                            | 80                                            | <1                                               | <1                                                 | <10                                             |
| MAR 13... | .31                                                     | 2.9                                  | 13                                     | .150                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 20... | <.20                                                    | --                                   | --                                     | .150                                  | <1                                 | <100                                            | 50                                            | <1                                               | <1                                                 | <10                                             |
| AUG 26... | .34                                                     | 2.8                                  | 13                                     | .260                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |



## RIO DESCALABRADO BASIN

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR

LOCATION.--Lat 18°03'08", long 66°25'34", Hydrologic Unit 21010004, at bridge on Highway 14, 1.5 mi (2.4 km) west of Los Llanos, and 5.3 mi (8.5 km) east of Juana Díaz.

DRAINAGE AREA.--12.9 mi<sup>2</sup> (33.4 km<sup>2</sup>).

PERIOD OF RECORD.--1959-65 (annual low-flow measurements only), 1965 (annual maximum discharge), January 1966 to June 1969, July to December 1969 (maximum discharge only), February 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 220 ft (67 m), from topographic map.

REMARKS.--Records poor. Some regulation at low-flow by local resident upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB    | MAR   | APR   | MAY   | JUN  | JUL   | AUG    | SEP    |
|-------|-------|-------|-------|-------|--------|-------|-------|-------|------|-------|--------|--------|
| 1     | 4.2   | 1.7   | e1.3  | .44   | e.39   | 1.0   | e14   | 1.6   | e4.4 | e1.7  | e.58   | e5.6   |
| 2     | 1.6   | 1.7   | e1.2  | .42   | e.35   | 1.0   | e1.5  | 1.8   | e3.2 | e1.6  | e.64   | e14    |
| 3     | 2.2   | 1.8   | e1.2  | .49   | e.34   | .94   | e1.4  | 2.0   | e3.3 | e1.6  | e.66   | e29    |
| 4     | 1.7   | 1.7   | e1.1  | .46   | e.34   | .92   | e1.3  | 1.7   | e14  | e1.6  | e.62   | e54    |
| 5     | 1.5   | 1.8   | e1.1  | .40   | e60    | .87   | e1.3  | 1.7   | e3.6 | e2.0  | e.62   | e8.0   |
| 6     | 1.4   | 1.8   | e1.1  | .45   | e5.4   | .87   | e1.3  | 1.7   | e3.0 | e1.4  | e.82   | e26    |
| 7     | 1.4   | 1.7   | e1.0  | .43   | e1.8   | .90   | e46   | 3.8   | e2.7 | e1.3  | e9.6   | e23    |
| 8     | 27    | 1.8   | e1.0  | .56   | e1.8   | .82   | e4.8  | 2.5   | e2.7 | e1.1  | e14    | e17    |
| 9     | 38    | 3.4   | .90   | .49   | e6.4   | .87   | e3.2  | 1.9   | e2.5 | e1.2  | e3.7   | e13    |
| 10    | 39    | e6.9  | .91   | .49   | e3.8   | .93   | e2.7  | 1.8   | e2.5 | e1.3  | e2.2   | e10    |
| 11    | e108  | e2.1  | .91   | .45   | e3.3   | .93   | e5.2  | 1.7   | e2.3 | e1.4  | e1.7   | e8.2   |
| 12    | e16   | e2.2  | .85   | 1.9   | e2.9   | .91   | e43   | 2.0   | e2.2 | e1.3  | e1.7   | e7.6   |
| 13    | e159  | e2.1  | .79   | 1.0   | e2.4   | .91   | e5.0  | e2.1  | e2.3 | e1.3  | e1.5   | e6.8   |
| 14    | e398  | e2.0  | .77   | .67   | e2.3   | .88   | e3.0  | e10   | e2.3 | e1.3  | e1.5   | e6.0   |
| 15    | 91    | e1.9  | .73   | .59   | e2.0   | .91   | 3.1   | e18   | e2.3 | e1.7  | e1.4   | e6.0   |
| 16    | 22    | e1.9  | .72   | .54   | e1.8   | e.88  | 3.2   | e7.0  | e2.7 | e1.1  | e1.6   | e5.4   |
| 17    | 16    | e1.9  | .76   | .51   | e1.8   | e.84  | 3.4   | e4.0  | e2.8 | e1.1  | e1.8   | e4.6   |
| 18    | 9.8   | e1.8  | .80   | .52   | e2.0   | e.82  | 18    | e9.0  | e2.8 | e1.2  | e1.8   | e5.2   |
| 19    | 5.3   | 1.8   | .74   | .54   | e2.1   | e.80  | 3.0   | e11   | e2.5 | e1.3  | e1.9   | e5.6   |
| 20    | 4.5   | 1.7   | .72   | e.70  | e1.9   | e.80  | 2.1   | e21   | e2.2 | e1.2  | e2.0   | e5.0   |
| 21    | 4.1   | 1.4   | .80   | e.47  | e1.6   | e.82  | 3.5   | e50   | e2.5 | e1.4  | e2.2   | e200   |
| 22    | 3.7   | 1.5   | .70   | e.47  | e1.4   | e.80  | 2.6   | e47   | e4.5 | e.86  | e20    | e1700  |
| 23    | 3.4   | 1.4   | .66   | e.45  | e1.3   | e.78  | 1.8   | e30   | e2.6 | e.72  | e6.1   | e260   |
| 24    | 3.0   | 1.2   | .62   | e.48  | e1.2   | e.78  | 1.8   | e23   | e2.2 | e.70  | e30    | e106   |
| 25    | 2.8   | 1.2   | .59   | e.50  | 1.2    | e.80  | 1.7   | e18   | e2.0 | e.65  | e92    | e70    |
| 26    | 2.4   | 1.1   | .57   | e.54  | 1.1    | e.78  | 1.9   | e13   | e2.0 | e.66  | e25    | e66    |
| 27    | 2.2   | 1.0   | .56   | e.47  | 1.1    | e.80  | 1.8   | e14   | e1.9 | e.80  | e14    | e66    |
| 28    | 2.0   | 1.0   | .58   | e.43  | 1.1    | e.78  | 1.8   | e11   | e1.8 | e.80  | e11    | e65    |
| 29    | 1.9   | .99   | .54   | e.38  | ---    | e.86  | 1.7   | e7.2  | e1.9 | e.83  | e10    | e55    |
| 30    | 1.9   | .99   | .49   | e.37  | ---    | e1.2  | 1.6   | e5.6  | e1.8 | e.74  | e7.4   | e44    |
| 31    | 2.0   | ---   | .48   | e.35  | ---    | e.97  | ---   | e4.7  | ---  | e.74  | e6.0   | ---    |
| TOTAL | 977.0 | 55.48 | 25.19 | 16.96 | 113.12 | 27.17 | 186.7 | 329.8 | 89.5 | 36.60 | 274.04 | 2892.0 |
| MEAN  | 31.5  | 1.85  | .81   | .55   | 4.04   | .88   | 6.22  | 10.6  | 2.98 | 1.18  | 8.84   | 96.4   |
| MAX   | 398   | 6.9   | 1.3   | 1.9   | 60     | 1.2   | 46    | 50    | 14   | 2.0   | 92     | 1700   |
| MIN   | 1.4   | .99   | .48   | .35   | .34    | .78   | 1.3   | 1.6   | 1.8  | .65   | .58    | 4.6    |
| AC-FT | 1940  | 110   | 50    | 34    | 224    | 54    | 370   | 654   | 178  | 73    | 544    | 5740   |
| CFSM  | 2.44  | .14   | .06   | .04   | .31    | .07   | .48   | .82   | .23  | .09   | .69    | 7.47   |
| IN.   | 2.82  | .16   | .07   | .05   | .33    | .08   | .54   | .95   | .26  | .11   | .79    | 8.34   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 26.9 | 14.1 | 4.77 | 4.60 | 3.67 | 1.92 | 4.33 | 14.6 | 4.87 | 2.61 | 4.25 | 38.3 |
| MAX  | 117  | 41.0 | 24.5 | 36.4 | 23.9 | 8.93 | 18.8 | 62.2 | 25.2 | 10.5 | 13.1 | 395  |
| (WY) | 1986 | 1985 | 1988 | 1992 | 1995 | 1996 | 1985 | 1985 | 1987 | 1991 | 1996 | 1996 |
| MIN  | 2.02 | 1.04 | .19  | .057 | .020 | .012 | .000 | .032 | .000 | .000 | .19  | .063 |
| (WY) | 1968 | 1995 | 1968 | 1968 | 1968 | 1968 | 1968 | 1968 | 1967 | 1967 | 1990 | 1967 |

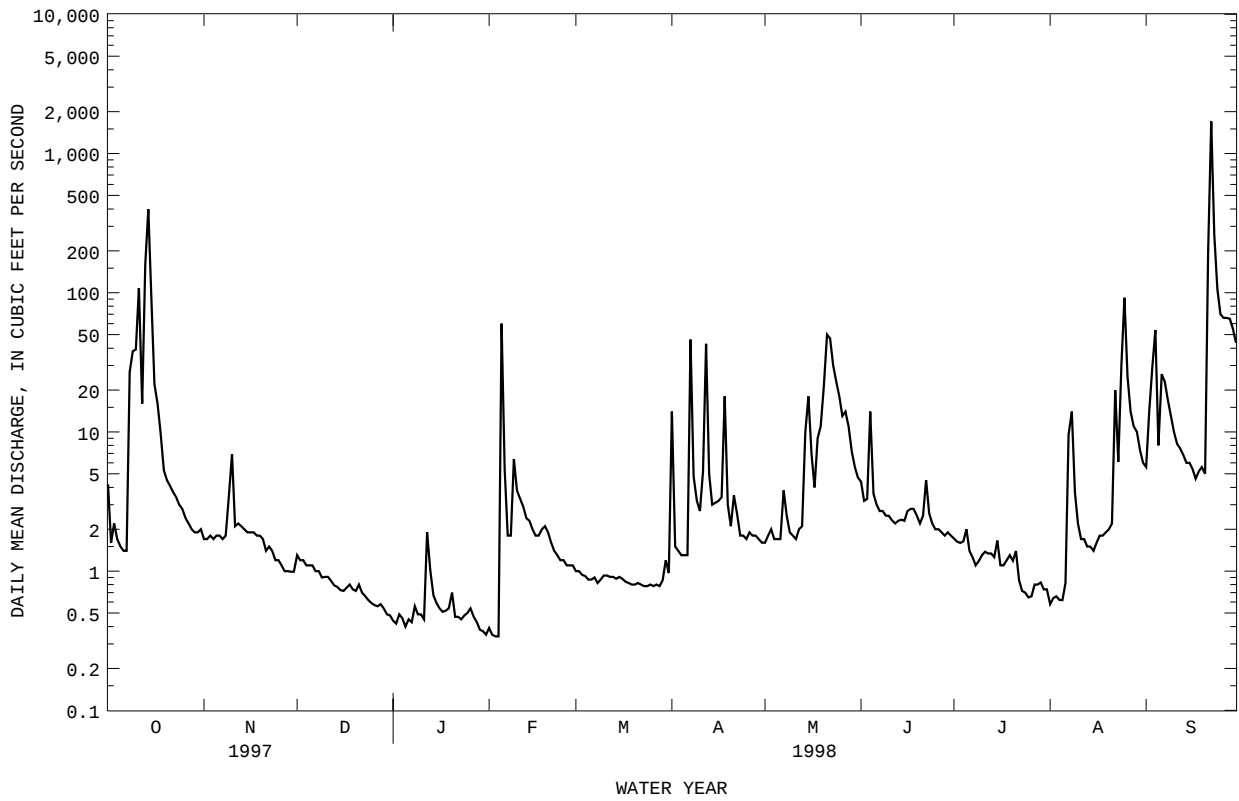
## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1966 - 1998

|                          |         |         |       |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL             | 1451.39 | 5023.56 |       |
| ANNUAL MEAN              | 3.98    | 13.8    | 11.0  |
| HIGHEST ANNUAL MEAN      |         |         | 41.7  |
| LOWEST ANNUAL MEAN       |         |         | 1.69  |
| HIGHEST DAILY MEAN       | 398     | Oct 14  | 1700  |
| LOWEST DAILY MEAN        | .11     | Sep 20  | .34   |
| ANNUAL SEVEN-DAY MINIMUM | .12     | Sep 3   | .36   |
| INSTANTANEOUS PEAK FLOW  |         |         | 9180  |
| INSTANTANEOUS PEAK STAGE |         |         | 16.15 |
| ANNUAL RUNOFF (AC-FT)    | 2880    |         | 9960  |
| ANNUAL RUNOFF (CFSM)     | .31     |         | 1.07  |
| ANNUAL RUNOFF (INCHES)   | 4.19    |         | 14.49 |
| 10 PERCENT EXCEEDS       | 3.4     |         | 18    |
| 50 PERCENT EXCEEDS       | .62     |         | 1.8   |
| 90 PERCENT EXCEEDS       | .15     |         | .58   |

e Estimated

## RIO DESCALABRADO BASIN

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR--Continued



## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR

LOCATION.--Lat 18°07'37", long 66°27'24", Hydrologic unit 21010004, on right bank, off a dirt road about 0.3 mi (0.5 km) from road 553, 2.4 mi (3.9 km) southeast from Villalba Plaza, and 0.2 mi (0.3 km) downstream from confluence with Quebrada Limón.

DRAINAGE AREA.--14.2 mi<sup>2</sup> (36.77 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1989 to current year.

GAGE.--Water stage recorder. Elevation of gage is 525 ft (160 m ), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC  | JAN  | FEB   | MAR  | APR   | MAY    | JUN   | JUL   | AUG    | SEP   |
|-------|--------|-------|------|------|-------|------|-------|--------|-------|-------|--------|-------|
| 1     | 17     | 7.3   | 3.5  | 1.9  | 1.6   | 1.9  | 16    | 7.4    | 18    | 5.4   | 7.1    | 14    |
| 2     | 16     | 7.0   | 3.3  | 2.0  | 1.6   | 1.8  | 31    | 7.3    | 17    | 4.8   | 12     | 30    |
| 3     | 13     | 6.6   | 3.0  | 2.1  | 1.5   | 2.5  | 15    | 7.8    | 21    | 4.4   | 7.4    | 93    |
| 4     | 12     | 6.4   | 2.9  | 1.9  | 2.0   | 2.5  | 5.5   | 7.5    | 45    | 5.6   | 3.4    | 153   |
| 5     | 10     | 6.1   | 2.9  | 1.7  | 93    | 2.2  | 2.9   | 7.5    | 53    | 5.8   | 2.5    | 37    |
| 6     | 9.8    | 5.9   | 2.9  | 1.6  | 4.5   | 2.0  | 2.1   | 16     | 34    | 4.2   | 4.1    | 150   |
| 7     | 11     | 5.7   | 2.8  | 2.4  | 2.2   | 2.0  | 86    | 11     | 29    | 4.6   | 19     | 92    |
| 8     | 75     | 7.0   | 2.8  | 2.2  | 24    | 2.5  | 53    | 13     | 28    | 4.5   | 31     | 49    |
| 9     | 44     | 7.4   | 2.4  | 2.0  | 33    | 1.9  | 28    | 15     | 26    | 4.3   | 19     | 35    |
| 10    | 29     | 24    | 2.3  | 1.7  | 8.3   | 1.5  | 17    | 9.5    | 25    | 4.7   | 11     | 28    |
| 11    | 66     | 7.5   | 2.3  | 1.6  | 4.5   | 1.5  | 17    | 7.7    | 23    | 4.6   | 13     | 47    |
| 12    | 55     | 6.1   | 2.1  | 1.8  | 3.0   | 1.4  | 217   | 7.0    | 23    | 4.5   | 18     | 34    |
| 13    | 71     | 5.2   | 2.1  | 3.0  | 2.4   | 1.4  | 58    | 22     | 22    | 4.9   | 13     | 23    |
| 14    | 236    | 4.7   | 1.9  | 3.5  | 3.0   | 1.4  | 26    | 67     | 19    | 10    | 6.2    | 18    |
| 15    | 129    | 4.7   | 2.0  | 2.2  | 3.7   | 1.4  | 17    | 74     | 18    | 15    | 3.4    | 18    |
| 16    | 68     | 5.0   | 2.0  | 1.7  | 2.6   | 1.5  | 13    | 36     | 27    | 12    | 3.0    | 34    |
| 17    | 53     | 4.7   | 2.4  | 1.5  | 2.6   | 1.5  | 11    | 29     | 40    | 9.8   | 10     | 19    |
| 18    | 36     | 4.3   | 2.4  | 15   | 2.5   | 1.6  | 10    | 124    | 25    | 9.5   | 3.3    | 41    |
| 19    | 26     | 4.0   | 2.4  | 14   | 2.1   | 1.7  | 9.0   | 42     | 14    | 7.6   | 3.9    | 37    |
| 20    | 22     | 3.9   | 2.0  | 3.9  | 2.1   | 1.7  | 8.6   | 243    | 11    | 9.5   | 14     | 26    |
| 21    | 15     | 3.9   | 2.0  | 2.8  | 1.9   | 2.0  | 11    | 456    | 11    | 11    | 9.0    | 1050  |
| 22    | 13     | 4.0   | 1.7  | 2.4  | 2.0   | 2.6  | 11    | 165    | 18    | 6.5   | 122    | e1740 |
| 23    | 11     | 3.8   | 2.6  | 2.2  | 1.8   | 1.9  | 14    | 87     | 10    | 4.8   | 33     | e224  |
| 24    | 10     | 3.5   | 2.4  | 2.2  | 2.0   | 2.0  | 13    | 62     | 9.2   | 4.7   | 455    | e115  |
| 25    | 9.3    | 3.3   | 2.3  | 2.3  | 1.8   | 2.5  | 9.7   | 45     | 9.0   | 4.8   | 146    | e85   |
| 26    | 8.6    | 3.2   | 2.2  | 2.5  | 1.8   | 2.7  | 9.0   | 43     | 8.4   | 3.8   | 52     | e73   |
| 27    | 8.2    | 3.1   | 2.1  | 1.9  | 1.8   | 2.2  | 7.7   | 31     | 7.2   | 5.9   | 34     | e63   |
| 28    | 7.9    | 3.0   | 2.1  | 1.8  | 1.9   | 2.1  | 7.0   | 27     | 6.9   | 4.7   | 24     | e59   |
| 29    | 7.9    | 3.0   | 2.0  | 1.8  | ---   | 1.7  | 6.3   | 24     | 6.3   | 4.1   | 19     | e93   |
| 30    | 7.7    | 4.3   | 1.9  | 1.6  | ---   | 13   | 6.8   | 22     | 6.0   | 3.6   | 16     | e86   |
| 31    | 7.5    | ---   | 1.8  | 1.6  | ---   | 4.0  | ---   | 20     | ---   | 3.2   | 14     | ---   |
| TOTAL | 1104.9 | 168.6 | 73.5 | 90.8 | 215.2 | 72.6 | 738.6 | 1735.7 | 610.0 | 192.8 | 1128.3 | 4566  |
| MEAN  | 35.6   | 5.62  | 2.37 | 2.93 | 7.69  | 2.34 | 24.6  | 56.0   | 20.3  | 6.22  | 36.4   | 152   |
| MAX   | 236    | 24    | 3.5  | 15   | 93    | 13   | 217   | 456    | 53    | 15    | 455    | 1740  |
| MIN   | 7.5    | 3.0   | 1.7  | 1.5  | 1.5   | 1.4  | 2.1   | 7.0    | 6.0   | 3.2   | 2.5    | 14    |
| AC-FT | 2190   | 334   | 146  | 180  | 427   | 144  | 1470  | 3440   | 1210  | 382   | 2240   | 9060  |
| CFSM  | 2.51   | .40   | .17  | .21  | .54   | .16  | 1.73  | 3.94   | 1.43  | .44   | 2.56   | 10.7  |
| IN.   | 2.89   | .44   | .19  | .24  | .56   | .19  | 1.93  | 4.55   | 1.60  | .51   | 2.96   | 11.96 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

|      | MEAN | 41.5 | 15.9 | 6.46 | 9.19 | 5.70 | 3.37 | 9.79 | 23.1 | 11.2 | 6.64 | 9.86 | 44.5 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 109  | 40.1 | 12.4 | 43.1 | 12.6 | 5.01 | 26.3 | 76.1 | 35.4 | 14.4 | 36.4 | 152  |      |
| (WY) | 1991 | 1991 | 1993 | 1992 | 1996 | 1996 | 1993 | 1995 | 1992 | 1992 | 1998 | 1998 |      |
| MIN  | 4.61 | 2.19 | 1.42 | 1.79 | 2.38 | 1.67 | 1.46 | 1.42 | 1.23 | .71  | 2.74 | 3.21 |      |
| (WY) | 1992 | 1992 | 1992 | 1995 | 1990 | 1990 | 1990 | 1997 | 1990 | 1990 | 1990 | 1994 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

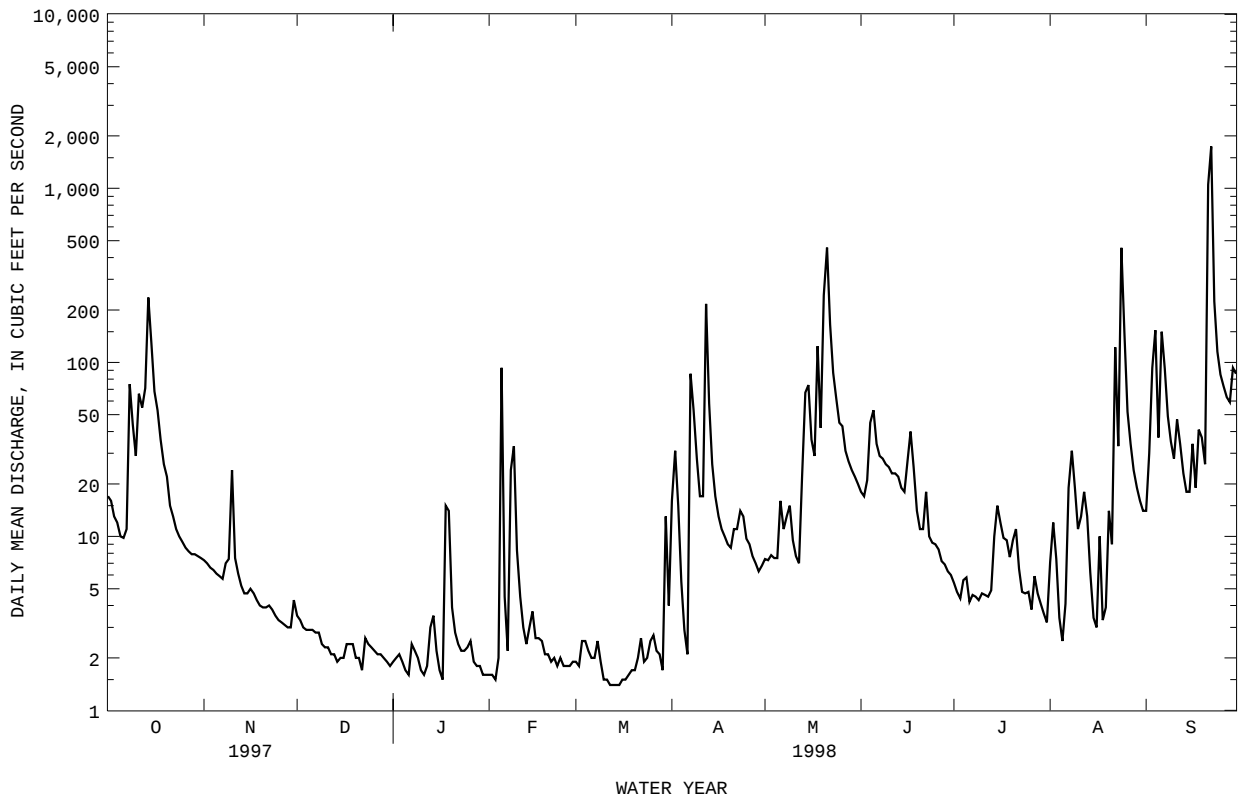
## WATER YEARS 1989 - 1998

|                          |         |         |                |        |
|--------------------------|---------|---------|----------------|--------|
| ANNUAL TOTAL             | 2278.47 | 10697.0 |                |        |
| ANNUAL MEAN              | 6.24    | 29.3    |                |        |
| HIGHEST ANNUAL MEAN      |         |         | 15.9           |        |
| LOWEST ANNUAL MEAN       |         |         | 29.3           | 1998   |
| HIGHEST DAILY MEAN       | 236     | Oct 14  | 1740           | Sep 22 |
| LOWEST DAILY MEAN        | .57     | Jul 25  | 1.4            | Mar 12 |
| ANNUAL SEVEN-DAY MINIMUM | .64     | Jul 22  | 1.4            | Mar 10 |
| INSTANTANEOUS PEAK FLOW  |         |         | Not determined | Sep 21 |
| INSTANTANEOUS PEAK STAGE |         |         | 20.60          | Sep 21 |
| INSTANTANEOUS LOW FLOW   |         |         | .59            | Apr 1  |
| ANNUAL RUNOFF (AC-FT)    | 4520    | 21220   |                | 11500  |
| ANNUAL RUNOFF (CFSM)     | .44     | 2.06    |                | 1.12   |
| ANNUAL RUNOFF (INCHES)   | 5.97    | 28.02   |                | 15.19  |
| 10 PERCENT EXCEEDS       | 9.9     | 54      |                | 33     |
| 50 PERCENT EXCEEDS       | 2.4     | 7.2     |                | 4.3    |
| 90 PERCENT EXCEEDS       | 1.1     | 1.9     |                | 1.4    |

e Estimated

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued



## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment sampler since 1988.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by a local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 11,800 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, e93,300 tons (e84,700 tonnes) September 22, 1998; Minimum daily mean, &lt;0.01 ton (&lt;0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATION: Maximum daily mean, 11,800 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, e93,300 tons (e84,700 tonnes) September 22, 1998; Minimum daily mean, 0.01 tons (0.01 tonne) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | 17                         | 95                                   | 4.3                                 | 7.3                        | 205                                  | 4.0                                 | 3.5                        | 16                                   | .16                                 |
| 2       | 16                         | 89                                   | 3.9                                 | 7.0                        | 231                                  | 4.3                                 | 3.3                        | 17                                   | .15                                 |
| 3       | 13                         | 84                                   | 3.0                                 | 6.6                        | 263                                  | 4.7                                 | 3.0                        | 16                                   | .13                                 |
| 4       | 12                         | 79                                   | 2.5                                 | 6.4                        | 293                                  | 5.0                                 | 2.9                        | 15                                   | .12                                 |
| 5       | 10                         | 75                                   | 2.0                                 | 6.1                        | 254                                  | 4.2                                 | 2.9                        | 10                                   | .08                                 |
| 6       | 9.8                        | 70                                   | 1.8                                 | 5.9                        | 205                                  | 3.2                                 | 2.9                        | 6                                    | .04                                 |
| 7       | 11                         | 130                                  | 3.2                                 | 5.7                        | 164                                  | 2.5                                 | 2.8                        | 3                                    | .03                                 |
| 8       | 75                         | 1390                                 | 1040                                | 7.0                        | 131                                  | 2.4                                 | 2.8                        | 3                                    | .02                                 |
| 9       | 44                         | 494                                  | 60                                  | 7.4                        | 108                                  | 2.4                                 | 2.4                        | 2                                    | .01                                 |
| 10      | 29                         | 328                                  | 26                                  | 24                         | 350                                  | 37                                  | 2.3                        | 2                                    | .01                                 |
| 11      | 66                         | 655                                  | 203                                 | 7.5                        | 41                                   | .87                                 | 2.3                        | 2                                    | .01                                 |
| 12      | 55                         | 598                                  | 91                                  | 6.1                        | 8                                    | .13                                 | 2.1                        | 3                                    | .01                                 |
| 13      | 71                         | 709                                  | 226                                 | 5.2                        | 2                                    | .02                                 | 2.1                        | 3                                    | .02                                 |
| 14      | 236                        | 2350                                 | 2990                                | 4.7                        | 3                                    | .03                                 | 1.9                        | 3                                    | .02                                 |
| 15      | 129                        | 456                                  | 183                                 | 4.7                        | 9                                    | .11                                 | 2.0                        | 4                                    | .02                                 |
| 16      | 68                         | 471                                  | 91                                  | 5.0                        | 24                                   | .33                                 | 2.0                        | 4                                    | .02                                 |
| 17      | 53                         | 476                                  | 127                                 | 4.7                        | 14                                   | .17                                 | 2.4                        | 5                                    | .03                                 |
| 18      | 36                         | 271                                  | 28                                  | 4.3                        | 4                                    | .05                                 | 2.4                        | 5                                    | .03                                 |
| 19      | 26                         | 72                                   | 5.2                                 | 4.0                        | 1                                    | .01                                 | 2.4                        | 6                                    | .04                                 |
| 20      | 22                         | 21                                   | 1.2                                 | 3.9                        | 1                                    | .01                                 | 2.0                        | 6                                    | .03                                 |
| 21      | 15                         | 33                                   | e1.4                                | 3.9                        | 1                                    | .01                                 | 2.0                        | 7                                    | .04                                 |
| 22      | 13                         | 86                                   | 2.9                                 | 4.0                        | 1                                    | .01                                 | 1.7                        | 8                                    | .04                                 |
| 23      | 11                         | 210                                  | 6.4                                 | 3.8                        | 3                                    | .03                                 | 2.6                        | 9                                    | .06                                 |
| 24      | 10                         | 229                                  | 6.3                                 | 3.5                        | 8                                    | .08                                 | 2.4                        | 10                                   | .06                                 |
| 25      | 9.3                        | 200                                  | 5.0                                 | 3.3                        | 12                                   | .11                                 | 2.3                        | 11                                   | .07                                 |
| 26      | 8.6                        | 175                                  | 4.1                                 | 3.2                        | 4                                    | .04                                 | 2.2                        | 12                                   | .07                                 |
| 27      | 8.2                        | 168                                  | 3.7                                 | 3.1                        | 5                                    | .04                                 | 2.1                        | 14                                   | .08                                 |
| 28      | 7.9                        | 165                                  | 3.5                                 | 3.0                        | 5                                    | .04                                 | 2.1                        | 15                                   | .09                                 |
| 29      | 7.9                        | 163                                  | 3.5                                 | 3.0                        | 7                                    | .06                                 | 2.0                        | 17                                   | .09                                 |
| 30      | 7.7                        | 174                                  | 3.6                                 | 4.3                        | 11                                   | .13                                 | 1.9                        | 19                                   | .10                                 |
| 31      | 7.5                        | 188                                  | 3.8                                 | ---                        | ---                                  | ---                                 | 1.8                        | 18                                   | .09                                 |
| TOTAL   | 1104.9                     | ---                                  | 5136.3                              | 168.6                      | ---                                  | 71.98                               | 73.5                       | ---                                  | 1.77                                |

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 1.9                        | 17                              | .09                                 | 1.6                        | 7                               | .03                                 | 1.9                        | 31                              | .16                                 |
| 2       | 2.0                        | 16                              | .09                                 | 1.6                        | 6                               | .03                                 | 1.8                        | 38                              | .19                                 |
| 3       | 2.1                        | 15                              | .08                                 | 1.5                        | 5                               | .02                                 | 2.5                        | 46                              | .31                                 |
| 4       | 1.9                        | 14                              | .07                                 | 2.0                        | 9                               | .07                                 | 2.5                        | 44                              | .29                                 |
| 5       | 1.7                        | 13                              | .06                                 | 93                         | 1610                            | 1230                                | 2.2                        | 38                              | .23                                 |
| 6       | 1.6                        | 12                              | .05                                 | 4.5                        | 124                             | 1.8                                 | 2.0                        | 32                              | .18                                 |
| 7       | 2.4                        | 12                              | .08                                 | 2.2                        | 27                              | .16                                 | 2.0                        | 17                              | .09                                 |
| 8       | 2.2                        | 11                              | .06                                 | 24                         | 184                             | 87                                  | 2.5                        | 8                               | .05                                 |
| 9       | 2.0                        | 10                              | .05                                 | 33                         | 214                             | 29                                  | 1.9                        | 4                               | .02                                 |
| 10      | 1.7                        | 10                              | .04                                 | 8.3                        | 42                              | .96                                 | 1.5                        | 3                               | .01                                 |
| 11      | 1.6                        | 9                               | .04                                 | 4.5                        | 29                              | .35                                 | 1.5                        | 3                               | .01                                 |
| 12      | 1.8                        | 8                               | .04                                 | 3.0                        | 19                              | .15                                 | 1.4                        | 3                               | .01                                 |
| 13      | 3.0                        | 8                               | .06                                 | 2.4                        | 11                              | .07                                 | 1.4                        | 4                               | .02                                 |
| 14      | 3.5                        | 7                               | .07                                 | 3.0                        | 6                               | .05                                 | 1.4                        | 6                               | .02                                 |
| 15      | 2.2                        | 7                               | .04                                 | 3.7                        | 4                               | .04                                 | 1.4                        | 8                               | .03                                 |
| 16      | 1.7                        | 7                               | .03                                 | 2.6                        | 6                               | .04                                 | 1.5                        | 11                              | .04                                 |
| 17      | 1.5                        | 6                               | .03                                 | 2.6                        | 11                              | .08                                 | 1.5                        | 14                              | .06                                 |
| 18      | 15                         | 106                             | 34                                  | 2.5                        | 22                              | .15                                 | 1.6                        | 18                              | .08                                 |
| 19      | 14                         | 87                              | 6.7                                 | 2.1                        | 21                              | .12                                 | 1.7                        | 22                              | .10                                 |
| 20      | 3.9                        | 10                              | .10                                 | 2.1                        | 16                              | .09                                 | 1.7                        | 26                              | .12                                 |
| 21      | 2.8                        | 10                              | .08                                 | 1.9                        | 12                              | .06                                 | 2.0                        | 30                              | .17                                 |
| 22      | 2.4                        | 10                              | .07                                 | 2.0                        | 10                              | .05                                 | 2.6                        | 25                              | .13                                 |
| 23      | 2.2                        | 10                              | .06                                 | 1.8                        | 12                              | .06                                 | 1.9                        | 18                              | .10                                 |
| 24      | 2.2                        | 10                              | .06                                 | 2.0                        | 16                              | .09                                 | 2.0                        | 14                              | .08                                 |
| 25      | 2.3                        | 10                              | .06                                 | 1.8                        | 23                              | .11                                 | 2.5                        | 16                              | .10                                 |
| 26      | 2.5                        | 10                              | .07                                 | 1.8                        | 38                              | .18                                 | 2.7                        | 20                              | .14                                 |
| 27      | 1.9                        | 10                              | .05                                 | 1.8                        | 35                              | .17                                 | 2.2                        | 23                              | .14                                 |
| 28      | 1.8                        | 10                              | .05                                 | 1.9                        | 28                              | .14                                 | 2.1                        | 17                              | .10                                 |
| 29      | 1.8                        | 10                              | .05                                 | ---                        | ---                             | ---                                 | 1.7                        | 11                              | .05                                 |
| 30      | 1.6                        | 9                               | .04                                 | ---                        | ---                             | ---                                 | 13                         | 158                             | 11                                  |
| 31      | 1.6                        | 8                               | .04                                 | ---                        | ---                             | ---                                 | 4.0                        | 42                              | .59                                 |
| TOTAL   | 90.8                       | ---                             | 42.41                               | 215.2                      | ---                             | 1351.07                             | 72.6                       | ---                             | 14.62                               |

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1     | 16                         | 335                             | 69                                  | 7.4                        | 32                              | .64                                 | 18                         | 5                               | .25                                 |
| 2     | 31                         | 394                             | 86                                  | 7.3                        | 43                              | .85                                 | 17                         | 10                              | .46                                 |
| 3     | 15                         | 206                             | 9.2                                 | 7.8                        | 48                              | 1.0                                 | 21                         | 110                             | 11                                  |
| 4     | 5.5                        | 69                              | 1.1                                 | 7.5                        | 53                              | 1.1                                 | 45                         | 297                             | 88                                  |
| 5     | 2.9                        | 23                              | .19                                 | 7.5                        | 53                              | 1.1                                 | 53                         | 836                             | 464                                 |
| 6     | 2.1                        | 11                              | .06                                 | 16                         | 84                              | 19                                  | 34                         | 73                              | 6.9                                 |
| 7     | 86                         | 1680                            | 1290                                | 11                         | 87                              | 2.7                                 | 29                         | 30                              | 2.3                                 |
| 8     | 53                         | 130                             | 22                                  | 13                         | 168                             | 3.4                                 | 28                         | 29                              | 2.2                                 |
| 9     | 28                         | 26                              | 2.0                                 | 15                         | 138                             | 5.8                                 | 26                         | 28                              | 2.0                                 |
| 10    | 17                         | 32                              | 1.4                                 | 9.5                        | 61                              | 1.6                                 | 25                         | 28                              | 1.9                                 |
| 11    | 17                         | 62                              | 3.5                                 | 7.7                        | 38                              | .81                                 | 23                         | 27                              | 1.7                                 |
| 12    | 217                        | 2230                            | 2060                                | 7.0                        | 28                              | .53                                 | 23                         | 27                              | 1.7                                 |
| 13    | 58                         | 685                             | 111                                 | 22                         | 176                             | 27                                  | 22                         | 26                              | 1.6                                 |
| 14    | 26                         | 384                             | 28                                  | 67                         | 933                             | 429                                 | 19                         | 26                              | 1.3                                 |
| 15    | 17                         | 215                             | 9.8                                 | 74                         | 727                             | 176                                 | 18                         | 26                              | 1.2                                 |
| 16    | 13                         | 121                             | 4.3                                 | 36                         | 73                              | 7.6                                 | 27                         | 121                             | 12                                  |
| 17    | 11                         | 68                              | 2.0                                 | 29                         | 34                              | 2.7                                 | 40                         | 246                             | 65                                  |
| 18    | 10                         | 39                              | 1.1                                 | 124                        | 2030                            | 3300                                | 25                         | 217                             | 14                                  |
| 19    | 9.0                        | 39                              | .95                                 | 42                         | 560                             | 98                                  | 14                         | 130                             | 4.8                                 |
| 20    | 8.6                        | 46                              | 1.1                                 | 243                        | 2160                            | 6340                                | 11                         | 87                              | 2.7                                 |
| 21    | 11                         | 78                              | 2.6                                 | 456                        | 2560                            | 10200                               | 11                         | 56                              | 1.7                                 |
| 22    | 11                         | 109                             | 2.6                                 | 165                        | 254                             | 142                                 | 18                         | 37                              | 1.8                                 |
| 23    | 14                         | 127                             | 5.5                                 | 87                         | 105                             | 24                                  | 10                         | 24                              | .67                                 |
| 24    | 13                         | 91                              | 3.3                                 | 62                         | 127                             | 21                                  | 9.2                        | 16                              | .39                                 |
| 25    | 9.7                        | 40                              | 1.0                                 | 45                         | 147                             | 18                                  | 9.0                        | 10                              | .25                                 |
| 26    | 9.0                        | 28                              | .69                                 | 43                         | 88                              | 10                                  | 8.4                        | 7                               | .15                                 |
| 27    | 7.7                        | 24                              | .49                                 | 31                         | 37                              | 3.2                                 | 7.2                        | 5                               | .09                                 |
| 28    | 7.0                        | 18                              | .35                                 | 27                         | 4                               | .31                                 | 6.9                        | 7                               | .14                                 |
| 29    | 6.3                        | 6                               | .15                                 | 24                         | 2                               | .15                                 | 6.3                        | 15                              | .25                                 |
| 30    | 6.8                        | 12                              | .22                                 | 22                         | 3                               | .15                                 | 6.0                        | 28                              | .45                                 |
| 31    | ---                        | ---                             | ---                                 | 20                         | 3                               | .16                                 | ---                        | ---                             | ---                                 |
| TOTAL | 738.6                      | ---                             | 3719.55                             | 1735.7                     | ---                             | 20837.80                            | 610.0                      | ---                             | 690.90                              |

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 5.4                        | 21                                   | .30                                 | 7.1                        | 28                                   | 3.7                                 | 14                         | 9                                    | .32                                 |
| 2     | 4.8                        | 12                                   | .15                                 | 12                         | 75                                   | 8.3                                 | 30                         | 224                                  | 47                                  |
| 3     | 4.4                        | 7                                    | .08                                 | 7.4                        | 60                                   | 1.4                                 | 93                         | 621                                  | 257                                 |
| 4     | 5.6                        | 5                                    | .08                                 | 3.4                        | 22                                   | .20                                 | 153                        | 700                                  | 678                                 |
| 5     | 5.8                        | 5                                    | .07                                 | 2.5                        | 16                                   | .11                                 | 37                         | 32                                   | 3.0                                 |
| 6     | 4.2                        | 5                                    | .05                                 | 4.1                        | 22                                   | .32                                 | 150                        | 337                                  | 363                                 |
| 7     | 4.6                        | 4                                    | .05                                 | 19                         | 103                                  | 20                                  | 92                         | 77                                   | 23                                  |
| 8     | 4.5                        | 3                                    | .04                                 | 31                         | 230                                  | 37                                  | 49                         | 15                                   | 2.0                                 |
| 9     | 4.3                        | 3                                    | .04                                 | 19                         | 211                                  | 12                                  | 35                         | 7                                    | .69                                 |
| 10    | 4.7                        | 3                                    | .04                                 | 11                         | 80                                   | 2.5                                 | 28                         | 4                                    | .27                                 |
| 11    | 4.6                        | 3                                    | .04                                 | 13                         | 92                                   | 6.2                                 | 47                         | 240                                  | 63                                  |
| 12    | 4.5                        | 3                                    | .04                                 | 18                         | 148                                  | 7.0                                 | 34                         | 247                                  | 35                                  |
| 13    | 4.9                        | 3                                    | .04                                 | 13                         | 57                                   | 2.1                                 | 23                         | 35                                   | 2.2                                 |
| 14    | 10                         | 3                                    | .09                                 | 6.2                        | 23                                   | .40                                 | 18                         | 4                                    | .20                                 |
| 15    | 15                         | 3                                    | .12                                 | 3.4                        | 15                                   | .14                                 | 18                         | 4                                    | .19                                 |
| 16    | 12                         | 3                                    | .10                                 | 3.0                        | 13                                   | .23                                 | 34                         | 246                                  | 44                                  |
| 17    | 9.8                        | 3                                    | .08                                 | 10                         | 80                                   | 4.0                                 | 19                         | 283                                  | 8.3                                 |
| 18    | 9.5                        | 3                                    | .08                                 | 3.3                        | 27                                   | .24                                 | 41                         | 448                                  | 84                                  |
| 19    | 7.6                        | 3                                    | .07                                 | 3.9                        | 19                                   | .20                                 | 37                         | 379                                  | 40                                  |
| 20    | 9.5                        | 4                                    | .10                                 | 14                         | 167                                  | 6.9                                 | 26                         | 226                                  | 16                                  |
| 21    | 11                         | 4                                    | .13                                 | 9.0                        | 106                                  | 2.5                                 | 1050                       | 6200                                 | 52000                               |
| 22    | 6.5                        | 5                                    | .09                                 | 122                        | 93                                   | e252                                | e1740                      | 11800                                | e93300                              |
| 23    | 4.8                        | 6                                    | .07                                 | 33                         | 128                                  | e42                                 | e224                       | 1110                                 | e4920                               |
| 24    | 4.7                        | 6                                    | .08                                 | 455                        | 131                                  | e10200                              | e115                       | 345                                  | e252                                |
| 25    | 4.8                        | 7                                    | .09                                 | 146                        | 80                                   | e252                                | e85                        | 115                                  | e252                                |
| 26    | 3.8                        | 8                                    | .08                                 | 52                         | 24                                   | 3.7                                 | e73                        | 77                                   | e429                                |
| 27    | 5.9                        | 9                                    | .14                                 | 34                         | 9                                    | .85                                 | e63                        | 60                                   | e199                                |
| 28    | 4.7                        | 10                                   | .13                                 | 24                         | 6                                    | .36                                 | e59                        | 47                                   | e199                                |
| 29    | 4.1                        | 12                                   | .13                                 | 19                         | 3                                    | .18                                 | e93                        | 37                                   | e252                                |
| 30    | 3.6                        | 13                                   | .13                                 | 16                         | 4                                    | .17                                 | e86                        | 28                                   | e252                                |
| 31    | 3.2                        | 15                                   | .13                                 | 14                         | 6                                    | .22                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 192.8                      | ---                                  | 2.86                                | 1128.3                     | ---                                  | 10866.92                            | 4566                       | ---                                  | 153722.17                           |
| YEAR  | 10697.0                    |                                      | 196458.35                           |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 15... | 1500 | 212                                                                   | 942                                                   | 539                                                                       | 98                                                                       |
| 15... | 1600 | 224                                                                   | 882                                                   | 533                                                                       | 91                                                                       |
| APR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 02... | 1615 | 64                                                                    | 1980                                                  | 342                                                                       | 99                                                                       |
| 07... | 1520 | 437                                                                   | 9410                                                  | 11100                                                                     | 66                                                                       |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 18... | 1645 | 1020                                                                  | 31700                                                 | 87300                                                                     | 61                                                                       |
| 20... | 2015 | 1530                                                                  | 18300                                                 | 75600                                                                     | 39                                                                       |
| 21... | 2330 | 327                                                                   | 537                                                   | 474                                                                       | 89                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 06... | 1645 | 1390                                                                  | 881                                                   | 3310                                                                      | 83                                                                       |
| 11... | 1645 | 279                                                                   | 4700                                                  | 3540                                                                      | 67                                                                       |

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061)   | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70326)             | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70327)             | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>(70328)             |                                                                          |
|--------------|------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>08... | 1600 | 363                                                                     | 8780                                                                    | 8610                                                                     | 27                                                                       | 37                                                                       | 51                                                                       |                                                                          |
| MAR<br>30... | 1645 | 23                                                                      | 959                                                                     | 60                                                                       | 63                                                                       | 77                                                                       | 90                                                                       |                                                                          |
| APR<br>07... | 1425 | 534                                                                     | 6870                                                                    | 9910                                                                     | 30                                                                       | 39                                                                       | 50                                                                       |                                                                          |
| MAY<br>20... | 1815 | 1500                                                                    | 14400                                                                   | 58300                                                                    | 14                                                                       | 19                                                                       | 25                                                                       |                                                                          |
| 21...        | 1630 | 2790                                                                    | 22800                                                                   | 172000                                                                   | 14                                                                       | 20                                                                       | 26                                                                       |                                                                          |
| 21...        | 1815 | 2080                                                                    | 11100                                                                   | 62300                                                                    | 7                                                                        | 9                                                                        | 11                                                                       |                                                                          |
| SEP<br>04... | 0230 | 428                                                                     | 7670                                                                    | 8860                                                                     | 22                                                                       | 29                                                                       | 39                                                                       |                                                                          |
| DATE         |      | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|              |      |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| OCT<br>08... | 65   | 81                                                                      | 87                                                                      | 96                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| MAR<br>30... | 97   | 97                                                                      | 99                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |                                                                          |
| APR<br>07... | 59   | 63                                                                      | 68                                                                      | 82                                                                       | 95                                                                       | 100                                                                      | 100                                                                      |                                                                          |
| MAY<br>20... | 30   | 37                                                                      | 41                                                                      | 53                                                                       | 73                                                                       | 92                                                                       | 98                                                                       |                                                                          |
| 21...        | 33   | 40                                                                      | 44                                                                      | 55                                                                       | 73                                                                       | 90                                                                       | 97                                                                       |                                                                          |
| 21...        | 14   | 17                                                                      | 18                                                                      | 24                                                                       | 37                                                                       | 62                                                                       | 86                                                                       |                                                                          |
| SEP<br>04... | 50   | 61                                                                      | 64                                                                      | 81                                                                       | 93                                                                       | 98                                                                       | 100                                                                      |                                                                          |

## RIO TOA VACA BASIN

50111210 LAGO TOA VACA AT DAMSITE NEAR VILLALBA, PR--Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY   | OCT      | NOV      | DEC      | JAN      | FEB    | MAR      | APR      | MAY      | JUN      | JUL    | AUG    | SEP      |
|-------|----------|----------|----------|----------|--------|----------|----------|----------|----------|--------|--------|----------|
| 1     | 489.90   | 499.32   | 500.12   | 499.88   | ---    | 501.45   | 497.88   | 500.21   | 506.24   | 504.44 | 500.90 | 502.02   |
| 2     | 489.89   | 499.33   | 500.12   | 499.85   | 499.70 | 501.32   | 498.04   | 500.09   | 506.16   | 504.33 | 500.79 | 502.03   |
| 3     | 489.89   | 499.34   | 500.11   | 499.85   | 499.65 | 501.22   | 497.97   | 499.97   | 506.10   | 504.20 | 500.67 | 502.52   |
| 4     | 489.88   | 499.34   | 500.10   | 499.83   | 499.71 | 501.09   | 497.87   | 499.84   | 506.12   | 504.11 | 500.53 | 503.80   |
| 5     | 489.86   | 499.36   | 500.09   | 499.81   | 501.90 | 500.96   | 497.74   | 499.72   | 506.26   | 504.00 | 500.41 | 503.86   |
| 6     | 489.84   | 499.36   | 500.08   | 499.81   | 501.94 | 500.83   | 497.62   | 499.73   | 506.19   | 503.92 | ---    | 504.73   |
| 7     | 489.85   | 499.38   | 500.07   | 499.84   | 501.95 | 500.70   | 498.89   | 499.66   | 506.12   | ---    | 500.35 | 504.99   |
| 8     | 490.58   | 499.41   | 500.06   | 499.82   | ---    | 500.57   | 498.91   | 499.58   | 506.05   | ---    | 500.34 | 505.03   |
| 9     | 490.76   | 499.54   | 500.06   | 499.82   | 502.32 | 500.43   | 498.81   | 499.49   | 505.98   | ---    | 500.24 | 505.02   |
| 10    | 490.81   | 499.68   | 500.05   | 499.81   | 502.30 | 500.29   | 498.71   | 499.38   | 505.89   | ---    | 500.12 | 504.99   |
| 11    | 491.35   | 499.70   | 500.03   | 499.81   | 502.30 | 500.14   | 498.67   | 499.26   | 505.79   | ---    | 500.02 | 505.11   |
| 12    | 491.51   | 499.72   | 500.02   | 499.81   | 502.29 | 500.01   | 501.53   | 499.15   | 505.70   | ---    | 499.92 | 505.20   |
| 13    | 492.56   | 499.73   | 500.02   | 499.81   | 502.28 | 499.87   | 501.73   | 499.21   | 505.61   | ---    | 499.80 | 505.20   |
| 14    | 495.73   | 499.72   | 500.02   | 499.80   | 502.31 | 499.74   | 501.72   | 499.63   | 505.51   | ---    | 499.67 | 505.14   |
| 15    | 497.35   | 500.11   | 500.01   | 499.80   | 502.31 | 499.60   | 501.67   | 499.96   | 505.40   | ---    | 499.55 | 505.11   |
| 16    | 497.82   | 500.13   | 499.99   | 499.78   | 502.30 | 499.47   | 501.58   | 499.96   | 505.34   | ---    | 499.41 | 505.21   |
| 17    | 498.45   | 500.14   | 500.00   | 499.76   | 502.29 | 499.32   | 501.50   | 499.90   | 505.80   | ---    | 499.38 | 505.15   |
| 18    | 498.68   | 500.14   | 499.99   | 499.77   | 502.31 | 499.18   | 501.49   | 500.79   | 505.76   | ---    | 499.26 | 505.23   |
| 19    | 498.83   | 500.15   | 500.00   | 499.78   | ---    | 499.04   | 501.40   | 501.11   | 505.66   | ---    | 499.13 | 505.24   |
| 20    | 498.94   | 500.15   | 499.98   | 499.78   | 502.28 | 498.93   | 501.30   | 503.14   | 505.56   | ---    | 499.01 | 505.20   |
| 21    | 499.02   | 500.14   | 499.99   | 499.77   | ---    | 498.80   | 501.21   | 505.82   | 505.52   | ---    | 498.89 | 512.73   |
| 22    | 499.08   | 500.14   | 499.98   | 499.83   | 502.26 | 498.68   | 501.13   | 506.35   | 505.46   | ---    | 499.23 | 529.60   |
| 23    | 499.13   | 500.14   | 499.98   | 499.80   | 502.21 | 498.54   | 501.05   | 506.55   | 505.35   | ---    | 499.31 | 531.01   |
| 24    | 499.16   | 500.14   | 499.97   | 499.78   | 502.12 | 498.41   | 500.97   | 506.58   | 505.24   | ---    | 500.62 | 530.58   |
| 25    | 499.20   | 500.13   | 499.95   | 499.79   | 501.98 | 498.29   | 500.88   | 506.58   | 505.13   | ---    | 502.29 | 528.79   |
| 26    | 499.23   | 500.13   | 499.93   | 499.77   | 501.85 | 498.15   | 500.78   | 506.58   | 505.02   | ---    | 502.37 | 526.73   |
| 27    | 499.25   | 500.13   | 499.92   | 499.75   | 501.72 | 498.02   | 500.70   | 506.55   | 504.90   | ---    | 502.42 | 526.17   |
| 28    | 499.27   | 500.13   | 499.92   | 499.75   | 501.59 | 497.89   | 500.58   | 506.50   | 504.79   | ---    | 502.36 | 526.52   |
| 29    | 499.29   | 500.12   | 499.91   | 499.74   | ---    | 497.77   | 500.45   | 506.44   | 504.67   | ---    | 502.30 | 526.74   |
| 30    | 499.30   | 500.11   | 499.90   | 499.73   | ---    | 497.87   | 500.34   | 506.38   | 504.55   | ---    | 502.21 | 526.89   |
| 31    | 499.31   | ---      | 499.88   | 499.71   | ---    | 497.76   | ---      | 506.31   | ---      | 500.92 | 502.11 | ---      |
| TOTAL | 15353.72 | 14995.06 | 15500.25 | 15493.64 | ---    | 15484.34 | 15003.12 | 15570.42 | 15167.87 | ---    | ---    | 15356.54 |
| MAX   | 499.31   | 500.15   | 500.12   | 499.88   | ---    | 501.45   | 501.73   | 506.58   | 506.26   | ---    | ---    | 531.01   |
| MIN   | 489.84   | 499.32   | 499.88   | 499.71   | ---    | 497.76   | 497.62   | 499.15   | 504.55   | ---    | ---    | 502.02   |

## RIO JACAGUAS BASIN

50111300 LAGO GUAYABAL AT DAMSITE NEAR JUANA DIAZ, PR

LOCATION.--Lat 18°05'17", long 66°30'09", Hydrologic Unit 21010004, at Damsite, 2.30 mi (3.70 km) northeast from Juana Díaz Plaza, 0.70 mi (1.13 km) northeast from Escuela Salvador Bousquets and 2.45 mi (3.94 km) southeast from Escuela Zoilo Gracia.

DRAINAGE AREA.--21.0 mi<sup>2</sup> (54.4 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--April 1995 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guayabal was completed in 1913. The dam is a reinforced concrete, flatslab and buttress-type structure about 130 ft (40 m) height, a net crest length at the right side of the dam of 693 ft (211 m) and a crest elevation of 331 ft (101 m). It has a maximum storage capacity of 7,600 acre-feet (9.37 hm<sup>3</sup>). The Guayabal Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and its primary purpose is for irrigation of lands served by the Juana Díaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 341.55 ft (104.10 m), Sept. 10, 1996; minimum elevation, 325.99 ft (99.36 m), Sept. 29, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 341.42 ft (104.06 m), May 21; minimum elevation, 328.59 ft (100.20 m), Oct. 5.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 305                | 366                    | 330                | 3,885                  |
| 321                | 2,010                  | 341                | 7,360                  |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 328.90 | 340.35 | 339.52 | 335.67 | 333.66 | 335.75 | 333.68 | 340.37 | 340.73 | 340.72 | 340.64 | 340.78 |
| 2   | 328.87 | 340.23 | 339.40 | 335.52 | 333.46 | 335.66 | 334.39 | 340.32 | 340.71 | 340.72 | 340.77 | 340.92 |
| 3   | 328.79 | 340.20 | 339.31 | 335.33 | 333.34 | 335.63 | 334.52 | 340.32 | 340.71 | 340.70 | 340.81 | 341.00 |
| 4   | 328.65 | 340.18 | 339.25 | 335.13 | 333.45 | 335.56 | 334.44 | 340.38 | 340.91 | 340.70 | 340.79 | 340.88 |
| 5   | 328.63 | 340.15 | 339.17 | 334.99 | 335.81 | 335.45 | 334.36 | 340.42 | 340.84 | 340.66 | 340.79 | 340.86 |
| 6   | 328.77 | 340.21 | 338.98 | 334.79 | 336.17 | 335.34 | 334.38 | 340.70 | 340.71 | 340.83 | 340.88 | 340.94 |
| 7   | 329.25 | 340.25 | 338.82 | 334.72 | 336.23 | 335.13 | 339.26 | 340.83 | 340.67 | 340.69 | 340.90 | 340.83 |
| 8   | 331.23 | 340.30 | 338.75 | 334.64 | 336.81 | 334.94 | 339.59 | 340.87 | 340.74 | 340.63 | 340.98 | 340.89 |
| 9   | 331.91 | 340.52 | 338.68 | 334.78 | 337.34 | 334.85 | 339.61 | 340.81 | 340.76 | 340.68 | 340.84 | 340.90 |
| 10  | 332.44 | 340.82 | 338.59 | 334.82 | 337.55 | 334.73 | 339.57 | 340.77 | 340.77 | 340.69 | 340.84 | 340.92 |
| 11  | 333.33 | 340.78 | 338.49 | 334.89 | 337.70 | 334.61 | 339.63 | 340.80 | 340.76 | 340.56 | 340.93 | 340.95 |
| 12  | 334.02 | 340.79 | 338.38 | 335.07 | 337.87 | 334.48 | 340.97 | 340.79 | 340.75 | 340.49 | 340.89 | 340.87 |
| 13  | 337.44 | 340.79 | 338.19 | 335.32 | 337.78 | 334.37 | 340.79 | 341.06 | 340.67 | 340.51 | 340.86 | 340.98 |
| 14  | 340.99 | 340.80 | 338.02 | 335.49 | 337.68 | 334.13 | 340.74 | 340.99 | 340.61 | 340.88 | 340.84 | 340.92 |
| 15  | 340.91 | 340.89 | 337.96 | 335.65 | 337.60 | 333.96 | 340.77 | 340.91 | 340.67 | 340.83 | 340.75 | 340.87 |
| 16  | 340.83 | 340.75 | 337.88 | 335.77 | 337.50 | 333.93 | 340.79 | 340.86 | 340.78 | 340.80 | 340.75 | 340.94 |
| 17  | 340.81 | 340.77 | 337.86 | 335.80 | 337.41 | 333.80 | 340.78 | 340.83 | 340.88 | 340.80 | 340.92 | 340.82 |
| 18  | 340.78 | 340.77 | 337.83 | 335.88 | 337.35 | 333.69 | 340.86 | 340.96 | 340.83 | 340.72 | 340.91 | 340.95 |
| 19  | 340.74 | 340.74 | 337.75 | 336.04 | 337.25 | 333.56 | 340.79 | 340.88 | 340.77 | 340.67 | 340.87 | 340.95 |
| 20  | 340.81 | 340.71 | 337.60 | 335.84 | 337.11 | 333.50 | 340.91 | 341.00 | 340.69 | 340.71 | 340.85 | 340.91 |
| 21  | 340.80 | 340.75 | 337.47 | 335.67 | 336.89 | 333.33 | 340.87 | 340.85 | 340.74 | 340.73 | 340.88 | A      |
| 22  | 340.79 | 340.70 | 337.35 | 335.68 | 336.69 | 333.19 | 340.85 | 340.80 | 340.80 | 340.79 | 340.86 | A      |
| 23  | 340.79 | 340.68 | 337.20 | 335.48 | 336.58 | 333.06 | 340.83 | 340.86 | 340.72 | 340.80 | 340.81 | A      |
| 24  | 340.80 | 340.57 | 337.07 | 335.25 | 336.54 | 332.98 | 340.84 | 340.79 | 340.72 | 340.78 | 341.07 | A      |
| 25  | 340.66 | 340.49 | 336.87 | 335.00 | 336.46 | 332.92 | 340.78 | 340.80 | 340.70 | 340.67 | 340.91 | A      |
| 26  | 340.62 | 340.37 | 336.72 | 334.94 | 336.35 | 332.83 | 340.78 | 340.83 | 340.73 | 340.61 | 340.87 | A      |
| 27  | 340.64 | 340.16 | 336.53 | 334.82 | 336.13 | 332.79 | 340.82 | 340.83 | 340.68 | 340.59 | 340.94 | A      |
| 28  | 340.71 | 340.00 | 336.34 | 334.59 | 335.94 | 332.59 | 340.69 | 340.84 | 340.66 | 340.55 | 340.87 | A      |
| 29  | 340.72 | 339.78 | 336.20 | 334.39 | ---    | 332.46 | 340.58 | 340.83 | 340.71 | 340.51 | 340.85 | A      |
| 30  | 340.60 | 339.61 | 336.04 | 334.13 | ---    | 333.25 | 340.43 | 340.80 | 340.73 | 340.45 | 340.85 | 341.01 |
| 31  | 340.51 | ---    | 335.86 | 333.89 | ---    | 333.38 | ---    | 340.78 | ---    | 340.45 | 340.85 | ---    |
| MAX | 340.99 | 340.89 | 339.52 | 336.04 | 337.87 | 335.75 | 340.97 | 341.06 | 340.91 | 340.88 | 341.07 | ---    |
| MIN | 328.63 | 339.61 | 335.86 | 333.89 | 333.34 | 332.46 | 333.68 | 340.32 | 340.61 | 340.45 | 340.64 | ---    |

A No gage-height record

## RIO JACAGUAS BASIN

50111500 RIO JACAGUAS AT JUANA DIAZ, PR

LOCATION.--Lat 18°03'16", long 66°30'40", Hydrologic Unit 21010004, on Highway 14 bridge, 0.4 mi (0.6 km) west of Juana Díaz plaza, and 4.0 mi (6.4 km) downstream from Lago Guayabal.

DRAINAGE AREA.--49.8 mi<sup>2</sup> (129.0 km<sup>2</sup>).

PERIOD OF RECORD.--March 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Flow regulation from Lago Guayabal. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT     | NOV   | DEC   | JAN  | FEB   | MAR   | APR    | MAY    | JUN    | JUL   | AUG    | SEP   |
|-------|---------|-------|-------|------|-------|-------|--------|--------|--------|-------|--------|-------|
| 1     | 1.2     | 20    | e6.6  | e2.9 | 1.5   | 3.5   | 16     | 36     | 60     | 11    | 6.0    | 131   |
| 2     | 1.1     | 19    | e5.5  | e4.0 | 1.4   | 3.1   | 10     | 12     | 40     | 9.4   | 6.8    | 92    |
| 3     | 1.1     | 17    | e5.2  | e2.2 | 1.3   | 3.8   | 5.2    | 9.6    | 30     | 10    | 15     | 379   |
| 4     | 1.1     | 13    | e5.2  | e2.0 | 1.4   | 4.4   | 3.6    | 9.1    | 80     | 11    | 20     | 611   |
| 5     | .96     | 11    | e11   | e1.3 | 127   | 3.7   | 2.9    | 8.7    | 233    | 10    | 14     | 289   |
| 6     | .84     | 9.7   | e15   | e2.0 | 34    | 3.2   | 2.6    | 8.5    | 112    | 52    | e37    | 314   |
| 7     | .99     | 9.2   | e12   | e2.0 | 14    | 3.8   | 14     | 8.6    | 53     | 54    | 162    | 250   |
| 8     | 1.1     | 9.6   | e11   | e1.9 | 9.9   | 3.4   | 35     | 16     | 33     | 13    | 147    | 179   |
| 9     | 6.8     | 9.6   | e9.8  | e1.5 | 12    | 2.7   | 32     | 24     | 39     | 6.8   | 124    | 223   |
| 10    | 5.2     | 39    | e9.3  | e2.1 | 9.0   | 2.1   | 24     | 14     | 38     | 8.3   | 73     | 224   |
| 11    | 55      | 50    | e9.7  | e2.1 | 7.4   | 2.1   | 18     | 9.8    | 35     | 7.4   | 75     | 253   |
| 12    | 9.1     | 37    | e8.6  | e1.7 | 6.7   | 2.0   | 186    | 9.0    | 31     | 4.1   | 105    | 277   |
| 13    | 38      | 37    | e7.6  | e1.6 | 5.8   | 1.9   | 153    | 9.4    | 22     | 3.2   | 83     | 218   |
| 14    | 363     | 37    | e6.9  | e1.5 | 6.1   | 1.9   | 96     | 128    | 11     | 7.2   | 62     | 230   |
| 15    | 397     | 72    | e6.3  | e1.2 | 7.5   | 2.0   | 66     | 125    | 8.2    | 99    | 41     | 230   |
| 16    | 228     | 75    | e5.7  | e1.2 | 5.8   | 1.9   | 53     | 90     | 11     | 85    | 20     | 228   |
| 17    | 355     | 42    | e7.1  | e1.2 | 5.0   | 1.8   | 51     | 52     | 111    | 67    | 43     | 242   |
| 18    | 198     | 40    | e6.4  | e1.4 | 5.3   | 1.7   | 53     | 44     | 92     | 39    | 83     | 189   |
| 19    | 113     | 36    | e6.7  | e1.6 | 5.8   | 1.7   | 61     | 88     | 63     | 15    | 75     | 263   |
| 20    | 95      | 23    | e6.8  | e1.5 | 5.5   | 1.6   | 40     | 153    | 31     | 9.2   | 59     | 262   |
| 21    | 103     | 19    | e4.9  | e3.3 | 5.3   | 2.0   | 81     | 425    | 15     | 12    | 51     | 1230  |
| 22    | 97      | 25    | e3.2  | e1.2 | 5.6   | 2.0   | 66     | 218    | 36     | 14    | 285    | 8530  |
| 23    | 89      | 19    | e3.4  | 1.2  | 5.4   | 1.9   | 51     | 159    | 35     | 12    | 124    | 863   |
| 24    | 84      | 15    | e3.1  | 1.4  | 6.5   | 1.9   | 49     | 136    | 17     | 15    | 427    | 959   |
| 25    | 73      | e11   | e2.6  | 1.5  | 4.4   | 2.6   | 45     | 115    | 15     | 11    | 828    | 1030  |
| 26    | 55      | e11   | e2.2  | 1.3  | 4.1   | 2.3   | 27     | 111    | 12     | 5.2   | 291    | 938   |
| 27    | 44      | e9.7  | e2.8  | 1.3  | 3.8   | 2.0   | 24     | 110    | 14     | 4.8   | 233    | 715   |
| 28    | 38      | e8.3  | e2.2  | 1.3  | 3.4   | 2.0   | 55     | 101    | 8.4    | 6.3   | 232    | 230   |
| 29    | 40      | e7.9  | e1.7  | 1.2  | ---   | 2.0   | 42     | 92     | 7.3    | 4.9   | 185    | 219   |
| 30    | 36      | e7.4  | e1.5  | 1.3  | ---   | 25    | 40     | 91     | 9.2    | 4.9   | 165    | 199   |
| 31    | 25      | ---   | e2.2  | 1.2  | ---   | 7.3   | ---    | 84     | ---    | 5.1   | 145    | ---   |
| TOTAL | 2555.49 | 739.4 | 192.2 | 53.1 | 310.9 | 103.3 | 1402.3 | 2496.7 | 1302.1 | 616.8 | 4216.8 | 19997 |
| MEAN  | 82.4    | 24.6  | 6.20  | 1.71 | 11.1  | 3.33  | 46.7   | 80.5   | 43.4   | 19.9  | 136    | 667   |
| MAX   | 397     | 75    | 15    | 4.0  | 127   | 25    | 186    | 425    | 233    | 99    | 828    | 8530  |
| MIN   | .84     | 7.4   | 1.5   | 1.2  | 1.3   | 1.6   | 2.6    | 8.5    | 7.3    | 3.2   | 6.0    | 92    |
| AC-FT | 5070    | 1470  | 381   | 105  | 617   | 205   | 2780   | 4950   | 2580   | 1220  | 8360   | 39660 |
| CFSM  | 1.66    | .49   | .12   | .03  | .22   | .07   | .94    | 1.62   | .87    | .40   | 2.73   | 13.4  |
| IN.   | 1.91    | .55   | .14   | .04  | .23   | .08   | 1.05   | 1.87   | .97    | .46   | 3.15   | 14.94 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

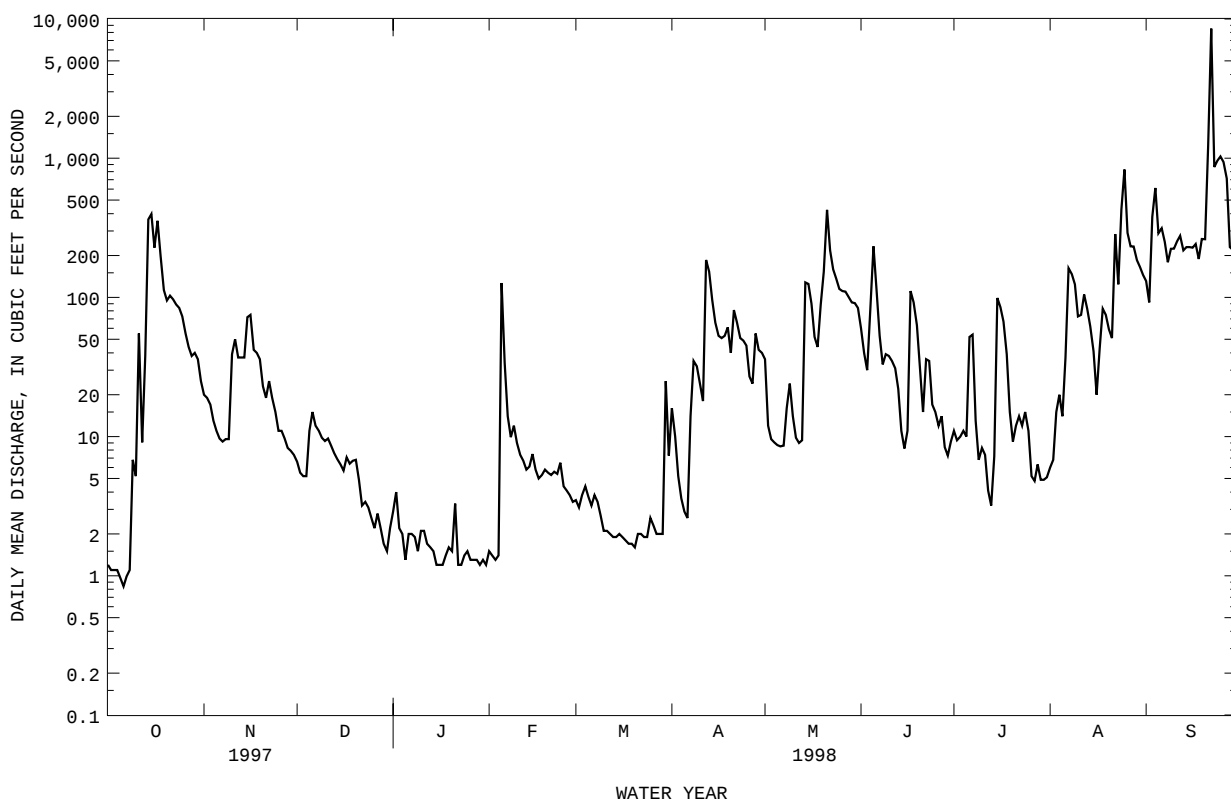
|      | MEAN | 114  | 81.6 | 32.5 | 23.0 | 9.04 | 5.03 | 13.2 | 66.5 | 38.6 | 21.7 | 26.9 | 81.8 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 445  | 287  | 151  | 144  | 16.9 | 8.60 | 46.7 | 215  | 198  | 82.4 | 136  | 667  |      |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1991 | 1996 | 1998 | 1985 | 1987 | 1987 | 1998 | 1998 |      |
| MIN  | 4.31 | 7.57 | 6.20 | 1.71 | 1.98 | 1.95 | 1.84 | 1.46 | .93  | 1.04 | 1.59 | .76  |      |
| (WY) | 1995 | 1995 | 1998 | 1998 | 1994 | 1994 | 1994 | 1994 | 1994 | 1994 | 1994 | 1997 |      |

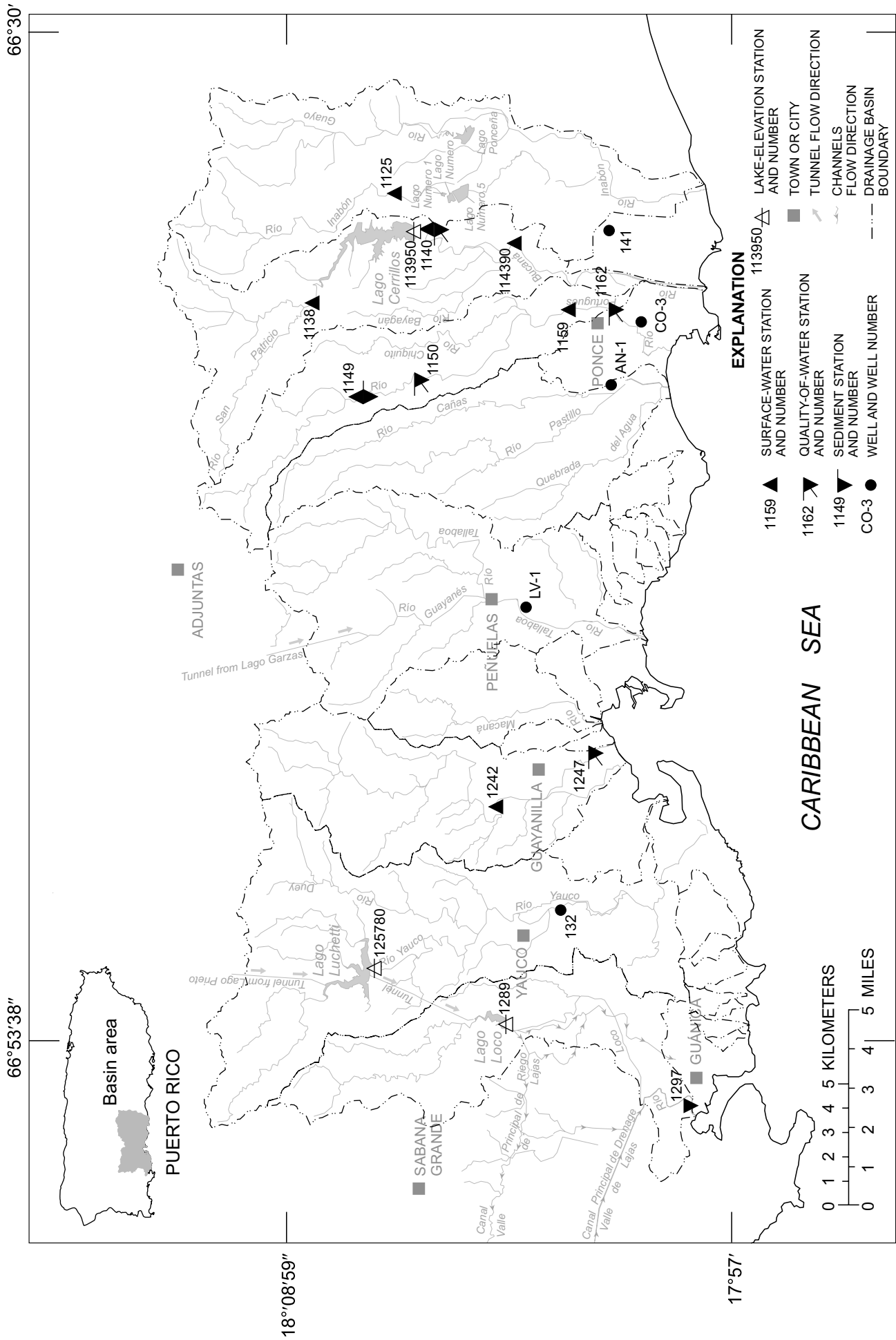
## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1984 - 1998

|                          | ANNUAL TOTAL | 5482.05 | 33986.09 |             |
|--------------------------|--------------|---------|----------|-------------|
| ANNUAL MEAN              | 15.0         | 93.1    | 44.1     |             |
| HIGHEST ANNUAL MEAN      |              |         | 93.1     | 1998        |
| LOWEST ANNUAL MEAN       |              |         | 6.23     | 1994        |
| HIGHEST DAILY MEAN       | 397          | Oct 15  | 8530     | Sep 22 1998 |
| LOWEST DAILY MEAN        | .37          | Sep 3   | .84      | Oct 6 1992  |
| ANNUAL SEVEN-DAY MINIMUM | .51          | Aug 31  | 1.0      | Oct 2 1997  |
| INSTANTANEOUS PEAK FLOW  |              |         | 37600    | Sep 22 1985 |
| INSTANTANEOUS PEAK STAGE |              |         | 28.71    | Sep 22 1985 |
| ANNUAL RUNOFF (AC-FT)    | 10870        |         | 67410    |             |
| ANNUAL RUNOFF (CFSM)     | .30          |         | 1.87     | .89         |
| ANNUAL RUNOFF (INCHES)   | 4.10         |         | 25.39    | 12.03       |
| 10 PERCENT EXCEEDS       | 33           |         | 218      | 93          |
| 50 PERCENT EXCEEDS       | 4.3          |         | 13       | 8.2         |
| 90 PERCENT EXCEEDS       | .84          |         | 1.7      | 2.2         |

e Estimated

RIO JACAGUAS BASIN  
50111500 RIO JACAGUAS AT JUANA DIAZ, PR--Continued





**Figure 22.** South coast river basins -- Río Inabón to Río Loco basins.

## RIO INABON BASIN

50112500 RIO INABON AT REAL ABAJO, PR

LOCATION.--Lat 18°05'10", long 66°33'46", Hydrologic Unit 21010004, at bridge on private road, off Highway 511 at Hacienda La Concordia, 0.4 mi (0.6 km) upstream from diversion canal, 0.5 mi (0.8 km) north of Real Abajo, and 6.1 mi (9.8 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--9.70 mi<sup>2</sup> (25.12 km<sup>2</sup>).

PERIOD OF RECORD.--1962-63 (annual low-flow measurements only), February to June 1964 (monthly measurements only), July 1964 to July 1970, April 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map. Prior to April 1971 non-recording gage and crest-stage gage at different datum.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR  | MAY  | JUN  | JUL  | AUG   | SEP  |
|-------|--------|-------|-------|-------|-------|-------|------|------|------|------|-------|------|
| 1     | 7.8    | 13    | 7.5   | 3.6   | 3.1   | 4.1   | e21  | 28   | 22   | 15   | 17    | 13   |
| 2     | 6.6    | 14    | 8.5   | 3.8   | 3.1   | 4.3   | e22  | 28   | 22   | 14   | 22    | 28   |
| 3     | 5.0    | 16    | 6.7   | 4.0   | 3.1   | 4.1   | e22  | 28   | 26   | 15   | 17    | 78   |
| 4     | 4.4    | 15    | 6.2   | 4.2   | 12    | 4.2   | 20   | 29   | 41   | 15   | 13    | 79   |
| 5     | 3.8    | 14    | 5.4   | 3.9   | e104  | 3.5   | 15   | 29   | 67   | 14   | 12    | 38   |
| 6     | 3.6    | 13    | 5.3   | 3.9   | 11    | 3.1   | 12   | 35   | 41   | 23   | 18    | 46   |
| 7     | e30    | 13    | 5.3   | 7.6   | 5.6   | e7.1  | e100 | 35   | 29   | 20   | 26    | 37   |
| 8     | e18    | e13   | 5.0   | 6.2   | 14    | e11   | 88   | 39   | 25   | 14   | 39    | 30   |
| 9     | e27    | e15   | 4.6   | 4.0   | e16   | 5.7   | 37   | 38   | 24   | 15   | 23    | 26   |
| 10    | e22    | e27   | 4.5   | 4.4   | 6.9   | 4.2   | 30   | 31   | 23   | e20  | 18    | 22   |
| 11    | 16     | 12    | 4.5   | 4.1   | 5.0   | 3.9   | 26   | 28   | 21   | e16  | 19    | 26   |
| 12    | 13     | 10    | 4.3   | 8.1   | 4.2   | 3.8   | 54   | 27   | 20   | 15   | 17    | 24   |
| 13    | 79     | 9.2   | 4.6   | 6.3   | 3.6   | 3.7   | 43   | 32   | 19   | e15  | 13    | e32  |
| 14    | 290    | 7.6   | 4.3   | 4.3   | 4.1   | e5.8  | 30   | 75   | 20   | 35   | 11    | 33   |
| 15    | 105    | 22    | 4.8   | 3.5   | 6.0   | e26   | 24   | 51   | 21   | e29  | 10    | 32   |
| 16    | 53     | e16   | 4.6   | 3.4   | 4.8   | 19    | 21   | 32   | 24   | 18   | 8.6   | 44   |
| 17    | 179    | 10    | 4.2   | 3.4   | 4.9   | 10    | 19   | 25   | 35   | 15   | 12    | 47   |
| 18    | 87     | 8.0   | 4.5   | 4.0   | 3.8   | 7.2   | 46   | 21   | e22  | 14   | 12    | 44   |
| 19    | 32     | 7.5   | 5.1   | 7.3   | 4.2   | 5.7   | e36  | 18   | 17   | 19   | 11    | 40   |
| 20    | 22     | 7.7   | 4.6   | 6.4   | 4.6   | 6.3   | 52   | 34   | 16   | 25   | 10    | 36   |
| 21    | 17     | 7.2   | 5.2   | 3.9   | 5.3   | e6.6  | 46   | 36   | e16  | 23   | 14    | e166 |
| 22    | 15     | 7.6   | 4.8   | 4.2   | 5.6   | 6.5   | 34   | 24   | e19  | 21   | 21    | e416 |
| 23    | 13     | 6.6   | 3.8   | 3.8   | 5.5   | 7.4   | 31   | 25   | 17   | 21   | 18    | 137  |
| 24    | 11     | 6.4   | 3.5   | 3.5   | 4.4   | 5.3   | 49   | 22   | 17   | 15   | 116   | e88  |
| 25    | 11     | 6.3   | 3.4   | 3.6   | 3.4   | 6.0   | 46   | 21   | 16   | 13   | e198  | 70   |
| 26    | 10     | 6.8   | 3.5   | 3.8   | 3.3   | 8.6   | 38   | 21   | 16   | 12   | 40    | 61   |
| 27    | 11     | 7.6   | 3.4   | 3.4   | 3.5   | 5.7   | 33   | 21   | 16   | 11   | 44    | 66   |
| 28    | 12     | 6.1   | 3.4   | 3.4   | 3.4   | 5.3   | 30   | 19   | 15   | 12   | 33    | 55   |
| 29    | 13     | 11    | 3.6   | 3.4   | ---   | e4.6  | 27   | 19   | 15   | 11   | 22    | 49   |
| 30    | 13     | 13    | e3.5  | 3.6   | ---   | e36   | 26   | 20   | 15   | 12   | 17    | 49   |
| 31    | 13     | ---   | 3.5   | 3.3   | ---   | e30   | ---  | 21   | ---  | 14   | 13    | ---  |
| TOTAL | 1143.2 | 341.6 | 146.1 | 136.3 | 258.4 | 264.7 | 1078 | 912  | 697  | 531  | 864.6 | 1912 |
| MEAN  | 36.9   | 11.4  | 4.71  | 4.40  | 9.23  | 8.54  | 35.9 | 29.4 | 23.2 | 17.1 | 27.9  | 63.7 |
| MAX   | 290    | 27    | 8.5   | 8.1   | 104   | 36    | 100  | 75   | 67   | 35   | 198   | 416  |
| MIN   | 3.6    | 6.1   | 3.4   | 3.3   | 3.1   | 3.1   | 12   | 18   | 15   | 11   | 8.6   | 13   |
| AC-FT | 2270   | 678   | 290   | 270   | 513   | 525   | 2140 | 1810 | 1380 | 1050 | 1710  | 3790 |
| CFSM  | 3.80   | 1.17  | .49   | .45   | .95   | .88   | 3.70 | 3.03 | 2.40 | 1.77 | 2.88  | 6.57 |
| IN.   | 4.38   | 1.31  | .56   | .52   | .99   | 1.02  | 4.13 | 3.50 | 2.67 | 2.04 | 3.32  | 7.33 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

|      | MEAN | 45.0 | 32.5 | 12.0 | 8.48 | 5.86 | 5.82 | 8.90 | 19.5 | 15.9 | 11.8 | 17.3 | 33.8 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 148  | 77.9 | 26.5 | 45.5 | 13.1 | 16.4 | 35.9 | 76.7 | 49.8 | 32.7 | 46.1 | 119  |      |
| (WY) | 1986 | 1978 | 1966 | 1992 | 1996 | 1972 | 1998 | 1969 | 1969 | 1979 | 1979 | 1975 |      |
| MIN  | 14.5 | 8.32 | 4.43 | 4.11 | 3.05 | 1.85 | 2.76 | 1.94 | 2.75 | 1.77 | 4.47 | 6.16 |      |
| (WY) | 1994 | 1977 | 1977 | 1989 | 1977 | 1977 | 1975 | 1967 | 1967 | 1990 | 1974 | 1997 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

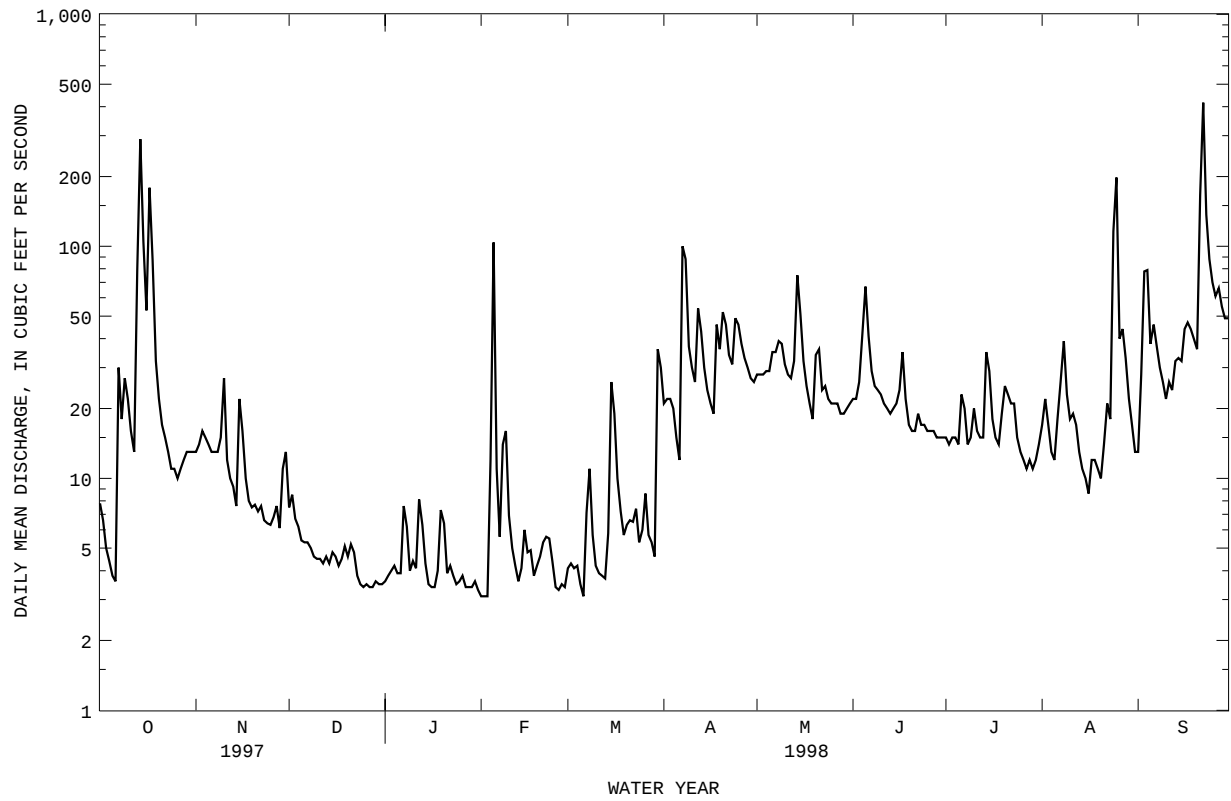
## WATER YEARS 1964 - 1998

|                          |        |        |              |
|--------------------------|--------|--------|--------------|
| ANNUAL TOTAL             | 3289.3 | 8284.9 |              |
| ANNUAL MEAN              | 9.01   | 22.7   | 17.9         |
| HIGHEST ANNUAL MEAN      |        |        | 30.9         |
| LOWEST ANNUAL MEAN       |        |        | 7.44         |
| HIGHEST DAILY MEAN       | 290    | Oct 14 | 416 Sep 22   |
| LOWEST DAILY MEAN        | 1.7    | May 25 | 3.1 Feb 1    |
| ANNUAL SEVEN-DAY MINIMUM | 2.0    | May 14 | 3.3 Jan 28   |
| INSTANTANEOUS PEAK FLOW  |        |        | 3470 Sep 21  |
| INSTANTANEOUS PEAK STAGE |        |        | 17.94 Sep 21 |
| ANNUAL RUNOFF (AC-FT)    | 6520   | 16430  | 13000        |
| ANNUAL RUNOFF (CFSM)     | .93    | 2.34   | 1.85         |
| ANNUAL RUNOFF (INCHES)   | 12.61  | 31.77  | 25.13        |
| 10 PERCENT EXCEEDS       | 15     | 44     | 39           |
| 50 PERCENT EXCEEDS       | 4.7    | 15     | 9.0          |
| 90 PERCENT EXCEEDS       | 2.7    | 3.8    | 3.2          |

e Estimated

## RIO INABON BASIN

50112500 RIO INABON AT REAL ABAJO, PR--Continued



## RIO BUCANA BASIN

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°07'01", long 66°36'17", Hydrologic Unit 21010004, on right bank, 0.3 mi (0.5 km) downstream from confluence with Rio San Patricio, 0.1 mi (0.2 km) southwest of Hwy 139 and 2.4 mi (3.7 km) northwest of Mayagüez.

DRAINAGE AREA.-- 15.4 mi<sup>2</sup> (39.9 km<sup>2</sup>).

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft (210 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV  | DEC   | JAN   | FEB   | MAR   | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|--------|------|-------|-------|-------|-------|------|------|------|------|------|-------|
| 1     | 8.1    | 14   | 14    | 7.9   | 6.1   | 6.3   | 61   | e13  | 20   | 17   | 27   | 61    |
| 2     | 7.4    | 14   | 14    | 7.8   | 5.8   | 6.4   | 68   | e13  | 19   | 29   | 39   | 86    |
| 3     | 6.9    | 13   | 13    | 7.4   | 5.6   | 6.4   | e40  | e13  | 29   | 21   | 25   | 127   |
| 4     | 6.4    | 13   | 12    | 7.4   | 22    | 6.7   | e21  | e13  | 50   | 18   | 19   | 160   |
| 5     | 6.1    | 13   | 11    | 7.3   | 96    | 6.1   | 16   | e13  | 87   | 17   | 17   | 112   |
| 6     | 6.0    | 12   | 11    | 8.6   | 18    | 5.7   | 14   | e31  | 57   | 19   | 23   | 123   |
| 7     | 65     | 12   | 10    | 14    | 11    | 14    | 341  | e20  | 33   | 18   | 41   | 112   |
| 8     | 59     | 12   | 10    | 9.7   | 31    | 9.6   | 75   | e35  | 27   | 16   | 73   | 89    |
| 9     | 45     | 33   | 9.8   | 7.7   | 32    | 6.5   | 29   | e28  | 24   | 15   | 83   | 79    |
| 10    | 62     | 43   | 10    | 7.5   | 14    | 5.8   | 19   | e19  | 22   | 19   | 106  | 67    |
| 11    | 60     | 15   | 10    | 7.3   | 11    | 5.5   | 19   | e18  | 20   | 17   | 142  | 76    |
| 12    | 64     | 13   | 10    | 8.3   | 9.7   | 5.4   | 79   | e18  | 19   | 14   | 111  | 74    |
| 13    | 151    | 11   | 10    | 7.8   | 8.7   | 5.3   | 58   | e37  | 18   | 14   | 89   | 80    |
| 14    | 261    | 11   | 9.9   | 7.6   | 9.8   | 11    | 28   | 103  | 18   | 45   | 69   | 68    |
| 15    | 203    | 41   | 9.8   | 6.9   | 11    | 34    | 21   | 114  | 17   | 69   | 60   | 62    |
| 16    | 104    | 30   | 9.6   | 6.7   | 8.7   | 15    | 18   | 74   | 33   | 66   | 56   | 91    |
| 17    | 178    | 18   | 9.6   | 6.6   | 8.1   | 9.1   | 16   | 49   | 78   | 53   | 59   | 113   |
| 18    | 118    | 15   | 12    | 6.8   | 7.9   | 7.2   | 19   | 37   | 65   | 46   | 51   | 107   |
| 19    | 65     | 14   | 11    | 7.8   | 7.5   | 6.2   | 18   | 31   | 42   | 39   | 46   | 93    |
| 20    | 44     | 13   | 9.5   | 7.0   | 7.3   | 7.3   | 32   | 43   | 29   | 36   | 45   | 72    |
| 21    | 34     | 13   | 11    | 6.5   | 7.2   | 8.1   | 26   | 48   | 27   | 28   | 65   | e384  |
| 22    | 28     | 12   | 9.8   | 6.7   | 7.0   | e6.8  | 18   | 36   | 36   | 23   | 107  | 2510  |
| 23    | 24     | 12   | 9.5   | 6.3   | 6.9   | e7.9  | 18   | 44   | 25   | 31   | 82   | 271   |
| 24    | 22     | 11   | 9.0   | 6.3   | 7.2   | e6.4  | 39   | 35   | 32   | 25   | 302  | 177   |
| 25    | 20     | 15   | 8.8   | 6.6   | 6.6   | e6.1  | e36  | 28   | 26   | 21   | 309  | 150   |
| 26    | 19     | 18   | 8.6   | 6.7   | 7.3   | e8.7  | 25   | 26   | 21   | 19   | 109  | 132   |
| 27    | 18     | 14   | 8.6   | 6.2   | 6.6   | 7.3   | e22  | 24   | 20   | 19   | 111  | 122   |
| 28    | 17     | 12   | 8.6   | 6.8   | 6.2   | 7.0   | e17  | 22   | 19   | 20   | 104  | 109   |
| 29    | 16     | 27   | 8.4   | 7.2   | ---   | 16    | 14   | 21   | 18   | 18   | e81  | 97    |
| 30    | 15     | 18   | 8.4   | 6.7   | ---   | 47    | 13   | 21   | 18   | 17   | 65   | 90    |
| 31    | 15     | ---  | 8.4   | 6.1   | ---   | 28    | ---  | 20   | ---  | 18   | 67   | ---   |
| TOTAL | 1747.9 | 512  | 315.3 | 230.2 | 386.2 | 328.8 | 1220 | 1047 | 949  | 827  | 2583 | 5894  |
| MEAN  | 56.4   | 17.1 | 10.2  | 7.43  | 13.8  | 10.6  | 40.7 | 33.8 | 31.6 | 26.7 | 83.3 | 196   |
| MAX   | 261    | 43   | 14    | 14    | 96    | 47    | 341  | 114  | 87   | 69   | 309  | 2510  |
| MIN   | 6.0    | 11   | 8.4   | 6.1   | 5.6   | 5.3   | 13   | 13   | 17   | 14   | 17   | 61    |
| AC-FT | 3470   | 1020 | 625   | 457   | 766   | 652   | 2420 | 2080 | 1880 | 1640 | 5120 | 11690 |
| CFSM  | 4.74   | 1.43 | .85   | .62   | 1.16  | .89   | 3.42 | 2.84 | 2.66 | 2.24 | 7.00 | 16.5  |
| IN.   | 5.46   | 1.60 | .99   | .72   | 1.21  | 1.03  | 3.81 | 3.27 | 2.97 | 2.59 | 8.07 | 18.42 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

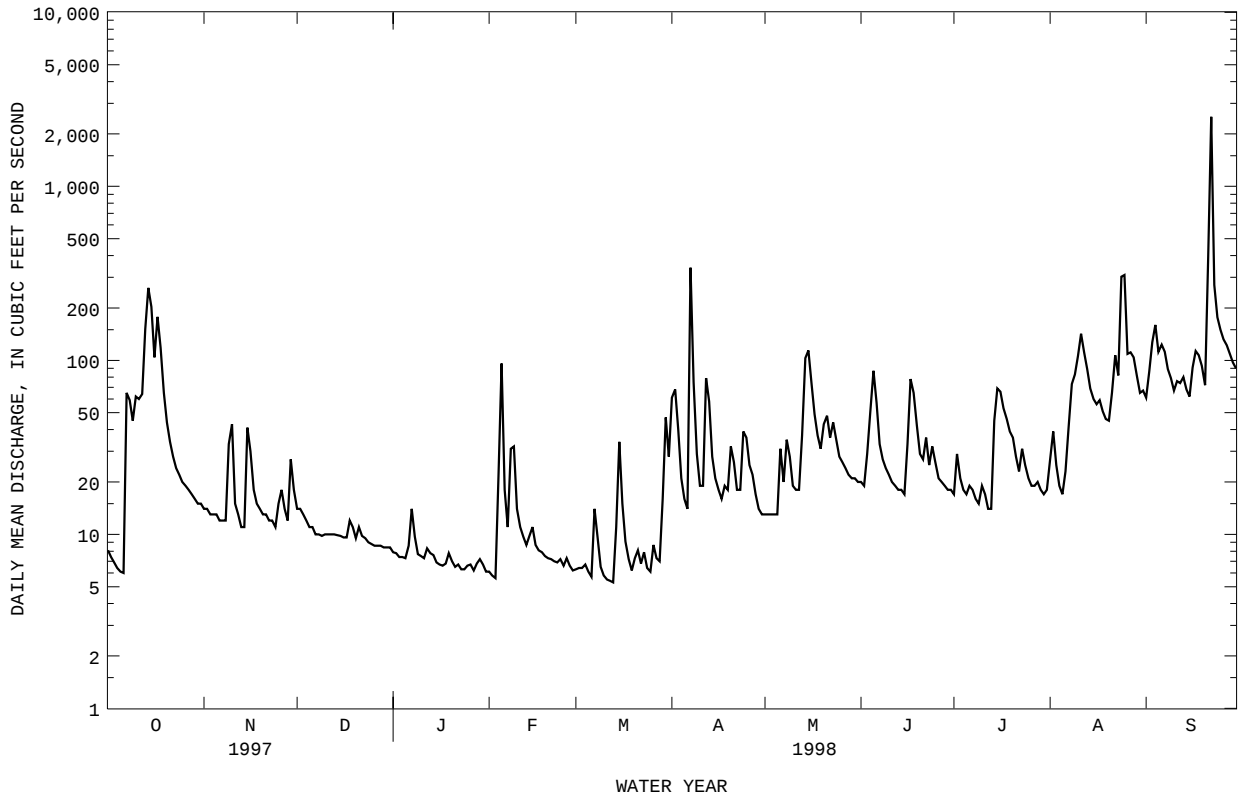
|      | MEAN | 64.5 | 31.7 | 15.1 | 15.8 | 12.3 | 11.0 | 16.4 | 25.0 | 23.5 | 15.8 | 33.7 | 69.3 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 154  | 59.3 | 26.2 | 59.0 | 26.1 | 27.5 | 40.7 | 68.2 | 46.4 | 26.7 | 83.3 | 196  |      |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1996 | 1989 | 1998 | 1993 | 1996 | 1991 | 1998 | 1998 |      |
| MIN  | 24.6 | 9.77 | 8.10 | 6.59 | 6.34 | 4.77 | 5.01 | 4.58 | 4.14 | 3.37 | 11.3 | 13.1 |      |
| (WY) | 1992 | 1994 | 1995 | 1995 | 1990 | 1990 | 1997 | 1990 | 1997 | 1994 | 1994 | 1997 |      |

| SUMMARY STATISTICS       | FOR 1997 CALENDAR YEAR | FOR 1998 WATER YEAR | WATER YEARS 1989 - 1998 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL             | 5019.4                 | 16040.4             |                         |
| ANNUAL MEAN              | 13.8                   | 43.9                | 27.7                    |
| HIGHEST ANNUAL MEAN      |                        |                     | 43.9                    |
| LOWEST ANNUAL MEAN       |                        |                     | 9.94                    |
| HIGHEST DAILY MEAN       | 261 Oct 14             | 2510 Sep 22         | 2510 Sep 22 1998        |
| LOWEST DAILY MEAN        | 3.1 Jul 6              | 5.3 Mar 13          | 3.0 Jul 6 1994          |
| ANNUAL SEVEN-DAY MINIMUM | 3.3 Jul 1              | 6.3 Feb 28          | 3.2 Jul 27 1994         |
| INSTANTANEOUS PEAK FLOW  |                        | 16200 Sep 21        | 16200 Sep 21 1998       |
| INSTANTANEOUS PEAK STAGE |                        | 12.42 Sep 21        | 12.42 Sep 21 1998       |
| INSTANTANEOUS LOW FLOW   |                        | 5.1 Mar 13          | 3.0 Jul 6 1997          |
| ANNUAL RUNOFF (AC-FT)    | 9960                   | 31820               | 20060                   |
| ANNUAL RUNOFF (CFSM)     | 1.16                   | 3.69                | 2.33                    |
| ANNUAL RUNOFF (INCHES)   | 15.69                  | 50.14               | 31.61                   |
| 10 PERCENT EXCEEDS       | 22                     | 92                  | 61                      |
| 50 PERCENT EXCEEDS       | 8.5                    | 18                  | 14                      |
| 90 PERCENT EXCEEDS       | 4.0                    | 6.8                 | 4.8                     |

e Estimated

## RIO BUCANA BASIN

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR--Continued



## RIO BUCANA BASIN

50113950 LAGO CERRILLOS AT DAMSITE NEAR PONCE, PR

LOCATION.--Lat 18°04'41", long 66°34'38", Hydrologic Unit 21010004, on left bank west from intake house of dam, 0.7 mi (1.1 km) southwest from Iglesia San Mateo at Real Abajo, 3.2 mi (5.1 km) northeast from Hospital de Distrito de Ponce, and 2.2 mi (3.5 km) northwest from Escuela Yuca.

DRAINAGE AREA.--17.4 mi<sup>2</sup> (45.1 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--October 1992 to current year .

REVISED RECORDS.--WDR PR-94-1: 1993,1994.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Cerrillos Dam, a rockfilled ungated structure completed in 1992. Elevation of crest is 611 ft (186 m) above mean sea level, with a structural height of 323 ft (98 m) and a length of 1,555 ft (474 m). The dam has a capacity of approximately 47,900 ac-ft (59.1 hm<sup>3</sup>). The dam is operated by U.S. Army Corps of Engineers and its purpose is for flood control, water supply, power generation, and recreation. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 602.84 ft (183.74 m), Sept. 22, 1998; minimum elevation, 416.63 ft (126.99 m), Oct. 1, 1992, (Revised).

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 602.84 ft (183.74 m), Sept. 22; minimum elevation, 551.69 ft (168.15 m), Feb. 26.

## Capacity Table

(based on data from U.S. Army Corps of Engineers)

| Elevation , in feet | Contents in acre-feet | Elevation, in feet | Contents in acre-feet |
|---------------------|-----------------------|--------------------|-----------------------|
| 328                 | 0                     | 558                | 25,786                |
| 426                 | 3,206                 | 590                | 37,509                |
| 492                 | 10,621                | 611                | 42,520                |
| 525                 | 16,990                |                    |                       |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 558.71 | 568.57 | 565.39 | 559.86 | 553.97 | 551.71 | 553.69 | 563.49 | 569.31 | 572.33 | 572.49 | 573.00 |
| 2   | 558.49 | 568.43 | 565.24 | 559.66 | 553.71 | 551.70 | 554.14 | 563.53 | 569.39 | 572.44 | 572.73 | 573.22 |
| 3   | 558.31 | 568.29 | 565.08 | 559.49 | 553.52 | 551.71 | 554.22 | 563.59 | 569.52 | 572.50 | 572.80 | 574.59 |
| 4   | 558.13 | 568.15 | 564.91 | 559.27 | 554.14 | 551.73 | 554.43 | 563.64 | 569.87 | 572.57 | 572.85 | 573.91 |
| 5   | 557.93 | 568.04 | 564.75 | 559.07 | 554.52 | 551.73 | 554.49 | 563.70 | 570.65 | 572.60 | 572.87 | 573.36 |
| 6   | 557.73 | 567.88 | 564.58 | 558.93 | 554.38 | 551.73 | 554.56 | 563.88 | 570.87 | 572.82 | 572.97 | 571.54 |
| 7   | 558.11 | 567.75 | 564.41 | 558.79 | 554.25 | 551.78 | 558.82 | 564.00 | 571.02 | 572.90 | 573.17 | 568.84 |
| 8   | 558.48 | 567.62 | 564.23 | 558.64 | 554.33 | 551.80 | 559.31 | 564.26 | 571.13 | 572.92 | 573.90 | 568.93 |
| 9   | 558.66 | 567.84 | 564.03 | 558.43 | 554.27 | 551.79 | 559.50 | 564.38 | 571.24 | 572.94 | 574.45 | 569.31 |
| 10  | 558.98 | 567.80 | 563.88 | 558.25 | 554.13 | 551.79 | 559.61 | 564.47 | 571.31 | 573.02 | 574.88 | 569.58 |
| 11  | 559.37 | 567.68 | 563.69 | 558.06 | 553.97 | 551.81 | 559.88 | 564.53 | 571.38 | 573.06 | 575.45 | 570.05 |
| 12  | 559.58 | 567.57 | 563.48 | 557.94 | 553.77 | 551.81 | 560.60 | 564.58 | 571.45 | 573.08 | 575.36 | 570.40 |
| 13  | 562.28 | 567.43 | 563.31 | 557.75 | 553.62 | 551.81 | 560.91 | 564.98 | 571.51 | 573.06 | 575.05 | 570.87 |
| 14  | 564.20 | 567.30 | 563.14 | 557.49 | 553.48 | 551.86 | 561.10 | 566.14 | 571.57 | 573.19 | 572.94 | 571.06 |
| 15  | 565.98 | 567.54 | 562.93 | A      | 553.38 | 552.04 | 561.22 | 566.77 | 571.65 | 573.41 | 572.40 | 571.38 |
| 16  | 566.39 | 567.49 | 562.75 | 557.13 | 553.18 | 552.09 | 561.33 | 567.10 | 571.78 | 573.62 | 572.40 | 572.11 |
| 17  | 568.97 | 567.40 | 562.57 | 556.92 | 552.99 | 552.10 | 561.42 | 567.30 | 572.47 | 573.73 | 572.48 | 572.83 |
| 18  | 569.51 | 567.27 | 562.45 | 556.72 | 552.84 | 552.11 | 561.61 | 567.43 | 572.79 | 573.81 | 572.28 | 573.05 |
| 19  | 569.72 | 567.12 | 562.27 | 556.51 | 552.64 | 552.12 | 561.73 | 567.57 | 572.93 | 573.83 | 572.20 | 572.90 |
| 20  | 569.77 | 566.95 | 562.08 | 556.30 | 551.85 | 552.14 | 561.93 | 567.91 | 572.92 | 573.81 | 572.17 | 572.64 |
| 21  | 569.77 | 566.81 | 561.92 | 556.08 | 551.62 | 552.14 | 562.09 | 568.07 | A      | 573.59 | 572.34 | 574.61 |
| 22  | 569.73 | 566.65 | A      | 555.88 | 551.40 | 552.19 | 562.18 | 568.24 | 572.71 | 573.38 | 572.71 | 600.03 |
| 23  | 569.64 | 566.51 | 561.55 | 555.66 | 551.75 | 552.20 | 562.28 | 568.51 | 572.67 | 573.21 | 572.81 | 589.57 |
| 24  | 569.57 | 566.33 | 561.36 | 555.47 | 551.72 | 552.19 | 562.71 | 568.65 | 572.77 | 573.01 | 577.46 | 583.59 |
| 25  | 569.48 | 566.16 | 561.18 | 555.26 | 551.70 | 552.25 | 562.94 | 568.75 | 572.70 | 572.78 | 575.11 | 577.11 |
| 26  | 569.36 | 566.03 | 560.96 | 555.05 | 551.71 | 552.33 | 563.12 | 568.87 | 572.63 | 572.55 | 573.78 | 575.08 |
| 27  | 569.25 | 565.90 | 560.80 | 554.89 | 551.71 | 552.34 | 563.23 | 568.96 | 572.57 | 572.60 | 574.16 | 573.58 |
| 28  | 569.13 | 565.74 | 560.63 | 554.74 | 551.70 | 552.35 | 563.33 | 569.03 | 572.47 | 572.58 | 574.07 | 572.98 |
| 29  | 568.99 | 565.66 | 560.43 | 554.55 | ---    | 552.46 | 563.39 | 569.08 | 572.37 | 572.46 | 573.87 | 573.10 |
| 30  | 568.85 | 565.53 | 560.28 | 554.37 | ---    | 553.01 | 563.44 | 569.18 | 572.28 | 572.36 | 573.54 | 572.77 |
| 31  | 568.72 | ---    | 560.07 | 554.14 | ---    | 553.18 | ---    | 569.24 | ---    | 572.41 | 573.28 | ---    |
| MAX | 569.77 | 568.57 | ---    | ---    | 554.52 | 553.18 | 563.44 | 569.24 | ---    | 573.83 | 577.46 | 600.03 |
| MIN | 557.73 | 565.53 | ---    | ---    | 551.40 | 551.70 | 553.69 | 563.49 | ---    | 572.33 | 572.17 | 568.84 |

A No gage-height record

## RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°04'15", long 66°34'51", Hydrologic Unit 21010004, on right bank off Highway 139, 0.8 mi (1.3 km) below Lago Cerrillos Dam, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi<sup>2</sup> (46.1 km<sup>2</sup>), excludes 17.4 mi<sup>2</sup> (45.1 km<sup>2</sup>), upstream from Lago Cerrillos Dam.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to April 1964 (monthly measurements only), May 1964 to June 1985, July 1985 to April 1991 (semi-monthly measurements only), May 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft (77.145 m), above mean sea level. Prior to March 22, 1977 at site 0.15 mi (0.24 km) upstream and datum 9.90 ft (3.018 m) higher.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam since May 1991. Gage-height and precipitation satellite telemetry at station. Prior to June 1985 some low-flow regulation by construction upstream. Maximum discharge prior to regulation, 22,400 ft<sup>3</sup>/s (6.34 m<sup>3</sup>/s), Sept. 16, 1975, gage-height, 11.2 ft (3.414 m), site and datum then in use from floodmarks, from rating curve extended above 150 ft<sup>3</sup>/s (4.25 m<sup>3</sup>/s), on basis of slope-area measurements of peak flow; minimum discharge prior to regulation, 2.2 ft<sup>3</sup>/s (0.062 m<sup>3</sup>/s), May 28, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG    | SEP    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| 1     | 4.2   | 5.1   | 5.6   | 4.4   | 4.0   | e4.4  | 4.3   | 4.1   | 4.8   | 17    | 4.0    | 114    |
| 2     | 4.3   | 5.1   | 5.6   | 4.4   | 4.0   | e4.4  | 5.5   | 4.1   | 4.9   | 4.0   | 3.9    | 114    |
| 3     | 4.4   | 5.1   | 5.5   | 4.1   | 4.0   | e4.4  | 4.6   | 4.1   | 5.2   | 3.8   | 3.9    | 114    |
| 4     | 4.6   | 4.9   | 5.5   | 3.9   | 5.7   | e4.2  | 4.5   | 4.1   | 5.3   | 3.7   | 4.0    | 206    |
| 5     | 4.7   | 4.9   | 5.5   | 4.0   | 9.9   | e4.2  | 4.4   | 4.1   | 5.0   | 3.7   | 4.0    | 147    |
| 6     | 4.7   | 4.7   | 5.5   | 3.9   | 5.0   | e4.2  | 4.5   | 4.0   | 5.0   | 3.8   | 4.7    | 240    |
| 7     | 4.9   | 4.9   | 5.5   | 4.0   | 4.9   | e4.1  | e4.4  | 4.0   | 5.1   | 3.8   | 4.1    | 298    |
| 8     | 5.6   | 4.9   | 5.5   | 4.0   | 5.2   | e4.2  | e5.0  | 4.0   | 5.3   | 3.8   | 4.5    | 102    |
| 9     | 5.9   | 5.0   | 5.5   | 5.0   | 4.9   | e4.0  | e4.5  | 3.9   | 5.5   | 4.0   | 4.3    | 8.7    |
| 10    | 5.3   | 6.1   | 5.5   | 5.4   | 5.1   | e3.8  | e4.4  | 3.9   | 5.8   | 3.9   | 45     | 8.4    |
| 11    | 5.1   | 5.9   | 5.4   | 5.6   | 4.7   | e3.8  | e6.8  | 3.9   | 5.7   | 4.0   | 94     | 8.5    |
| 12    | 5.1   | 5.7   | 5.3   | 5.5   | 3.9   | e4.0  | e13   | 4.0   | 5.5   | 4.0   | 130    | 8.3    |
| 13    | 5.7   | 5.7   | 5.3   | 5.3   | 3.8   | 4.1   | e5.6  | 4.1   | 5.4   | 17    | 132    | 8.4    |
| 14    | 7.2   | 5.5   | 5.1   | 4.8   | 3.9   | 4.2   | e5.8  | 4.1   | 5.3   | 33    | 257    | 8.4    |
| 15    | 7.3   | 5.6   | 5.2   | 4.5   | 3.8   | 4.2   | e6.6  | 4.1   | 5.3   | 33    | 161    | 8.6    |
| 16    | 6.6   | 5.9   | 5.2   | 4.1   | 3.8   | 4.2   | e7.0  | 4.1   | 5.5   | 33    | 31     | 8.5    |
| 17    | 7.1   | 5.7   | 5.0   | 4.1   | 3.9   | 4.3   | e6.6  | 4.1   | 5.8   | 32    | 31     | 8.5    |
| 18    | 6.5   | 5.5   | 4.9   | 4.1   | 4.0   | 4.4   | e6.0  | 4.1   | e5.3  | 32    | 63     | 53     |
| 19    | 6.2   | 5.5   | 4.8   | 3.9   | 4.0   | 4.3   | e5.4  | 4.1   | e14   | 32    | 62     | 106    |
| 20    | 6.1   | 5.8   | 4.7   | 3.9   | 4.1   | 4.4   | e5.2  | 4.3   | 29    | 54    | 30     | 106    |
| 21    | 5.3   | 5.7   | 4.8   | 4.2   | 4.2   | 4.5   | e6.2  | 4.2   | 29    | 68    | 30     | 169    |
| 22    | 5.6   | 5.9   | 4.7   | 4.6   | 4.1   | 4.4   | e6.6  | 4.1   | 29    | 67    | 30     | 528    |
| 23    | 5.9   | 5.9   | 4.6   | 4.8   | e8.5  | 4.4   | e6.5  | 4.7   | 28    | 65    | 30     | 578    |
| 24    | 5.9   | 5.9   | 4.4   | 4.4   | e8.5  | 4.6   | e6.6  | 4.3   | 31    | 65    | 85     | 519    |
| 25    | 5.7   | 5.9   | 4.5   | 4.9   | e4.7  | 4.6   | e6.0  | 4.2   | 32    | 66    | 327    | 329    |
| 26    | 5.7   | 5.8   | 4.7   | 4.6   | e4.7  | 4.5   | e5.0  | 4.3   | 32    | 66    | 270    | 177    |
| 27    | 5.7   | 5.8   | 4.7   | 4.2   | e4.5  | 4.6   | e4.6  | 4.3   | 32    | 25    | 115    | 176    |
| 28    | 5.5   | 5.9   | 4.7   | 4.3   | e4.4  | 4.6   | e4.4  | 4.4   | 31    | 20    | 115    | 95     |
| 29    | 5.3   | 5.9   | 4.6   | 4.0   | ---   | 4.5   | e4.2  | 4.6   | 31    | 32    | 115    | 38     |
| 30    | 5.3   | 5.7   | 4.6   | 4.2   | ---   | 7.1   | 4.1   | 4.7   | 31    | 32    | 115    | 78     |
| 31    | 5.3   | ---   | 4.5   | 4.0   | ---   | 4.6   | ---   | 4.7   | ---   | 14    | 115    | ---    |
| TOTAL | 172.7 | 165.9 | 156.9 | 137.1 | 136.2 | 136.2 | 168.3 | 129.7 | 444.7 | 845.5 | 2420.4 | 4363.3 |
| MEAN  | 5.57  | 5.33  | 5.06  | 4.42  | 4.86  | 4.39  | 5.61  | 4.18  | 14.8  | 27.3  | 78.1   | 145    |
| MAX   | 7.3   | 6.1   | 5.6   | 5.6   | 9.9   | 7.1   | 13    | 4.7   | 32    | 68    | 327    | 578    |
| MIN   | 4.2   | 4.7   | 4.4   | 3.9   | 3.8   | 3.8   | 4.1   | 3.9   | 4.8   | 3     | 3.9    | 8.3    |
| AC-FT | 343   | 329   | 311   | 272   | 270   | 270   | 334   | 257   | 882   | 1680  | 4800   | 8650   |
| CFSM  | .31   | .31   | .28   | .25   | .27   | .25   | .32   | .24   | .83   | 1.53  | 4.39   | 8.17   |
| IN.   | .36   | .35   | .33   | .29   | .28   | .28   | .35   | .27   | .93   | 1.77  | 5.06   | 9.12   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

|      | MEAN | 68.4 | 52.5 | 21.2 | 14.5 | 9.47 | 9.85 | 15.0 | 36.2 | 25.9 | 23.6 | 33.2 | 62.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 202  | 124  | 49.1 | 74.2 | 20.0 | 20.3 | 106  | 221  | 88.9 | 71.1 | 82.4 | 256  |      |
| (WY) | 1971 | 1978 | 1966 | 1992 | 1969 | 1969 | 1985 | 1985 | 1969 | 1968 | 1968 | 1975 |      |
| MIN  | 4.93 | 5.21 | 4.81 | 4.42 | 4.37 | 4.39 | 4.93 | 4.14 | 3.69 | 4.75 | 5.26 | 4.52 |      |
| (WY) | 1996 | 1996 | 1995 | 1998 | 1993 | 1998 | 1979 | 1967 | 1995 | 1995 | 1995 | 1997 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

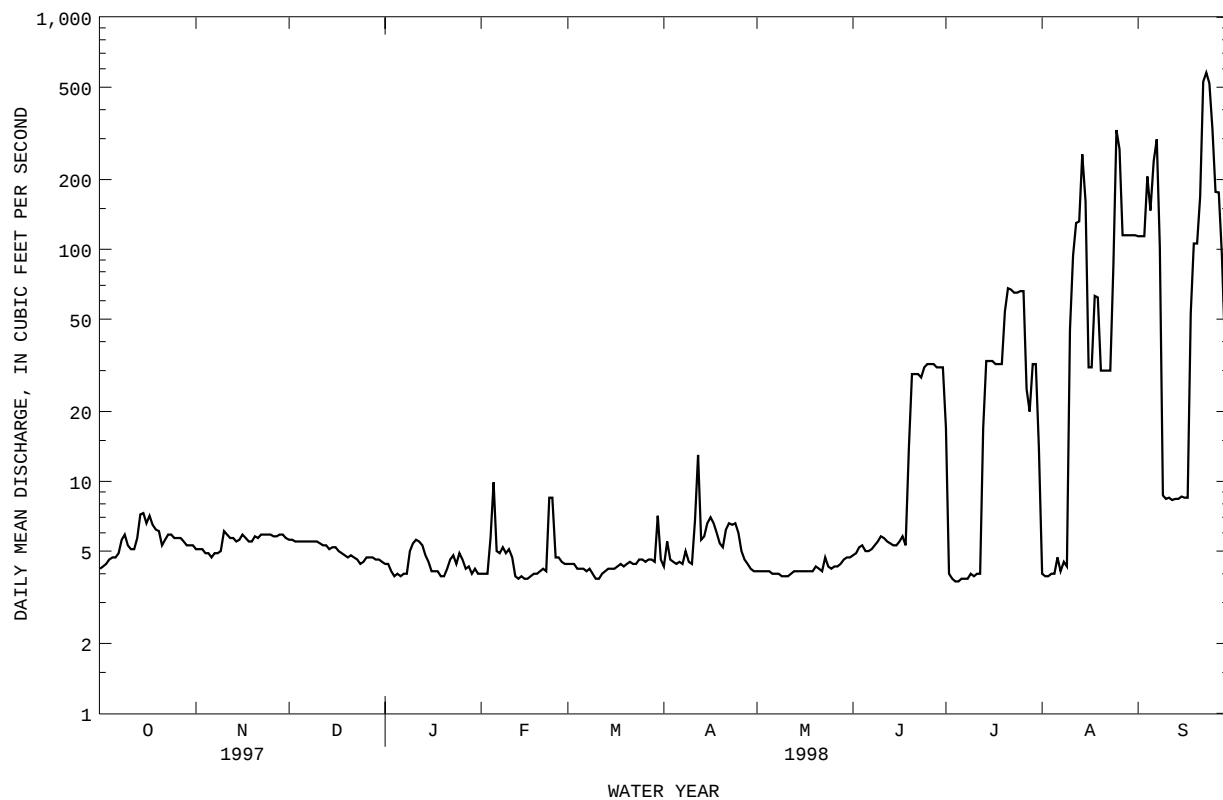
## FOR 1998 WATER YEAR

## WATER YEARS 1964 - 1998

|                          |        |        |             |
|--------------------------|--------|--------|-------------|
| ANNUAL TOTAL             | 2888.8 | 9276.9 |             |
| ANNUAL MEAN              | 7.91   | 25.4   | 30.5        |
| HIGHEST ANNUAL MEAN      |        |        | 53.9        |
| LOWEST ANNUAL MEAN       |        |        | 5.35        |
| HIGHEST DAILY MEAN       | 329    | Mar 21 | 578 Sep 23  |
| LOWEST DAILY MEAN        | 3.8    | Sep 16 | 3.7 Jul 4   |
| ANNUAL SEVEN-DAY MINIMUM | 3.9    | Sep 16 | 3.8 Jul 2   |
| INSTANTANEOUS PEAK FLOW  |        |        | 931 Sep 22  |
| INSTANTANEOUS PEAK STAGE |        |        | 6.73 Sep 22 |
| ANNUAL RUNOFF (AC-FT)    | 5730   | 18400  | 22130       |
| ANNUAL RUNOFF (CFSM)     | .44    | 1.43   | 1.72        |
| ANNUAL RUNOFF (INCHES)   | 6.04   | 19.39  | 23.32       |
| 10 PERCENT EXCEEDS       | 7.5    | 65     | 73          |
| 50 PERCENT EXCEEDS       | 5.5    | 5.1    | 13          |
| 90 PERCENT EXCEEDS       | 4.7    | 4.0    | 4.9         |

e Estimated

RIO BUCANA BASIN  
50114000 RIO CERRILLOS NEAR PONCE, PR--Continued



## RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°04'15", Long 66°34'51", Hydrologic unit 21010004, on right bank off Highway 139, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi<sup>2</sup> (46.1 km<sup>2</sup>)

PERIOD OF RECORD.--Water years 1964 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 20... | 1130 | 6.1                                             | 371                                     | 7.3                                            | 27.5                               | .40                       | 8.8                               | 111                                               | <10                                                  | K190                                                | 50                                              |
| MAR 12... | 1045 | 4.1                                             | 341                                     | 7.7                                            | 25.5                               | .47                       | 9.3                               | 114                                               | <10                                                  | K150                                                | 40                                              |
| MAY 28... | 1145 | 4.6                                             | 341                                     | 7.8                                            | 28.0                               | .47                       | 8.8                               | 113                                               | <10                                                  | 30                                                  | 30                                              |
| AUG 27... | 1045 | 115                                             | 255                                     | 7.0                                            | 25.5                               | .90                       | 7.2                               | 88                                                | <10                                                  | 370                                                 | K1700                                           |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 20... | 150                                     | 52                                      | 5.8                                         | 16                                      | .5                                | .70                                        | 140                                                 | <.5                               | 42                                       | 8.5                                        |
| MAR 12... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 150                                                 | --                                | --                                       | --                                         |
| MAY 28... | 150                                     | 50                                      | 5.3                                         | 15                                      | .5                                | .75                                        | 140                                                 | --                                | 28                                       | 7.6                                        |
| AUG 27... | 110                                     | 20                                      | 15                                          | 6.5                                     | .3                                | 1.5                                        | 110                                                 | <1.0                              | 8.5                                      | 7.1                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 20... | .28                                       | 26                                        | 235                                                     | 3.85                                      | <1                                                     | .490                                         | .010                                         | .500                                         | .020                                         | .38                                          |
| MAR 12... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | --                                           | <.010                                        | .090                                         | .020                                         | --                                           |
| MAY 28... | .21                                       | 22                                        | 214                                                     | 2.66                                      | 3                                                      | --                                           | <.010                                        | .110                                         | <.010                                        | --                                           |
| AUG 27... | .10                                       | 29                                        | 166                                                     | 51.5                                      | <1                                                     | --                                           | <.010                                        | .070                                         | .260                                         | .17                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 20... | .40                                                     | .90                                  | 4.0                                    | .040                                  | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | <10                                             |
| MAR 12... | <.20                                                    | --                                   | --                                     | .040                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 28... | <.20                                                    | --                                   | --                                     | <.020                                 | <1                                 | <100                                            | 10                                            | <1                                               | <1                                                 | <10                                             |
| AUG 27... | .43                                                     | .50                                  | 2.2                                    | .040                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

## RIO BUCANA BASIN

50114390 RIO BUCANA AT HWY 14 BRIDGE NEAR PONCE, PR

LOCATION.--Lat 18°02'29", long 66°34'58", Hydrologic Unit 21010004, on left bank, 200 ft (61 m) upstream from bridge on Highway 14 and 4.0 mi (6.4 km) downstream from Lago Cerrillos Dam, 2.8 mi (4.5 km) northeast of Degetau Plaza in Ponce.

DRAINAGE AREA.--24.9 mi<sup>2</sup> (64.5 km<sup>2</sup>).

PERIOD OF RECORD.--October 1985 to September 1986 (maximum only), published as "Rio Bucana Floodway Channel at Highway 14 bridge", October 1986 to July 1987 (maximum only), August 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 116.4 ft (35.50 m) above mean sea level. Prior to Oct. 1, 1986, crest-stage gage located at Highway 14 bridge, at elevation of mean sea level.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam 4.0 mi upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL    | AUG     | SEP     |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| 1     | 5.5    | 6.3   | 5.4   | 5.4   | 6.8   | 6.1   | 7.2   | 5.5   | 5.3   | 47     | 9.6     | e541    |
| 2     | 5.0    | 7.0   | 5.6   | 5.3   | 6.8   | 5.6   | 9.8   | 5.6   | 5.0   | 4.8    | 8.2     | 521     |
| 3     | 5.1    | 7.4   | 5.6   | 5.9   | 6.6   | 5.4   | 7.2   | 5.6   | 5.0   | 5.1    | 7.6     | 517     |
| 4     | 5.9    | 6.1   | 5.7   | 5.9   | 6.7   | 5.2   | 5.7   | 5.4   | 4.8   | 7.2    | 7.5     | e1070   |
| 5     | 5.6    | 5.7   | 5.9   | 5.6   | 176   | 6.1   | 5.4   | 5.3   | 4.4   | 4.7    | 8.5     | e714    |
| 6     | 4.9    | 5.6   | 5.9   | 11    | 8.3   | 5.6   | 6.0   | 5.0   | 4.4   | 4.3    | e7.3    | e1270   |
| 7     | 4.6    | 4.9   | 6.0   | 12    | 7.4   | 5.2   | 7.6   | 5.3   | 3.9   | 4.1    | e5.0    | e1610   |
| 8     | 14     | 6.7   | 6.1   | 9.2   | 9.2   | 4.9   | 8.2   | 5.7   | e4.5  | 3.6    | 8.4     | e460    |
| 9     | 23     | 6.9   | 6.1   | 8.4   | 8.9   | 4.9   | 6.4   | 5.8   | e10   | 3.5    | 5.7     | e5.4    |
| 10    | 16     | 11    | 6.3   | 8.1   | 9.2   | 4.8   | 6.0   | 5.0   | e13   | 3.3    | 52      | e5.8    |
| 11    | 25     | 8.0   | 6.1   | 7.9   | 9.2   | 5.1   | 7.7   | 4.3   | e15   | 3.5    | 204     | e6.3    |
| 12    | 14     | 7.4   | 5.9   | 9.4   | 8.7   | 5.1   | 18    | 4.1   | e7.6  | 4.0    | 463     | e6.7    |
| 13    | 20     | 7.5   | 6.1   | 9.2   | 7.9   | 4.6   | 7.6   | 4.9   | e10   | 6.5    | 560     | e7.2    |
| 14    | 270    | 6.9   | 6.6   | 8.4   | 8.9   | 5.6   | 8.0   | 5.3   | e10   | e36    | 1600    | e7.8    |
| 15    | 110    | 9.1   | 6.7   | 7.8   | 8.8   | 6.2   | 9.3   | 4.7   | e13   | 61     | 1500    | e8.3    |
| 16    | 36     | 8.5   | 7.0   | 7.3   | 8.2   | 6.2   | 10    | 5.3   | e15   | 67     | 174     | e8.4    |
| 17    | 165    | 7.5   | 7.1   | 7.3   | 8.4   | 5.7   | 9.5   | 4.6   | e18   | 85     | 103     | e7.2    |
| 18    | 155    | 6.8   | 6.3   | 7.3   | 8.3   | 5.3   | 8.6   | 4.4   | e10   | 99     | 182     | e15     |
| 19    | 18     | 6.8   | 5.9   | 7.3   | 8.5   | 5.2   | e7.9  | 4.4   | e7.6  | 87     | 323     | e476    |
| 20    | 12     | 6.5   | 5.7   | 7.0   | 9.1   | 5.7   | 7.4   | 4.4   | 33    | 126    | 131     | e484    |
| 21    | 10     | 5.9   | 6.9   | 6.8   | 8.2   | 5.2   | 8.2   | 5.2   | 42    | 216    | 128     | 856     |
| 22    | 9.8    | 6.0   | 6.7   | 6.8   | 7.2   | 5.8   | 9.3   | 4.6   | 48    | 215    | 110     | e3510   |
| 23    | 8.6    | 5.9   | 5.8   | 6.6   | 7.3   | 5.4   | 9.1   | 7.0   | 42    | 201    | 120     | e3280   |
| 24    | 8.8    | 6.0   | 5.7   | 6.6   | 8.3   | 5.0   | 9.6   | 6.2   | 50    | 200    | 380     | e2930   |
| 25    | 8.7    | 5.9   | 5.7   | 6.7   | 6.7   | 6.4   | 8.7   | 4.7   | 59    | 206    | 2280    | e1800   |
| 26    | 7.7    | 5.9   | 5.6   | 6.8   | 6.3   | 5.3   | 7.2   | 4.7   | 58    | 208    | 1880    | e892    |
| 27    | 8.3    | 6.1   | 5.7   | 6.6   | 7.0   | 5.2   | 6.5   | 4.9   | 56    | 142    | e523    | e879    |
| 28    | 8.0    | 5.6   | 5.9   | 8.2   | 6.1   | 5.1   | 6.3   | 4.7   | 55    | 27     | 527     | e419    |
| 29    | 7.4    | 5.7   | 5.8   | 7.3   | ---   | 5.2   | 5.9   | 4.8   | 58    | 99     | 532     | e68     |
| 30    | 6.6    | 5.7   | 10    | 7.0   | ---   | 59    | 5.8   | 5.2   | 59    | 100    | 540     | e306    |
| 31    | 6.2    | ---   | 5.7   | 6.8   | ---   | 26    | ---   | 5.4   | ---   | 73     | 541     | ---     |
| TOTAL | 1004.7 | 201.3 | 191.5 | 231.9 | 389.0 | 242.1 | 240.1 | 158.0 | 726.5 | 2349.6 | 12920.8 | 22681.1 |
| MEAN  | 32.4   | 6.71  | 6.18  | 7.48  | 13.9  | 7.81  | 8.00  | 5.10  | 24.2  | 75.8   | 417     | 756     |
| MAX   | 270    | 11    | 10    | 12    | 176   | 59    | 18    | 7.0   | 59    | 216    | 2280    | 3510    |
| MIN   | 4.6    | 4.9   | 5.4   | 5.3   | 6.1   | 4.6   | 5.4   | 4.1   | 3.9   | 3.3    | 5.0     | 5.4     |
| AC-FT | 1990   | 399   | 380   | 460   | 772   | 480   | 476   | 313   | 1440  | 4660   | 25630   | 44990   |
| CFSM  | 1.30   | .27   | .25   | .30   | .56   | .31   | .32   | .20   | .97   | 3.04   | 16.7    | 30.4    |
| IN.   | 1.50   | .30   | .29   | .35   | .58   | .36   | .36   | .24   | 1.09  | 3.51   | 19.30   | 33.89   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1998, BY WATER YEAR (WY)

|  | MEAN | 114  | 56.1 | 16.0 | 40.6 | 10.4 | 13.8 | 13.3 | 22.4 | 23.9 | 22.8 | 72.1 | 131  |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
|  | MAX  | 527  | 222  | 49.1 | 337  | 19.3 | 48.0 | 42.5 | 94.9 | 80.5 | 75.8 | 417  | 756  |
|  | (WY) | 1991 | 1988 | 1988 | 1992 | 1995 | 1989 | 1992 | 1992 | 1989 | 1998 | 1998 | 1998 |
|  | MIN  | 6.34 | 5.09 | 5.03 | 4.51 | 4.10 | 4.49 | 4.74 | 4.29 | 4.90 | 4.37 | 4.06 | 5.66 |
|  | (WY) | 1996 | 1994 | 1996 | 1994 | 1994 | 1994 | 1994 | 1994 | 1994 | 1994 | 1994 | 1997 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

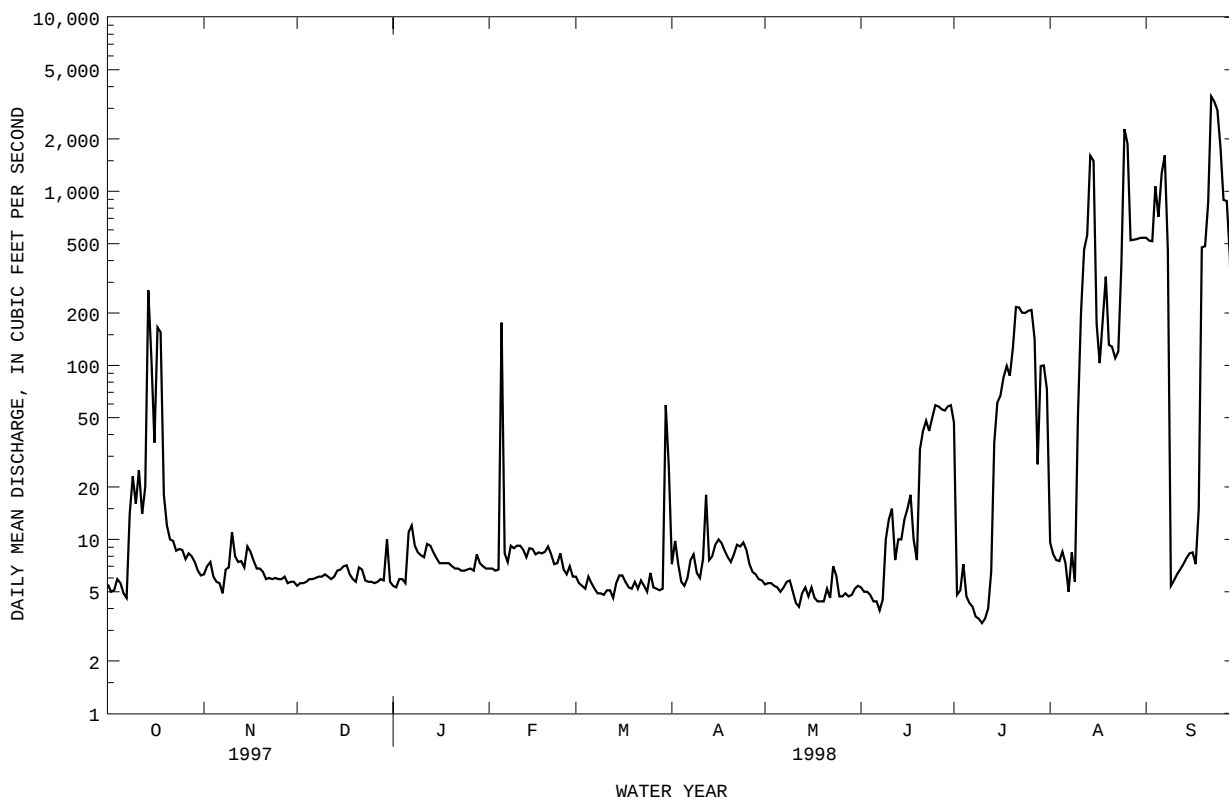
## WATER YEARS 1987 - 1998

|                          |        |         |       |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL             | 4204.8 | 41336.6 |       |
| ANNUAL MEAN              | 11.5   | 113     | 46.0  |
| HIGHEST ANNUAL MEAN      |        |         | 113   |
| LOWEST ANNUAL MEAN       |        |         | 7.43  |
| HIGHEST DAILY MEAN       | 664    | Mar 21  | 3510  |
| LOWEST DAILY MEAN        | 4.2    | May 16  | 3.3   |
| ANNUAL SEVEN-DAY MINIMUM | 4.4    | May 13  | 3.8   |
| INSTANTANEOUS PEAK FLOW  |        |         | 5410  |
| INSTANTANEOUS PEAK STAGE |        |         | 14.41 |
| ANNUAL RUNOFF (AC-FT)    | 8340   | 81990   | 17400 |
| ANNUAL RUNOFF (CFSM)     | .46    | 4.55    | 13.48 |
| ANNUAL RUNOFF (INCHES)   | 6.28   | 61.76   | 33290 |
| 10 PERCENT EXCEEDS       | 10     | 207     | 1.85  |
| 50 PERCENT EXCEEDS       | 6.1    | 7.2     | 25.08 |
| 90 PERCENT EXCEEDS       | 4.9    | 5.0     | 73    |
|                          |        |         | 8.6   |
|                          |        |         | 4.6   |

e Estimated

## RIO BUCANA BASIN

50114390 RIO BUCANA AT HWY 14 BRIDGE NEAR PONCE, PR--Continued



## RIO PORTUGUES BASIN

50114900 RIO PORTUGUES AT TIBES, PR

LOCATION.--Lat 18°06'00", long 66°38'34", Hydrologic Unit 21010004, 1.6 mi (2.6 km), north from Escuela Segunda Unidad of Corral Viejo, 0.3 mi (0.50 km) south from Hacienda Burenes and 6.0 mi (9.6 km) north-east from Peñuelas Plaza Church.

DRAINAGE AREA.--7.27 mi<sup>2</sup> (18.83 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1997 to September.

GAGE.--Water-stage recorder. Elevation of gage is 918 ft (280 m), from topographic map.

REMARKS.--Records poor. Some low-flow regulation due to PRASA intakes (2) 0.85 mi (1.36 km) upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN  | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG  | SEP   |
|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1     | e1.9  | 5.9   | 5.6   | 3.3  | 2.8   | e4.0  | e34   | 7.7   | 9.1   | 6.6   | 15   | 16    |
| 2     | e1.4  | 5.8   | 5.3   | 3.3  | e2.9  | e3.6  | 24    | 7.1   | 8.6   | 17    | 17   | 32    |
| 3     | e1.7  | 5.7   | 5.2   | 3.3  | 2.9   | 4.2   | e16   | 7.2   | 9.4   | 8.7   | 17   | 38    |
| 4     | e2.0  | 5.6   | 5.0   | 3.2  | 5.7   | 4.8   | e7.8  | 7.0   | 31    | 7.4   | 16   | 76    |
| 5     | e1.2  | 5.5   | e4.8  | 3.1  | 25    | 4.8   | 7.4   | 7.0   | 23    | 6.8   | 15   | 18    |
| 6     | e1.1  | 5.4   | e4.6  | e3.5 | 6.9   | 5.0   | 6.9   | 9.0   | 13    | 6.6   | e15  | 45    |
| 7     | e2.5  | 5.3   | 4.5   | 3.7  | 5.5   | 7.7   | 66    | 8.5   | 10    | 6.4   | 21   | 42    |
| 8     | e26   | 5.7   | 4.4   | 3.4  | e10   | 4.9   | 50    | 10    | 9.4   | 6.1   | 41   | 25    |
| 9     | e15   | 13    | 4.2   | 3.2  | 9.3   | 3.5   | 25    | 9.8   | 8.9   | 5.9   | 37   | 18    |
| 10    | e20   | e16   | 4.0   | 3.1  | 6.2   | 3.1   | e18   | 8.8   | 8.5   | 9.1   | 29   | 14    |
| 11    | e13   | e7.9  | 4.0   | 3.3  | e5.4  | 2.8   | 17    | 8.5   | 7.8   | 7.4   | 45   | e21   |
| 12    | e56   | e6.9  | 3.8   | 3.3  | 4.9   | 2.7   | 50    | 8.4   | 7.4   | 6.6   | 35   | 30    |
| 13    | e13   | 6.5   | 3.8   | 3.1  | e4.4  | 3.5   | 34    | 9.3   | 6.9   | 6.2   | 21   | e25   |
| 14    | e24   | e6.3  | 3.8   | 3.1  | e4.5  | e3.5  | 24    | 56    | 6.5   | 8.1   | 18   | 23    |
| 15    | e48   | 11    | 3.8   | 3.0  | 4.4   | 4.4   | 14    | 79    | 6.1   | 41    | 17   | 22    |
| 16    | 23    | 8.5   | 3.8   | 3.0  | e4.0  | 3.9   | 11    | 13    | 8.3   | 43    | 16   | 37    |
| 17    | 36    | 7.0   | 3.7   | 2.9  | 4.0   | 2.8   | 10    | 9.3   | 20    | 26    | 17   | 32    |
| 18    | 23    | 6.6   | 3.7   | 3.0  | 3.9   | e2.6  | e9.8  | 8.7   | 11    | 28    | 16   | e40   |
| 19    | 13    | e6.3  | 3.7   | 3.0  | 3.8   | e2.7  | e9.8  | 8.0   | 7.4   | 26    | 16   | e39   |
| 20    | 11    | 6.1   | 3.6   | e2.9 | 3.7   | 2.9   | 10    | 7.6   | 9.0   | 29    | 20   | e29   |
| 21    | 9.6   | e6.0  | e3.7  | 2.9  | 3.5   | 3.0   | 8.5   | 16    | 7.9   | 24    | 27   | 135   |
| 22    | 8.7   | 5.9   | 3.6   | 2.9  | 3.4   | e3.1  | 8.0   | 11    | 9.5   | 19    | 37   | e3000 |
| 23    | 8.1   | 5.8   | 3.5   | 3.0  | e3.2  | 3.0   | 8.1   | 16    | 7.4   | 25    | 21   | e230  |
| 24    | 7.7   | 5.7   | 3.5   | e2.9 | 3.5   | 3.0   | 8.5   | 11    | 17    | 19    | 78   | e100  |
| 25    | 7.2   | 5.9   | 3.5   | e2.9 | 3.4   | 3.2   | 8.4   | 9.4   | 6.5   | 17    | 130  | e66   |
| 26    | 6.7   | 6.0   | e3.5  | 2.9  | 3.5   | 2.8   | 8.1   | 8.4   | 7.0   | 16    | e48  | e48   |
| 27    | 6.5   | 5.8   | 3.4   | 2.7  | e3.8  | 2.6   | 8.4   | 8.1   | 7.3   | 16    | 30   | e100  |
| 28    | 6.3   | 5.7   | 3.4   | 2.8  | 3.7   | 2.5   | 8.5   | 8.4   | 7.1   | 16    | 20   | e49   |
| 29    | 6.2   | 7.3   | e3.4  | 2.9  | ---   | 3.0   | 7.7   | 8.6   | 6.9   | 15    | 19   | e35   |
| 30    | 6.1   | 6.2   | e3.4  | 2.8  | ---   | 3.0   | 7.4   | 8.7   | 6.8   | 15    | 15   | e22   |
| 31    | 5.9   | ---   | e3.3  | 2.8  | ---   | 2.4   | ---   | 8.9   | ---   | 15    | 14   | ---   |
| TOTAL | 411.8 | 207.3 | 123.5 | 95.2 | 148.2 | 109.0 | 526.3 | 404.4 | 304.7 | 498.9 | 883  | 4407  |
| MEAN  | 13.3  | 6.91  | 3.98  | 3.07 | 5.29  | 3.52  | 17.5  | 13.0  | 10.2  | 16.1  | 28.5 | 147   |
| MAX   | 56    | 16    | 5.6   | 3.7  | 25    | 7.7   | 66    | 79    | 31    | 43    | 130  | 3000  |
| MIN   | 1.1   | 5.3   | 3.3   | 2.7  | 2.8   | 2.4   | 6.9   | 7.0   | 6.1   | 5.9   | 14   | 14    |
| AC-FT | 817   | 411   | 245   | 189  | 294   | 216   | 1040  | 802   | 604   | 990   | 1750 | 8740  |
| CFSM  | 1.83  | .95   | .55   | .42  | .73   | .48   | 2.41  | 1.79  | 1.40  | 2.21  | 3.92 | 20.2  |
| IN.   | 2.11  | 1.06  | .63   | .49  | .76   | .56   | 2.69  | 2.07  | 1.56  | 2.55  | 4.52 | 22.55 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 13.3 | 6.91 | 3.98 | 3.07 | 5.29 | 3.52 | 17.5 | 13.0 | 10.2 | 16.1 | 28.5 | 147  |
| MAX  | 13.3 | 6.91 | 3.98 | 3.07 | 5.29 | 3.52 | 17.5 | 13.0 | 10.2 | 16.1 | 28.5 | 147  |
| (WY) | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 |
| MIN  | 13.3 | 6.91 | 3.98 | 3.07 | 5.29 | 3.52 | 17.5 | 13.0 | 10.2 | 16.1 | 28.5 | 147  |
| (WY) | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 |

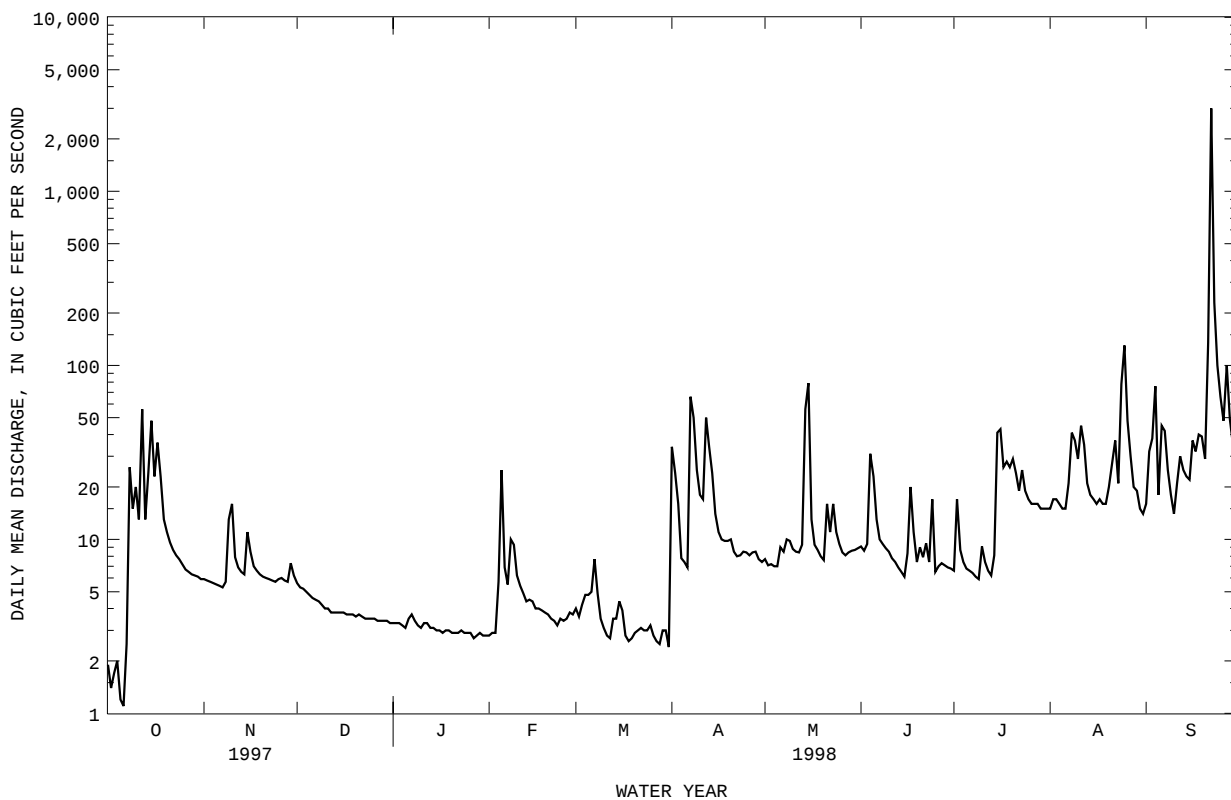
## SUMMARY STATISTICS

## FOR 1998 WATER YEAR

|                          |              |
|--------------------------|--------------|
| ANNUAL TOTAL             | 8119.3       |
| ANNUAL MEAN              | 22.2         |
| HIGHEST DAILY MEAN       | 3000 Sep 22  |
| LOWEST DAILY MEAN        | 1.1 Oct 6    |
| ANNUAL SEVEN-DAY MINIMUM | 1.7 Oct 1    |
| INSTANTANEOUS PEAK FLOW  | 10000 Sep 21 |
| INSTANTANEOUS PEAK STAGE | 22.46 Sep 21 |
| ANNUAL RUNOFF (AC-FT)    | 16100        |
| ANNUAL RUNOFF (CFSM)     | 3.06         |
| ANNUAL RUNOFF (INCHES)   | 41.55        |
| 10 PERCENT EXCEEDS       | 33           |
| 50 PERCENT EXCEEDS       | 7.4          |
| 90 PERCENT EXCEEDS       | 3.0          |

e Estimated

RIO PORTUGUES BASIN  
50114900 RIO PORTUGUES AT TIBES, PR--Continued



## RIO PORTUGUES BASIN

50114900 RIO PORTUGUES AT TIBES, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- October, 1997 to current water year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October, 1997 to current water year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 11997.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, e17,500 mg/L September 22, 1998; Minimum daily mean, 2 mg/L March 1, 1998.

SEDIMENT LOADS: Maximum daily mean, e143,000 tons (e130,000 tonnes) September 22, 1998; Minimum daily mean, 0.03 ton (0.02 tonne) several days.

EXTREMES FOR CURRENT YEAR 1998.

SEDIMENT CONCENTRATION: Maximum daily mean, e17,500 mg/L September 22, 1998; Minimum daily mean, 2 mg/L March 1, 1998.

SEDIMENT LOADS: Maximum daily mean, e143,000 tons (e130,000 tonnes) September 22, 1998; Minimum daily mean, 0.03 ton (0.02 tonne) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER |                            |                                 | NOVEMBER                            |                            |                                 | DECEMBER                            |                            |                                 |                                     |
| 1       | e1.9                       | 15                              | e.10                                | 5.9                        | 21                              | .33                                 | 5.6                        | 61                              | .93                                 |
| 2       | e1.4                       | 15                              | e.10                                | 5.8                        | 30                              | .47                                 | 5.3                        | 65                              | .94                                 |
| 3       | e1.7                       | 15                              | e.10                                | 5.7                        | 44                              | .67                                 | 5.2                        | 75                              | 1.0                                 |
| 4       | e2.0                       | 15                              | e.10                                | 5.6                        | 65                              | .99                                 | 5.0                        | 86                              | 1.1                                 |
| 5       | e1.2                       | 15                              | e.10                                | 5.5                        | 44                              | .66                                 | e4.8                       | 92                              | e1.2                                |
| 6       | e1.1                       | 15                              | e.10                                | 5.4                        | 24                              | .34                                 | e4.6                       | 87                              | e1.1                                |
| 7       | e2.5                       | 15                              | e.10                                | 5.3                        | 21                              | .30                                 | 4.5                        | 46                              | .56                                 |
| 8       | e26                        | 1250                            | e36                                 | 5.7                        | 73                              | 1.3                                 | 4.4                        | 23                              | .28                                 |
| 9       | e15                        | 330                             | e52                                 | 13                         | 6240                            | 696                                 | 4.2                        | 20                              | .22                                 |
| 10      | e20                        | 116                             | e95                                 | e16                        | 1360                            | e68                                 | 4.0                        | 19                              | .21                                 |
| 11      | e13                        | 201                             | e20                                 | e7.9                       | 275                             | e5.9                                | 4.0                        | 28                              | .30                                 |
| 12      | e56                        | 351                             | e2010                               | e6.9                       | 231                             | e4.3                                | 3.8                        | 35                              | .36                                 |
| 13      | e13                        | 610                             | e22                                 | 6.5                        | 168                             | 3.0                                 | 3.8                        | 18                              | .19                                 |
| 14      | e24                        | 1060                            | e50                                 | e6.3                       | 127                             | e2.2                                | 3.8                        | 12                              | .12                                 |
| 15      | e48                        | 1850                            | e332                                | 11                         | 454                             | 23                                  | 3.8                        | 28                              | .29                                 |
| 16      | 23                         | 531                             | 78                                  | 8.5                        | 261                             | 6.1                                 | 3.8                        | 66                              | .67                                 |
| 17      | 36                         | 1340                            | 312                                 | 7.0                        | 220                             | 4.2                                 | 3.7                        | 73                              | .73                                 |
| 18      | 23                         | 531                             | 73                                  | 6.6                        | 210                             | 3.7                                 | 3.7                        | 73                              | .73                                 |
| 19      | 13                         | 614                             | 19                                  | e6.3                       | 159                             | e2.7                                | 3.7                        | 74                              | .74                                 |
| 20      | 11                         | 415                             | 11                                  | 6.1                        | 117                             | 1.9                                 | 3.6                        | 74                              | .73                                 |
| 21      | 9.6                        | 35                              | .90                                 | e6.0                       | 85                              | e1.4                                | e3.7                       | 66                              | e.66                                |
| 22      | 8.7                        | 47                              | 1.1                                 | 5.9                        | 62                              | .98                                 | 3.6                        | 52                              | .50                                 |
| 23      | 8.1                        | 64                              | 1.4                                 | 5.8                        | 33                              | .51                                 | 3.5                        | 31                              | .29                                 |
| 24      | 7.7                        | 86                              | 1.8                                 | 5.7                        | 19                              | .29                                 | 3.5                        | 17                              | .17                                 |
| 25      | 7.2                        | 88                              | 1.7                                 | 5.9                        | 30                              | .49                                 | 3.5                        | 10                              | .09                                 |
| 26      | 6.7                        | 69                              | 1.2                                 | 6.0                        | 60                              | .98                                 | e3.5                       | 6                               | e.06                                |
| 27      | 6.5                        | 54                              | .94                                 | 5.8                        | 32                              | .50                                 | 3.4                        | 7                               | .07                                 |
| 28      | 6.3                        | 42                              | .71                                 | 5.7                        | 12                              | .19                                 | 3.4                        | 20                              | .18                                 |
| 29      | 6.2                        | 32                              | .54                                 | 7.3                        | 126                             | 3.8                                 | e3.4                       | 37                              | e.34                                |
| 30      | 6.1                        | 27                              | .44                                 | 6.2                        | 108                             | 1.8                                 | e3.4                       | 12                              | e.11                                |
| 31      | 5.9                        | 14                              | .23                                 | ---                        | ---                             | ---                                 | e3.3                       | 25                              | e.22                                |
| TOTAL   | 411.8                      | ---                             | 3121.66                             | 207.3                      | ---                             | 837.00                              | 123.5                      | ---                             | 15.09                               |

## RIO PORTUGUES BASIN

50114900 RIO PORTUGUES AT TIBES, PR--Continued

## WATER-QUALITY RECORDS

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY |                            |                                 | FEBRUARY                            |                            |                                 | MARCH                               |                            |                                 |                                     |
| 1       | 3.3                        | 61                              | .53                                 | 2.8                        | 5                               | .04                                 | e4.0                       | 2                               | e.03                                |
| 2       | 3.3                        | 61                              | .54                                 | e2.9                       | 5                               | e.04                                | e3.6                       | 3                               | e.03                                |
| 3       | 3.3                        | 48                              | .42                                 | 2.9                        | 6                               | .04                                 | 4.2                        | 10                              | .12                                 |
| 4       | 3.2                        | 39                              | .34                                 | 5.7                        | 152                             | 13                                  | 4.8                        | 38                              | .48                                 |
| 5       | 3.1                        | 45                              | .38                                 | 25                         | 2660                            | 301                                 | 4.8                        | 30                              | .39                                 |
| 6       | e3.5                       | 55                              | e.53                                | 6.9                        | 728                             | 14                                  | 5.0                        | 13                              | .17                                 |
| 7       | 3.7                        | 63                              | .64                                 | 5.5                        | 510                             | 7.6                                 | 7.7                        | 82                              | 5.7                                 |
| 8       | 3.4                        | 52                              | .47                                 | e10                        | 863                             | e57                                 | 4.9                        | 18                              | .24                                 |
| 9       | 3.2                        | 43                              | .38                                 | 9.3                        | 654                             | 19                                  | 3.5                        | 14                              | .13                                 |
| 10      | 3.1                        | 52                              | .44                                 | 6.2                        | 78                              | 1.3                                 | 3.1                        | 11                              | .09                                 |
| 11      | 3.3                        | 64                              | .58                                 | e5.4                       | 46                              | e.67                                | 2.8                        | 9                               | .07                                 |
| 12      | 3.3                        | 77                              | .70                                 | 4.9                        | 29                              | .38                                 | 2.7                        | 9                               | .06                                 |
| 13      | 3.1                        | 60                              | .50                                 | e4.4                       | 22                              | e.26                                | 3.5                        | 27                              | .27                                 |
| 14      | 3.1                        | 34                              | .29                                 | e4.5                       | 17                              | e.21                                | e3.5                       | 71                              | e.67                                |
| 15      | 3.0                        | 13                              | .11                                 | 4.4                        | 12                              | .14                                 | 4.4                        | 56                              | .66                                 |
| 16      | 3.0                        | 6                               | .05                                 | e4.0                       | 9                               | e.10                                | 3.9                        | 39                              | .41                                 |
| 17      | 2.9                        | 13                              | .10                                 | 4.0                        | 13                              | .14                                 | 2.8                        | 27                              | .21                                 |
| 18      | 3.0                        | 18                              | .14                                 | 3.9                        | 18                              | .19                                 | e2.6                       | 20                              | e.14                                |
| 19      | 3.0                        | 22                              | .18                                 | 3.8                        | 16                              | .16                                 | e2.7                       | 18                              | e.13                                |
| 20      | e2.9                       | 21                              | e.16                                | 3.7                        | 13                              | .13                                 | 2.9                        | 20                              | .16                                 |
| 21      | 2.9                        | 18                              | .14                                 | 3.5                        | 10                              | .10                                 | 3.0                        | 32                              | .26                                 |
| 22      | 2.9                        | 17                              | .13                                 | 3.4                        | 6                               | .06                                 | e3.1                       | 53                              | e.45                                |
| 23      | 3.0                        | 15                              | .12                                 | e3.2                       | 4                               | e.03                                | 3.0                        | 89                              | .70                                 |
| 24      | e2.9                       | 15                              | e.12                                | 3.5                        | 5                               | .05                                 | 3.0                        | 148                             | 1.2                                 |
| 25      | e2.9                       | 15                              | e.12                                | 3.4                        | 7                               | .06                                 | 3.2                        | 198                             | 1.7                                 |
| 26      | 2.9                        | 15                              | .12                                 | 3.5                        | 5                               | .05                                 | 2.8                        | 121                             | .93                                 |
| 27      | 2.7                        | 15                              | .11                                 | e3.8                       | 3                               | e.04                                | 2.6                        | 74                              | .53                                 |
| 28      | 2.8                        | 15                              | .11                                 | 3.7                        | 3                               | .03                                 | 2.5                        | 62                              | .42                                 |
| 29      | 2.9                        | 13                              | .10                                 | ---                        | ---                             | ---                                 | 3.0                        | 54                              | .43                                 |
| 30      | 2.8                        | 7                               | .05                                 | ---                        | ---                             | ---                                 | 3.0                        | 48                              | .38                                 |
| 31      | 2.8                        | 4                               | .03                                 | ---                        | ---                             | ---                                 | 2.4                        | 44                              | .28                                 |
| TOTAL   | 95.2                       | ---                             | 8.63                                | 148.2                      | ---                             | 415.82                              | 109.0                      | ---                             | 17.44                               |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                 | MAY                                 |                            |                                 | JUNE                                |                            |                                 |                                     |
| 1       | e34                        | 2460                            | e757                                | 7.7                        | 42                              | .88                                 | 9.1                        | 45                              | 1.1                                 |
| 2       | 24                         | 4920                            | 618                                 | 7.1                        | 71                              | 1.4                                 | 8.6                        | 62                              | 1.4                                 |
| 3       | e16                        | 824                             | e40                                 | 7.2                        | 52                              | 1.0                                 | 9.4                        | 1290                            | 43                                  |
| 4       | e7.8                       | 272                             | 6.0                                 | 7.0                        | 31                              | .59                                 | 31                         | 1730                            | 445                                 |
| 5       | 7.4                        | 191                             | 3.8                                 | 7.0                        | 26                              | .49                                 | 23                         | 800                             | 78                                  |
| 6       | 6.9                        | 175                             | 3.2                                 | 9.0                        | 1770                            | 76                                  | 13                         | 302                             | 11                                  |
| 7       | 66                         | 6680                            | 2640                                | 8.5                        | 265                             | 6.1                                 | 10                         | 51                              | 1.5                                 |
| 8       | 50                         | 2460                            | 362                                 | 10                         | 1110                            | 52                                  | 9.4                        | 62                              | 1.6                                 |
| 9       | 25                         | 531                             | 36                                  | 9.8                        | 413                             | 11                                  | 8.9                        | 98                              | 2.4                                 |
| 10      | e18                        | 368                             | e17                                 | 8.8                        | 355                             | 8.5                                 | 8.5                        | 98                              | 2.2                                 |
| 11      | 17                         | 1230                            | 92                                  | 8.5                        | 305                             | 7.0                                 | 7.8                        | 91                              | 1.9                                 |
| 12      | 50                         | 3460                            | 794                                 | 8.4                        | 262                             | 5.9                                 | 7.4                        | 77                              | 1.5                                 |
| 13      | 34                         | 2660                            | 254                                 | 9.3                        | 337                             | 8.6                                 | 6.9                        | 62                              | 1.2                                 |
| 14      | 24                         | 466                             | 32                                  | 56                         | 6090                            | 2990                                | 6.5                        | 51                              | .89                                 |
| 15      | 14                         | 330                             | 12                                  | 79                         | 3740                            | 1100                                | 6.1                        | 42                              | .69                                 |
| 16      | 11                         | 290                             | 8.6                                 | 13                         | 325                             | 13                                  | 8.3                        | 342                             | 15                                  |
| 17      | 10                         | 257                             | 7.0                                 | 9.3                        | 702                             | 17                                  | 20                         | 1470                            | 237                                 |
| 18      | e9.8                       | 251                             | e6.7                                | 8.7                        | 922                             | 22                                  | 11                         | 423                             | 22                                  |
| 19      | e9.8                       | 251                             | e6.6                                | 8.0                        | 384                             | 8.5                                 | 7.4                        | 86                              | 1.9                                 |
| 20      | 10                         | 173                             | 4.7                                 | 7.6                        | 103                             | 2.1                                 | 9.0                        | 36                              | .88                                 |
| 21      | 8.5                        | 107                             | 2.4                                 | 16                         | 842                             | 153                                 | 7.9                        | 34                              | .72                                 |
| 22      | 8.0                        | 106                             | 2.3                                 | 11                         | 216                             | 7.2                                 | 9.5                        | 25                              | .66                                 |
| 23      | 8.1                        | 63                              | 1.4                                 | 16                         | 687                             | 73                                  | 7.4                        | 18                              | .37                                 |
| 24      | 8.5                        | 78                              | 1.8                                 | 11                         | 265                             | 8.4                                 | 17                         | 810                             | 126                                 |
| 25      | 8.4                        | 55                              | 1.2                                 | 9.4                        | 112                             | 2.8                                 | 6.5                        | 152                             | 2.7                                 |
| 26      | 8.1                        | 36                              | .78                                 | 8.4                        | 108                             | 2.4                                 | 7.0                        | 91                              | 1.7                                 |
| 27      | 8.4                        | 32                              | .78                                 | 8.1                        | 112                             | 2.4                                 | 7.3                        | 89                              | 1.8                                 |
| 28      | 8.5                        | 14                              | .32                                 | 8.4                        | 115                             | 2.6                                 | 7.1                        | 93                              | 1.8                                 |
| 29      | 7.7                        | 16                              | .33                                 | 8.6                        | 62                              | 1.4                                 | 6.9                        | 68                              | 1.3                                 |
| 30      | 7.4                        | 24                              | .48                                 | 8.7                        | 26                              | .60                                 | 6.8                        | 49                              | .90                                 |
| 31      | ---                        | ---                             | ---                                 | 8.9                        | 28                              | .68                                 | ---                        | ---                             | ---                                 |
| TOTAL   | 526.3                      | ---                             | 5712.39                             | 404.4                      | ---                             | 4586.54                             | 304.7                      | ---                             | 1008.11                             |

## RIO PORTUGUES BASIN

50114900 RIO PORTUGUES AT TIBES, PR--Continued

## WATER-QUALITY RECORDS

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCENTRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY  |                            |                                 | AUGUST                              |                            |                                 | SEPTEMBER                           |                            |                                 |                                     |
| 1     | 6.6                        | 44                              | .78                                 | 15                         | 16                              | .64                                 | 16                         | 870                             | 63                                  |
| 2     | 17                         | 1310                            | 252                                 | 17                         | 17                              | .79                                 | 32                         | 2320                            | 586                                 |
| 3     | 8.7                        | 207                             | 5.3                                 | 17                         | 17                              | .79                                 | 38                         | 592                             | 65                                  |
| 4     | 7.4                        | 60                              | 1.2                                 | 16                         | 18                              | .76                                 | 76                         | 2200                            | 1020                                |
| 5     | 6.8                        | 49                              | .90                                 | 15                         | 19                              | .75                                 | 18                         | 727                             | 44                                  |
| 6     | 6.6                        | 50                              | .88                                 | e15                        | 19                              | e.81                                | 45                         | 1780                            | 518                                 |
| 7     | 6.4                        | 52                              | .90                                 | 21                         | 889                             | 97                                  | 42                         | 377                             | 44                                  |
| 8     | 6.1                        | 54                              | .90                                 | 41                         | 3110                            | 720                                 | 25                         | 203                             | 14                                  |
| 9     | 5.9                        | 52                              | .83                                 | 37                         | 1590                            | 196                                 | 18                         | 242                             | 13                                  |
| 10    | 9.1                        | 440                             | 32                                  | 29                         | 1870                            | 130                                 | 14                         | 164                             | 6.3                                 |
| 11    | 7.4                        | 185                             | 3.8                                 | 45                         | 5580                            | 1350                                | e21                        | 867                             | e102                                |
| 12    | 6.6                        | 71                              | 1.3                                 | 35                         | 2320                            | 283                                 | 30                         | 1200                            | 106                                 |
| 13    | 6.2                        | 58                              | .97                                 | 21                         | 58                              | 3.6                                 | e25                        | 29                              | e2.0                                |
| 14    | 8.1                        | 972                             | 42                                  | 18                         | 18                              | .90                                 | 23                         | 28                              | 1.7                                 |
| 15    | 41                         | 3430                            | 873                                 | 17                         | 21                              | .94                                 | 22                         | 26                              | 1.6                                 |
| 16    | 43                         | 2260                            | 387                                 | 16                         | 19                              | .80                                 | 37                         | 1360                            | 256                                 |
| 17    | 26                         | 1970                            | 154                                 | 17                         | 15                              | .69                                 | 32                         | 1820                            | 159                                 |
| 18    | 28                         | 1950                            | 168                                 | 16                         | 16                              | .71                                 | e40                        | 729                             | e128                                |
| 19    | 26                         | 1390                            | 99                                  | 16                         | 20                              | .84                                 | e39                        | 86                              | e8.3                                |
| 20    | 29                         | 2110                            | 220                                 | 20                         | 798                             | 70                                  | e29                        | 28                              | e2.2                                |
| 21    | 24                         | 319                             | 22                                  | 27                         | 2020                            | 315                                 | 135                        | 1910                            | 15100                               |
| 22    | 19                         | 103                             | 5.4                                 | 37                         | 3980                            | 440                                 | e3000                      | 17500                           | e143000                             |
| 23    | 25                         | 3100                            | 539                                 | 21                         | 1150                            | 65                                  | e230                       | 12500                           | e2450                               |
| 24    | 19                         | 242                             | 13                                  | 78                         | 3060                            | 2500                                | e100                       | 2200                            | e1300                               |
| 25    | 17                         | 26                              | 1.2                                 | 130                        | 2200                            | 1330                                | e66                        | 4430                            | e919                                |
| 26    | 16                         | 28                              | 1.2                                 | e48                        | 681                             | e86                                 | e48                        | 1780                            | e518                                |
| 27    | 16                         | 33                              | 1.4                                 | 30                         | 1420                            | 139                                 | e100                       | 2220                            | e1300                               |
| 28    | 16                         | 29                              | 1.3                                 | 20                         | 999                             | 53                                  | e49                        | 1780                            | e518                                |
| 29    | 15                         | 23                              | .95                                 | 19                         | 1030                            | 60                                  | e35                        | 1360                            | e256                                |
| 30    | 15                         | 26                              | 1.1                                 | 15                         | 728                             | 30                                  | e22                        | 203                             | e14                                 |
| 31    | 15                         | 18                              | .73                                 | 14                         | 632                             | 24                                  | ---                        | ---                             | ---                                 |
| TOTAL | 498.9                      | ---                             | 2832.04                             | 883                        | ---                             | 7901.02                             | 4407                       | ---                             | 168515.1                            |
| YEAR  | 8119.3                     |                                 | 194970.84                           |                            |                                 |                                     |                            |                                 |                                     |

e Estimated

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 1145 | E14                                                                   | 2400                                                  | E91                                                                       | 94                                                                       |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 05... | 0900 | 25                                                                    | 2150                                                  | 145                                                                       | 99                                                                       |
| 07... | 0900 | 5.7                                                                   | 594                                                   | 9.1                                                                       | 98                                                                       |
| APR   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 07... | 1700 | 273                                                                   | 26600                                                 | 19600                                                                     | 83                                                                       |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 06... | 1758 | 23                                                                    | 13600                                                 | 844                                                                       | 99                                                                       |
| 08... | 1915 | 24                                                                    | 6000                                                  | 389                                                                       | 96                                                                       |
| JUN   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 04... | 2248 | 30                                                                    | 501                                                   | 41                                                                        | 91                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 08... | 2000 | 154                                                                   | 19400                                                 | 8070                                                                      | 100                                                                      |
| 08... | 2245 | 68                                                                    | 1280                                                  | 235                                                                       | 99                                                                       |
| 11... | 1645 | 187                                                                   | 15100                                                 | 7620                                                                      | 98                                                                       |
| 21... | 1648 | 107                                                                   | 13200                                                 | 3800                                                                      | 100                                                                      |
| 24... | 2123 | 335                                                                   | 8660                                                  | 7830                                                                      | 98                                                                       |
| 25... | 0308 | 211                                                                   | 4650                                                  | 2650                                                                      | 98                                                                       |
| 25... | 1036 | 137                                                                   | 1220                                                  | 451                                                                       | 99                                                                       |
| 25... | 2049 | 72                                                                    | 528                                                   | 103                                                                       | 100                                                                      |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 02... | 1722 | 89                                                                    | 24500                                                 | 5890                                                                      | 100                                                                      |
| 04... | 0614 | 73                                                                    | 1220                                                  | 240                                                                       | 100                                                                      |
| 04... | 1029 | 73                                                                    | 843                                                   | 166                                                                       | 99                                                                       |
| 06... | 2051 | 67                                                                    | 944                                                   | 171                                                                       | 99                                                                       |
| 16... | 1640 | 117                                                                   | 8280                                                  | 2620                                                                      | 99                                                                       |
| 18... | 1930 | E82                                                                   | 4120                                                  | E912                                                                      | 100                                                                      |
| 18... | 2035 | 69                                                                    | 2390                                                  | 445                                                                       | 100                                                                      |
| 21... | 2210 | 367                                                                   | 2370                                                  | 2350                                                                      | 100                                                                      |
| 21... | 2240 | 453                                                                   | 2700                                                  | 3300                                                                      | 100                                                                      |

## RIO PORTUGUES BASIN

50114900 RIO PORTUGUES AT TIBES, PR--Continued

## WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|
| NOV   |      |                                                                       |                                                       |                                                                           |                                                                         |                                                                         |                                                                         |
| 10... | 1145 | E14                                                                   | 2400                                                  | E91                                                                       | 41                                                                      | 55                                                                      | 71                                                                      |
| FEB   |      |                                                                       |                                                       |                                                                           |                                                                         |                                                                         |                                                                         |
| 05... | 0900 | 25                                                                    | 2150                                                  | 145                                                                       | 42                                                                      | 56                                                                      | 73                                                                      |
| 07... | 0900 | 5.7                                                                   | 594                                                   | 9.1                                                                       | --                                                                      | --                                                                      | --                                                                      |
| APR   |      |                                                                       |                                                       |                                                                           |                                                                         |                                                                         |                                                                         |
| 07... | 1700 | 273                                                                   | 26600                                                 | 19600                                                                     | 32                                                                      | 43                                                                      | 56                                                                      |
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                         |                                                                         |                                                                         |
| 06... | 1758 | 23                                                                    | 13600                                                 | 844                                                                       | 30                                                                      | 51                                                                      | 78                                                                      |
| 08... | 1915 | 24                                                                    | 6000                                                  | 389                                                                       | --                                                                      | --                                                                      | --                                                                      |
| JUN   |      |                                                                       |                                                       |                                                                           |                                                                         |                                                                         |                                                                         |
| 04... | 2248 | 30                                                                    | 501                                                   | 41                                                                        | --                                                                      | --                                                                      | --                                                                      |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                         |                                                                         |                                                                         |
| 08... | 2000 | 154                                                                   | 19400                                                 | 8070                                                                      | 49                                                                      | 65                                                                      | 82                                                                      |
| 08... | 2245 | 68                                                                    | 1280                                                  | 235                                                                       | --                                                                      | --                                                                      | --                                                                      |
| 11... | 1645 | 187                                                                   | 15100                                                 | 7620                                                                      | --                                                                      | --                                                                      | --                                                                      |
| 21... | 1648 | 107                                                                   | 13200                                                 | 3800                                                                      | --                                                                      | --                                                                      | --                                                                      |
| 24... | 2123 | 335                                                                   | 8660                                                  | 7830                                                                      | 36                                                                      | 49                                                                      | 66                                                                      |
| 25... | 0308 | 211                                                                   | 4650                                                  | 2650                                                                      | --                                                                      | --                                                                      | --                                                                      |
| 25... | 1036 | 137                                                                   | 1220                                                  | 451                                                                       | --                                                                      | --                                                                      | --                                                                      |
| 25... | 2049 | 72                                                                    | 528                                                   | 103                                                                       | --                                                                      | --                                                                      | --                                                                      |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                         |                                                                         |                                                                         |
| 02... | 1722 | 89                                                                    | 24500                                                 | 5890                                                                      | 48                                                                      | 64                                                                      | 82                                                                      |
| 04... | 0614 | 73                                                                    | 1220                                                  | 240                                                                       | --                                                                      | --                                                                      | --                                                                      |
| 04... | 1029 | 73                                                                    | 843                                                   | 166                                                                       | --                                                                      | --                                                                      | --                                                                      |
| 06... | 2051 | 67                                                                    | 944                                                   | 171                                                                       | --                                                                      | --                                                                      | --                                                                      |
| 16... | 1640 | 117                                                                   | 8280                                                  | 2620                                                                      | 50                                                                      | 64                                                                      | 82                                                                      |
| 18... | 1930 | E82                                                                   | 4120                                                  | E912                                                                      | 81                                                                      | 92                                                                      | 98                                                                      |
| 18... | 2035 | 69                                                                    | 2390                                                  | 445                                                                       | --                                                                      | --                                                                      | --                                                                      |
| 21... | 2210 | 367                                                                   | 2370                                                  | 2350                                                                      | --                                                                      | --                                                                      | --                                                                      |
| 21... | 2240 | 453                                                                   | 2700                                                  | 3300                                                                      | 77                                                                      | 91                                                                      | 98                                                                      |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE  | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|-------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NOV   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 10... | 84                                                                      | 89                                                                      | 94                                                                       | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |
| FEB   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 05... | 87                                                                      | 96                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| 07... | --                                                                      | --                                                                      | 98                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| APR   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 07... | 69                                                                      | 79                                                                      | 83                                                                       | 93                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |
| MAY   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 06... | 93                                                                      | 95                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| 08... | --                                                                      | --                                                                      | 96                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| JUN   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 04... | --                                                                      | --                                                                      | 91                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| AUG   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 08... | 95                                                                      | 100                                                                     | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| 08... | --                                                                      | --                                                                      | 99                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 11... | --                                                                      | --                                                                      | 98                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 21... | --                                                                      | --                                                                      | 100                                                                      | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 24... | 82                                                                      | 95                                                                      | 98                                                                       | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |
| 25... | --                                                                      | --                                                                      | 98                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 25... | --                                                                      | --                                                                      | 99                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 25... | --                                                                      | --                                                                      | 100                                                                      | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| SEP   |                                                                         |                                                                         |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| 02... | 96                                                                      | 99                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | --                                                                       | 100                                                                      |
| 04... | --                                                                      | --                                                                      | 100                                                                      | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 04... | --                                                                      | --                                                                      | 99                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 06... | --                                                                      | --                                                                      | 99                                                                       | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 16... | 94                                                                      | 98                                                                      | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| 18... | 100                                                                     | 100                                                                     | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |
| 18... | --                                                                      | --                                                                      | 100                                                                      | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 21... | --                                                                      | --                                                                      | 100                                                                      | --                                                                       | --                                                                       | --                                                                       | --                                                                       |
| 21... | 99                                                                      | 100                                                                     | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      | 100                                                                      |

## RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 20... | 0915 | 20                                              | 375                                     | 7.2                                            | 23.5                               | 72                        | 8.0                               | 95                                                | <10                                                  | 3100                                                | K1700                                           |
| MAR 12... | 0850 | 2.9                                             | 381                                     | 7.8                                            | 20.5                               | 3.5                       | 8.6                               | 96                                                | <10                                                  | 930                                                 | 670                                             |
| MAY 28... | 1000 | 9.5                                             | 355                                     | 7.8                                            | 24.5                               | 7.5                       | 8.5                               | 103                                               | <10                                                  | 500                                                 | 220                                             |
| AUG 27... | 0900 | 47                                              | 323                                     | 6.6                                            | 23.0                               | 34                        | 8.2                               | 97                                                | <10                                                  | 2000                                                | 5100                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 20... | 170                                     | 50                                      | 10                                          | 11                                      | .4                                | 1.4                                        | 150                                                 | .6                                | 20                                       | 12                                         |
| MAR 12... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 160                                                 | --                                | --                                       | --                                         |
| MAY 28... | 170                                     | 49                                      | 10                                          | 11                                      | .4                                | 1.3                                        | 160                                                 | --                                | 14                                       | 9.1                                        |
| AUG 27... | 170                                     | --                                      | 12                                          | 35                                      | 1                                 | 1.8                                        | 150                                                 | <1.0                              | 47                                       | 26                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 20... | .14                                       | 21                                        | 215                                                     | 11.6                                      | 80                                                     | 1.57                                         | .130                                         | 1.70                                         | .180                                         | .28                                          |
| MAR 12... | --                                        | --                                        | --                                                      | --                                        | 7                                                      | --                                           | <.010                                        | .780                                         | .020                                         | .21                                          |
| MAY 28... | .11                                       | 19                                        | 210                                                     | 5.38                                      | 10                                                     | --                                           | <.010                                        | 1.30                                         | .020                                         | --                                           |
| AUG 27... | .10                                       | 21                                        | 283                                                     | 36.0                                      | 29                                                     | 2.39                                         | .012                                         | 2.40                                         | .030                                         | .61                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 20... | .46                                                     | 2.2                                  | 9.5                                    | .120                                  | <1                                 | <100                                            | 20                                            | 1                                                | 1                                                  | 11                                              |
| MAR 12... | .23                                                     | 1.0                                  | 4.5                                    | .030                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 28... | <.20                                                    | --                                   | --                                     | .030                                  | <1                                 | <100                                            | 10                                            | <1                                               | <1                                                 | <10                                             |
| AUG 27... | .64                                                     | 3.0                                  | 13                                     | .380                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO PORTUGUES BASIN

50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR

LOCATION.--Lat 18°01'09", long 66°36'26", Hydrologic Unit 21010004, on right bank upstream from bridge on Highway 14, 1.70 mi (2.74 km) downstream from Rio Chiquito, and 0.6 mi (0.96 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--18.6 mi<sup>2</sup> (48.17 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional measurements 1963, annual maximum discharge and peaks above base at different datum, from 1965 to 1972. June 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 67.2 ft (20.48 m), from topographic map. Prior to June 18, 1997 non-recording gage crested-stage gage at same site and different datum.

REMARKS.--Records poor. Some low-flow regulation due to Rio Portugués dam construction activity upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
DAILY MEAN VALUES

| DAY   | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN  | JUL   | AUG   | SEP   |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|-------|-------|
| 1     |     |     |     |     |     |     |     |     |      | 1.7   | 1.6   | 7.8   |
| 2     |     |     |     |     |     |     |     |     |      | 1.6   | 1.5   | 140   |
| 3     |     |     |     |     |     |     |     |     |      | 1.6   | 30    | 50    |
| 4     |     |     |     |     |     |     |     |     |      | 1.6   | 5.7   | 15    |
| 5     |     |     |     |     |     |     |     |     |      | 1.6   | 3.0   | 7.8   |
| 6     |     |     |     |     |     |     |     |     |      | 1.9   | 2.5   | 6.0   |
| 7     |     |     |     |     |     |     |     |     |      | 2.1   | 2.5   | 4.8   |
| 8     |     |     |     |     |     |     |     |     |      | 2.6   | 2.8   | 4.2   |
| 9     |     |     |     |     |     |     |     |     |      | 3.7   | 2.8   | 4.1   |
| 10    |     |     |     |     |     |     |     |     |      | 2.7   | 10    | 4.0   |
| 11    |     |     |     |     |     |     |     |     |      | 1.8   | 22    | 3.9   |
| 12    |     |     |     |     |     |     |     |     |      | 1.9   | 8.1   | 4.5   |
| 13    |     |     |     |     |     |     |     |     |      | 4.8   | 11    | 6.4   |
| 14    |     |     |     |     |     |     |     |     |      | 2.4   | 15    | 5.3   |
| 15    |     |     |     |     |     |     |     |     |      | 1.8   | 19    | 5.3   |
| 16    |     |     |     |     |     |     |     |     |      | 2.1   | 6.8   | 5.4   |
| 17    |     |     |     |     |     |     |     |     |      | 4.3   | 5.1   | 4.7   |
| 18    |     |     |     |     |     |     |     |     | e.97 | 2.8   | 6.7   | 4.5   |
| 19    |     |     |     |     |     |     |     |     | 1.4  | 5.8   | 4.4   | 4.5   |
| 20    |     |     |     |     |     |     |     |     | 6.0  | 9.5   | 3.6   | 3.8   |
| 21    |     |     |     |     |     |     |     |     | 2.5  | 28    | 11    | 4.1   |
| 22    |     |     |     |     |     |     |     |     | 1.7  | 15    | 3.1   | 4.9   |
| 23    |     |     |     |     |     |     |     |     | 1.5  | 5.2   | 3.1   | 6.7   |
| 24    |     |     |     |     |     |     |     |     | 2.1  | 3.5   | 4.2   | 5.5   |
| 25    |     |     |     |     |     |     |     |     | 2.3  | 2.4   | 3.3   | 4.7   |
| 26    |     |     |     |     |     |     |     |     | 1.5  | 2.0   | 3.2   | 5.2   |
| 27    |     |     |     |     |     |     |     |     | 1.6  | 1.7   | 3.4   | 6.3   |
| 28    |     |     |     |     |     |     |     |     | 1.7  | 1.7   | 3.8   | 5.9   |
| 29    |     |     |     |     |     |     |     |     | 1.7  | 1.7   | 4.1   | 30    |
| 30    |     |     |     |     |     |     |     |     | 1.8  | 1.5   | 3.8   | 11    |
| 31    |     |     |     |     |     |     |     |     | ---  | 1.4   | 3.3   | ---   |
| TOTAL |     |     |     |     |     |     |     |     | ---  | 122.4 | 210.4 | 376.3 |
| MEAN  |     |     |     |     |     |     |     |     | ---  | 3.95  | 6.79  | 12.5  |
| MAX   |     |     |     |     |     |     |     |     | ---  | 28    | 30    | 140   |
| MIN   |     |     |     |     |     |     |     |     | ---  | 1.4   | 1.5   | 3.8   |
| AC-FT |     |     |     |     |     |     |     |     | ---  | 243   | 417   | 746   |

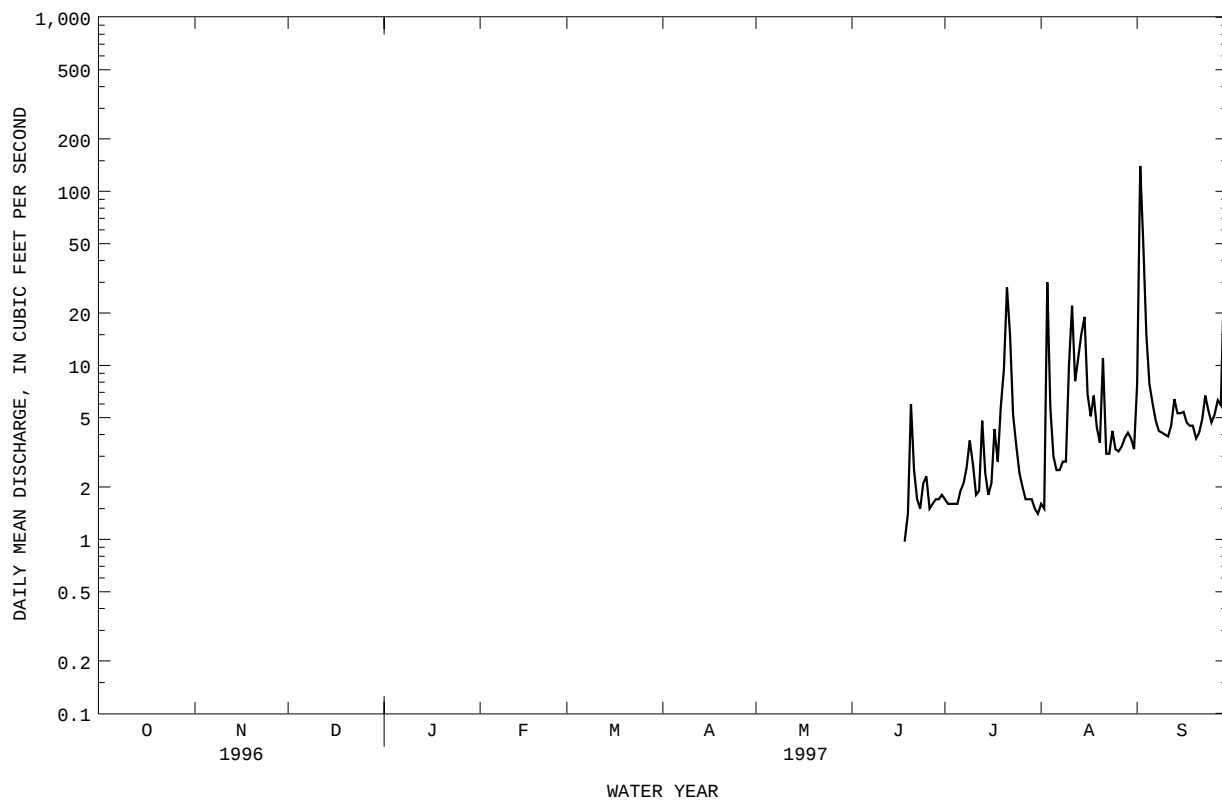
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1997, BY WATER YEAR (WY)

|      |     |      |      |      |
|------|-----|------|------|------|
| MEAN | --- | 3.95 | 6.79 | 12.5 |
| MAX  | --- | 3.95 | 6.79 | 12.5 |
| (WY) | --- | 1997 | 1997 | 1997 |
| MIN  | --- | 3.95 | 6.79 | 12.5 |
| (WY) | --- | 1997 | 1997 | 1997 |

e Estimated

## RIO PORTUGUES BASIN

50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR--Continued



## RIO PORTUGUES BASIN

50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR    | MAY   | JUN   | JUL   | AUG    | SEP   |
|-------|--------|-------|-------|-------|-------|-------|--------|-------|-------|-------|--------|-------|
| 1     | 8.0    | 8.7   | 7.6   | 5.5   | 5.0   | e3.6  | 49     | 5.9   | 10    | 10    | 9.7    | 47    |
| 2     | 6.2    | 8.6   | 6.7   | 5.7   | 4.9   | 3.6   | 105    | 5.5   | 10    | 9.4   | 8.7    | 89    |
| 3     | 7.3    | 7.8   | 6.4   | 6.0   | 5.1   | 3.6   | e69    | 5.4   | 9.5   | 44    | 19     | 229   |
| 4     | 8.7    | 8.0   | 6.2   | 5.7   | 6.1   | e3.7  | e21    | 4.9   | 30    | 22    | 9.5    | 537   |
| 5     | 4.9    | 7.5   | 6.4   | 5.0   | 341   | e3.7  | e8.7   | 4.6   | 39    | 19    | 11     | 207   |
| 6     | 4.6    | 7.1   | 6.2   | 24    | 31    | e3.8  | e7.0   | 4.6   | 39    | 13    | e9.4   | 218   |
| 7     | 17     | 7.2   | 6.0   | 7.8   | 12    | e4.0  | e270   | 11    | 18    | 14    | e15    | 214   |
| 8     | 178    | 6.9   | 5.9   | 7.8   | 9.3   | e6.5  | 198    | 9.5   | 12    | 12    | 44     | 92    |
| 9     | 89     | e23   | 5.8   | 5.6   | 50    | e4.4  | e34    | 25    | 12    | 11    | 159    | 57    |
| 10    | 40     | e95   | 6.1   | 5.4   | 14    | e3.7  | e15    | 9.4   | 14    | 10    | 116    | 46    |
| 11    | 199    | 20    | 5.9   | 5.2   | 9.2   | 3.4   | 13     | 7.0   | 8.4   | 27    | 85     | 34    |
| 12    | 155    | 12    | 5.3   | 10    | 7.6   | 3.3   | 49     | 6.1   | 7.5   | 11    | 189    | 61    |
| 13    | 216    | 11    | 5.1   | 6.3   | 6.6   | e3.5  | e90    | 7.3   | 7.9   | 9.7   | 106    | 46    |
| 14    | 814    | 9.6   | 5.5   | 5.6   | 6.6   | e4.9  | 25     | 13    | 8.2   | 8.8   | 47     | 33    |
| 15    | 407    | 31    | 6.1   | 5.1   | 7.8   | 4.2   | 15     | 253   | 8.2   | 49    | 41     | 89    |
| 16    | 185    | 54    | 5.7   | 4.9   | 6.2   | 6.7   | 12     | 50    | 19    | 117   | 25     | 92    |
| 17    | 326    | 17    | 6.5   | 4.8   | 5.5   | 5.6   | 14     | 26    | 53    | 79    | 18     | 111   |
| 18    | 298    | 13    | 6.8   | 4.8   | 5.1   | 4.7   | 10     | 16    | 80    | 59    | 45     | 80    |
| 19    | 55     | 11    | 6.4   | 4.7   | 4.6   | 4.6   | 9.2    | 16    | 55    | 55    | 29     | 158   |
| 20    | 29     | 9.4   | 5.7   | 4.5   | 4.3   | 4.7   | 8.8    | 12    | 22    | 31    | 30     | 53    |
| 21    | 20     | 8.5   | 6.4   | 4.6   | 4.3   | 5.2   | 8.9    | 19    | 24    | 65    | 52     | 85    |
| 22    | 16     | 8.2   | 5.8   | 4.4   | 4.1   | 4.6   | 9.4    | 39    | 41    | 26    | 175    | 5580  |
| 23    | 14     | 7.7   | 5.6   | 4.5   | 3.8   | 5.2   | 7.3    | 54    | 20    | 18    | 138    | 460   |
| 24    | 12     | 7.5   | 5.6   | 4.4   | e4.2  | 4.8   | e7.8   | 59    | 20    | 50    | 193    | 198   |
| 25    | 12     | 7.1   | 5.5   | 5.3   | e4.5  | 7.7   | e10    | 23    | 70    | 17    | 1310   | 123   |
| 26    | 11     | e8.6  | 5.7   | 5.0   | e4.7  | 6.7   | e9.9   | 19    | 24    | 13    | 213    | 86    |
| 27    | 10     | 8.9   | 5.7   | 4.8   | e4.7  | 6.0   | e8.5   | 17    | 16    | 12    | 92     | e188  |
| 28    | 9.9    | 7.0   | 5.7   | e5.5  | e4.1  | 5.5   | e12    | 12    | 14    | 31    | 121    | 91    |
| 29    | 9.6    | 6.6   | 5.8   | 5.4   | ---   | 5.4   | e8.2   | 12    | 13    | 13    | 78     | 64    |
| 30    | 9.1    | 14    | 6.0   | 5.4   | ---   | 15    | 6.6    | 13    | 11    | 12    | 50     | 38    |
| 31    | 8.5    | ---   | 5.8   | 5.2   | ---   | 13    | ---    | 11    | ---   | 11    | 35     | ---   |
| TOTAL | 3179.8 | 451.9 | 185.9 | 188.9 | 576.3 | 165.3 | 1111.3 | 770.2 | 715.7 | 878.9 | 3473.3 | 9406  |
| MEAN  | 103    | 15.1  | 6.00  | 6.09  | 20.6  | 5.33  | 37.0   | 24.8  | 23.9  | 28.4  | 112    | 314   |
| MAX   | 814    | 95    | 7.6   | 24    | 341   | 15    | 270    | 253   | 80    | 117   | 1310   | 5580  |
| MIN   | 4.6    | 6.6   | 5.1   | 4.4   | 3.8   | 3.3   | 6.6    | 4.6   | 7.5   | 8.8   | 8.7    | 33    |
| AC-FT | 6310   | 896   | 369   | 375   | 1140  | 328   | 2200   | 1530  | 1420  | 1740  | 6890   | 18660 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 103  | 15.1 | 6.00 | 6.09 | 20.6 | 5.33 | 37.0 | 24.8 | 23.9 | 16.1 | 59.4 | 163  |
| MAX  | 103  | 15.1 | 6.00 | 6.09 | 20.6 | 5.33 | 37.0 | 24.8 | 23.9 | 28.4 | 112  | 314  |
| (WY) | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 |
| MIN  | 103  | 15.1 | 6.00 | 6.09 | 20.6 | 5.33 | 37.0 | 24.8 | 23.9 | 3.95 | 6.79 | 12.5 |
| (WY) | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1997 | 1997 | 1997 |

## SUMMARY STATISTICS

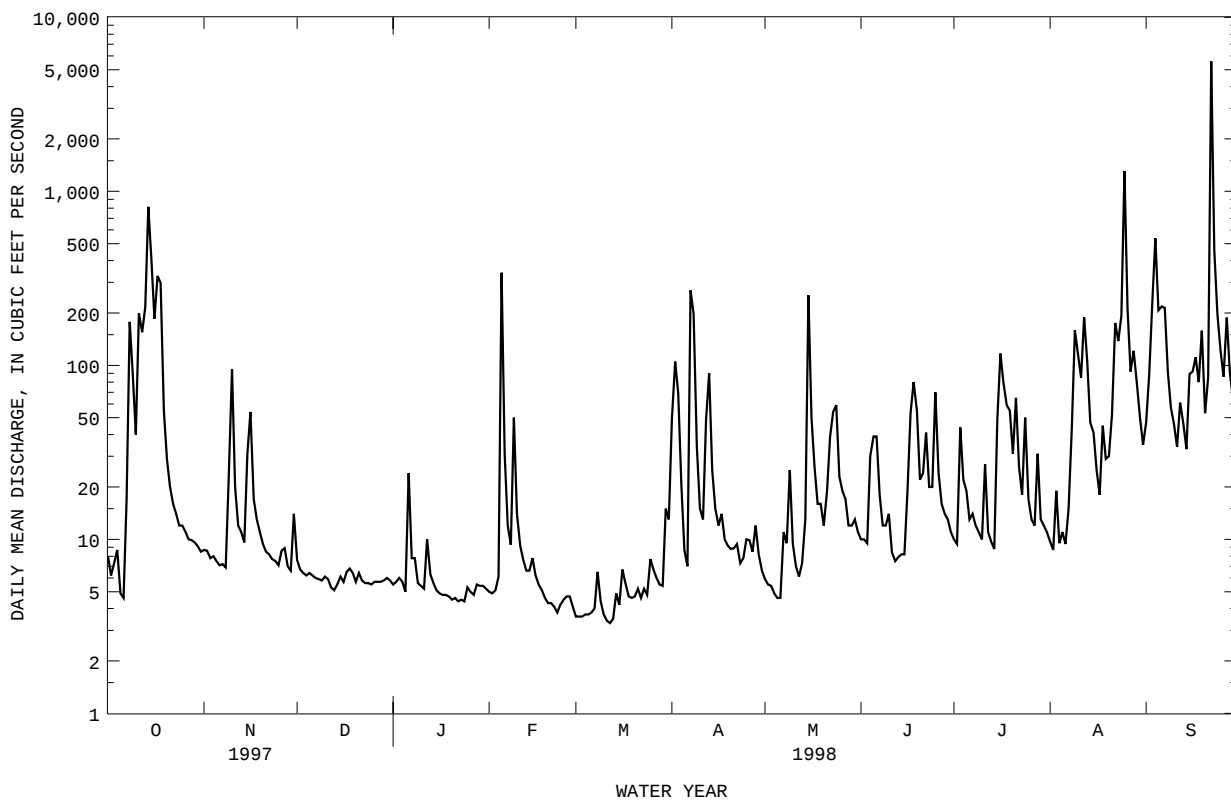
## FOR 1998 WATER YEAR

## WATER YEARS 1997 - 1998

|                          |         |        |      |
|--------------------------|---------|--------|------|
| ANNUAL TOTAL             | 21103.5 |        |      |
| ANNUAL MEAN              | 57.8    | 57.8   |      |
| HIGHEST ANNUAL MEAN      |         | 57.8   | 1998 |
| LOWEST ANNUAL MEAN       |         | 57.8   | 1998 |
| HIGHEST DAILY MEAN       | 5580    | Sep 22 | 1998 |
| LOWEST DAILY MEAN        | 3.3     | Mar 12 | 1997 |
| ANNUAL SEVEN-DAY MINIMUM | 3.7     | Mar 1  | 1997 |
| INSTANTANEOUS PEAK FLOW  | 16300   | Sep 22 | 1998 |
| INSTANTANEOUS PEAK STAGE | 19.73   | Sep 22 | 1998 |
| ANNUAL RUNOFF (AC-FT)    | 41860   |        |      |
| 10 PERCENT EXCEEDS       | 105     |        |      |
| 50 PERCENT EXCEEDS       | 10      |        |      |
| 90 PERCENT EXCEEDS       | 4.8     |        |      |

e Estimated

RIO PORTUGUES BASIN  
50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR--Continued



## RIO PORTUGUES BASIN

50116200 RIO PORTUGUES AT PONCE, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'20", Long 66°36'28", 1,300 ft (400 m) south of Las Américas Avenue Bridge, 1.2 mi (1.9 km) south of CSC 50115900, 0.8 mi (1.3 km) west of Highways 1 and 2 junction, and 0.7 mi (1.1 km) southeast of Ponce.

DRAINAGE AREA.--18.9 mi<sup>2</sup> (49.0 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| NOV 04... | 1015 | 13                                              | 494                                     | 7.7                                            | 29.3                               | 17                        | 7.9                               | 102                                               | <10                                                  | 36000                                               | 4400                                            |
| MAR 13... | 0835 | 2.9                                             | 613                                     | 7.1                                            | 22.0                               | .85                       | 4.4                               | 50                                                | <10                                                  | 4500                                                | 650                                             |
| MAY 20... | 0930 | 13                                              | 436                                     | 7.4                                            | 27.0                               | 21                        | 6.5                               | 81                                                | <10                                                  | 330                                                 | 700                                             |
| SEP 09... | 0945 | 4.0                                             | 369                                     | 6.6                                            | 26.7                               | 35                        | 6.8                               | 85                                                | <10                                                  | 2600                                                | 2000                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| NOV 04... | 80                                      | 19                                      | 7.8                                         | 20                                      | 1                                 | 1.9                                        | 156                                                 | <.5                               | 8.9                                      | 18                                         |
| MAR 13... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 220                                                 | --                                | --                                       | --                                         |
| MAY 20... | 180                                     | 52                                      | 12                                          | 21                                      | .7                                | 1.1                                        | 200                                                 | --                                | 27                                       | 18                                         |
| SEP 09... | 150                                     | 46                                      | 9.2                                         | 14                                      | .5                                | 1.4                                        | 170                                                 | <1.0                              | 15                                       | 12                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| NOV 04... | .10                                       | 37                                        | 213                                                     | 7.47                                      | 5                                                      | .640                                         | .200                                         | .840                                         | .570                                         | .53                                          |
| MAR 13... | --                                        | --                                        | --                                                      | --                                        | 14                                                     | .390                                         | .130                                         | .520                                         | .580                                         | .42                                          |
| MAY 20... | .15                                       | 16                                        | 267                                                     | 9.23                                      | 39                                                     | .426                                         | .014                                         | .440                                         | .040                                         | .24                                          |
| SEP 09... | .12                                       | 21                                        | 221                                                     | 2.32                                      | 62                                                     | 1.27                                         | .029                                         | 1.30                                         | .060                                         | .34                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| NOV 04... | 1.1                                                     | 1.9                                  | 8.6                                    | .210                                  | <1                                 | <100                                            | 80                                            | <1                                               | <1                                                 | 10                                              |
| MAR 13... | 1.0                                                     | 1.5                                  | 6.7                                    | .110                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| MAY 20... | .28                                                     | .72                                  | 3.2                                    | .040                                  | <1                                 | <100                                            | 50                                            | <1                                               | <1                                                 | <10                                             |
| SEP 09... | .40                                                     | 1.7                                  | 7.5                                    | .060                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO PORTUGUES BASIN

50116200 RIO PORTUGUES AT PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GUAYANILLA BASIN

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR

LOCATION.--Lat 18°02'40", long 66°47'53", Hydrologic Unit 21010004, on left bank, 0.7 mi (1.1 km) north of junction of Highways 2 and 132, 0.6 mi (1.0 km) downstream from Quebrada Consejo, 1.8 mi (2.9 km) north-northwest from Plaza de Guayanilla.

DRAINAGE AREA.--18.9 mi<sup>2</sup> (49.0 km<sup>2</sup>).

PERIOD OF RECORD.--March 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 80 ft (24 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL  | AUG  | SEP  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|
| 1     | e12    | 19    | 6.7   | 4.5   | 3.5   | 3.2   | 70    | 3.6   | 9.2   | 12   | 17   | 46   |
| 2     | e10    | 18    | 6.6   | 4.3   | 3.4   | 3.1   | 44    | 4.5   | 8.7   | 25   | 25   | 68   |
| 3     | e7.6   | 18    | 6.5   | 4.0   | 3.3   | 3.1   | e22   | 3.8   | 8.3   | 29   | 24   | 176  |
| 4     | e6.6   | 18    | 5.8   | 3.8   | 3.6   | 3.4   | e14   | 3.6   | 70    | 25   | 17   | 156  |
| 5     | e5.8   | 18    | 5.7   | 3.7   | 98    | 3.1   | 11    | 3.4   | 29    | 18   | 16   | 267  |
| 6     | e5.4   | 17    | 5.6   | 7.4   | 12    | 2.9   | 9.6   | 6.2   | 24    | 20   | 27   | 143  |
| 7     | e49    | 18    | 5.4   | 5.7   | 7.4   | 3.5   | 36    | 9.5   | 16    | 19   | e49  | 104  |
| 8     | e46    | 17    | 5.2   | 4.3   | 8.2   | 2.8   | 39    | 56    | 20    | 15   | 80   | 88   |
| 9     | e60    | 21    | 5.0   | 3.8   | 11    | 2.6   | 17    | 31    | 19    | 14   | 52   | 67   |
| 10    | e54    | 39    | 4.9   | 3.8   | 6.5   | 2.7   | 11    | 11    | 16    | 16   | 39   | e55  |
| 11    | e48    | 20    | 4.8   | 3.7   | 5.5   | 2.4   | 9.7   | 7.8   | 14    | 25   | 32   | e60  |
| 12    | e37    | 18    | 4.5   | 4.0   | 4.9   | 2.5   | 11    | 6.5   | 13    | 15   | 29   | 54   |
| 13    | e130   | 17    | 4.4   | 4.7   | 4.6   | 2.5   | 11    | 6.4   | 14    | 14   | 24   | 54   |
| 14    | e440   | 16    | 4.3   | 3.8   | 4.9   | 2.6   | 8.1   | 7.3   | 13    | 13   | 28   | 47   |
| 15    | e180   | 24    | 4.2   | 3.8   | 6.0   | 2.8   | 6.9   | 40    | 12    | 17   | 30   | 53   |
| 16    | e100   | 25    | 4.4   | 3.8   | 4.7   | 3.2   | 6.5   | 24    | 13    | 15   | 23   | 54   |
| 17    | e280   | 16    | 4.3   | 3.8   | 4.5   | 3.1   | 6.0   | 13    | 21    | 30   | 25   | 48   |
| 18    | e130   | 13    | 4.5   | 4.2   | 4.4   | 2.8   | 5.5   | 9.6   | e23   | 24   | 21   | 45   |
| 19    | e50    | 11    | 4.6   | 4.7   | 4.2   | 2.5   | 5.6   | 10    | e16   | 18   | 19   | 41   |
| 20    | e37    | 10    | 4.5   | 3.8   | 4.0   | 2.6   | 5.8   | 8.5   | 13    | 26   | 62   | 78   |
| 21    | e34    | 9.4   | 4.8   | 3.7   | 4.1   | 3.1   | 5.5   | 19    | 13    | 21   | 50   | 238  |
| 22    | 30     | 9.1   | 4.1   | 3.5   | 3.9   | 2.9   | 5.6   | 27    | 16    | 16   | 113  | e932 |
| 23    | 28     | 8.6   | 3.8   | 3.3   | 3.7   | 2.7   | 5.0   | 50    | 26    | 19   | 66   | e175 |
| 24    | 26     | 8.3   | 3.8   | 3.4   | 3.5   | 2.5   | 4.6   | 34    | 46    | 22   | 92   | e122 |
| 25    | 25     | 8.3   | 3.8   | 3.7   | 3.3   | 3.2   | 4.5   | 19    | 38    | 16   | 318  | e108 |
| 26    | 24     | 8.2   | 4.0   | 3.5   | 3.8   | 3.6   | 4.8   | 14    | 25    | 14   | 69   | e99  |
| 27    | 23     | 8.1   | 4.2   | 3.5   | 3.8   | 2.8   | 4.9   | 11    | 20    | 35   | 45   | e104 |
| 28    | 22     | 7.6   | 4.5   | 3.6   | 3.4   | 2.9   | 5.2   | 58    | 17    | 36   | 36   | e89  |
| 29    | 21     | 7.2   | 4.6   | 4.3   | ---   | 2.8   | 3.9   | 43    | 14    | 22   | 28   | e83  |
| 30    | 20     | 7.1   | e4.3  | 4.1   | ---   | 26    | 3.6   | 16    | 13    | 18   | 23   | e73  |
| 31    | 20     | ---   | 4.4   | 3.7   | ---   | 18    | ---   | 11    | ---   | 16   | 19   | ---  |
| TOTAL | 1961.4 | 454.9 | 148.2 | 125.9 | 234.1 | 127.9 | 397.3 | 567.7 | 600.2 | 625  | 1498 | 3727 |
| MEAN  | 63.3   | 15.2  | 4.78  | 4.06  | 8.36  | 4.13  | 13.2  | 18.3  | 20.0  | 20.2 | 48.3 | 124  |
| MAX   | 440    | 39    | 6.7   | 7.4   | 98    | 26    | 70    | 58    | 70    | 36   | 318  | 932  |
| MIN   | 5.4    | 7.1   | 3.8   | 3.3   | 3.3   | 2.4   | 3.6   | 3.4   | 8.3   | 12   | 16   | 41   |
| AC-FT | 3890   | 902   | 294   | 250   | 464   | 254   | 788   | 1130  | 1190  | 1240 | 2970 | 7390 |
| CFSM  | 3.35   | .80   | .25   | .21   | .44   | .22   | .70   | .97   | 1.06  | 1.07 | 2.56 | 6.57 |
| IN.   | 3.86   | .90   | .29   | .25   | .46   | .25   | .78   | 1.12  | 1.18  | 1.23 | 2.95 | 7.34 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1998, BY WATER YEAR (WY)

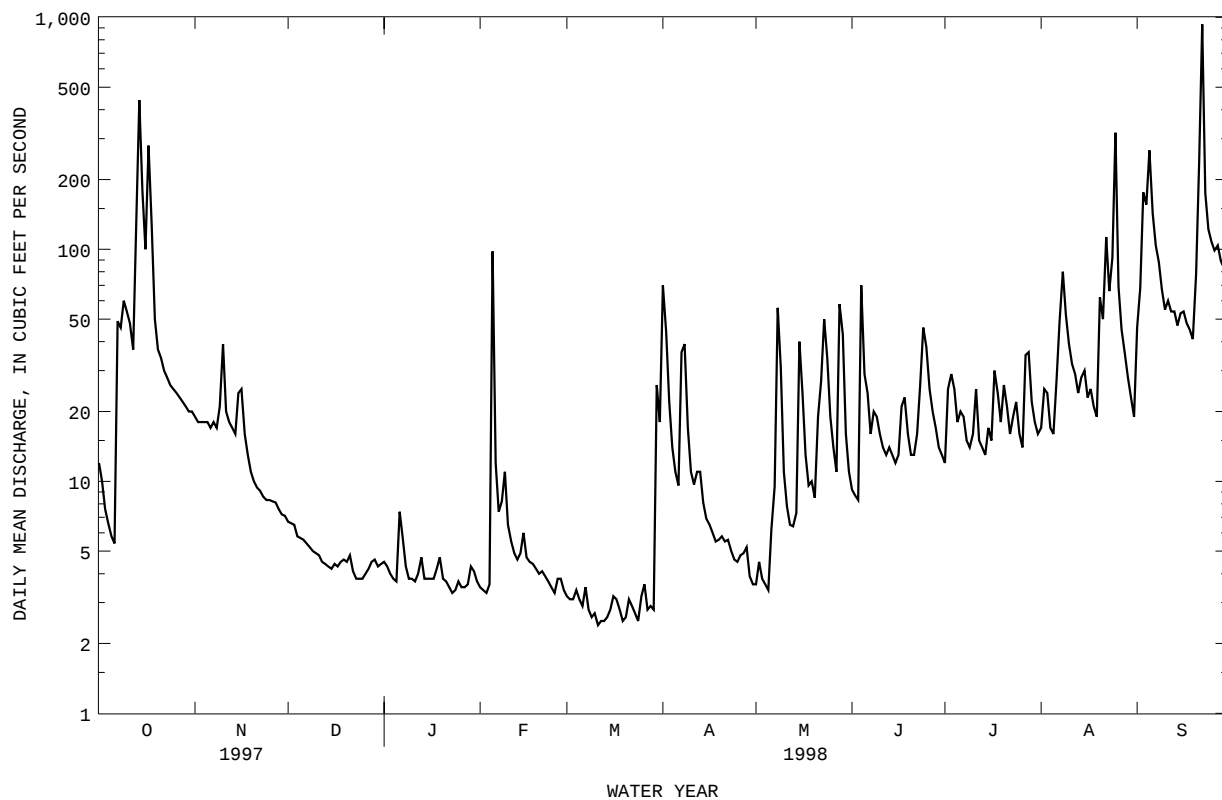
|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 59.7 | 45.6 | 17.4 | 10.2 | 7.53 | 6.03 | 10.0 | 25.2 | 14.4 | 12.2 | 18.8 | 44.1 |
| MAX  | 167  | 110  | 41.9 | 27.5 | 11.6 | 13.2 | 26.6 | 80.4 | 41.0 | 25.9 | 48.5 | 124  |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1996 | 1989 | 1983 | 1985 | 1987 | 1986 | 1988 | 1998 |
| MIN  | 16.0 | 15.2 | 4.78 | 4.06 | 3.10 | 2.85 | 2.76 | 2.33 | 2.35 | 2.45 | 5.14 | 3.62 |
| (WY) | 1983 | 1998 | 1998 | 1998 | 1990 | 1981 | 1995 | 1994 | 1997 | 1994 | 1997 | 1997 |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1981 - 1998

|                          |        |         |       |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL             | 4117.0 | 10467.6 |       |
| ANNUAL MEAN              | 11.3   | 28.7    | 22.3  |
| HIGHEST ANNUAL MEAN      |        |         | 33.1  |
| LOWEST ANNUAL MEAN       |        |         | 8.94  |
| HIGHEST DAILY MEAN       | 440    | Oct 14  | 1500  |
| LOWEST DAILY MEAN        | 1.5    | Jun 16  | .77   |
| ANNUAL SEVEN-DAY MINIMUM | 1.6    | Jun 10  | 1.1   |
| INSTANTANEOUS PEAK FLOW  |        |         | 18700 |
| INSTANTANEOUS PEAK STAGE |        |         | 21.88 |
| INSTANTANEOUS LOW FLOW   |        |         | 2.2   |
| ANNUAL RUNOFF (AC-FT)    | 8170   | 20760   | 16150 |
| ANNUAL RUNOFF (CFSM)     | .60    | 1.52    | 1.18  |
| ANNUAL RUNOFF (INCHES)   | 8.10   | 20.60   | 16.03 |
| 10 PERCENT EXCEEDS       | 21     | 60      | 49    |
| 50 PERCENT EXCEEDS       | 4.2    | 13      | 9.6   |
| 90 PERCENT EXCEEDS       | 1.9    | 3.5     | 3.2   |

e Estimated

RIO GUAYANILLA BASIN  
50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR--Continued



## RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'40", long 66°46'49", at dirt road bridge, 0.7 mi (1.1 km) from mouth, 0.9 mi (1.4 km) east of Central Rufina and 0.9 mi (1.4 km) southeast of Guayanilla.

DRAINAGE AREA.--22.8 mi<sup>2</sup> (59.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1960-65, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 23... | 1200 | 26                                              | 402                                     | 8.5                                            | 29.0                               | 4.9                       | 12.0                              | 155                                               | <10                                                  | 430                                                 | 270                                             |
| MAR 27... | 1015 | .38                                             | 897                                     | 7.9                                            | 29.0                               | 2.5                       | 8.4                               | 109                                               | 16                                                   | 2300                                                | 20                                              |
| JUN 05... | 1015 | 38                                              | 398                                     | 7.7                                            | 26.5                               | 7.7                       | 7.9                               | 98                                                | <10                                                  | 4600                                                | K1800                                           |
| SEP 11... | 1015 | 53                                              | 439                                     | 7.2                                            | 26.5                               | 4.6                       | 8.2                               | 102                                               | <10                                                  | 38000                                               | 320                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 23... | 170                                     | 46                                      | 14                                          | 15                                      | .5                                | 1.8                                        | 130                                                 | <.5                               | 46                                       | 20                                         |
| MAR 27... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 210                                                 | --                                | --                                       | --                                         |
| JUN 05... | 170                                     | 46                                      | 14                                          | 17                                      | .6                                | 2.6                                        | 130                                                 | --                                | 35                                       | 18                                         |
| SEP 11... | 190                                     | 52                                      | 15                                          | 13                                      | .4                                | .17                                        | 150                                                 | <1.0                              | 39                                       | 18                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 23... | <.10                                      | 17                                        | 237                                                     | 16.9                                      | 24                                                     | 1.99                                         | .012                                         | 2.00                                         | .020                                         | .36                                          |
| MAR 27... | --                                        | --                                        | --                                                      | --                                        | 1                                                      | 1.54                                         | .060                                         | 1.60                                         | .180                                         | 2.1                                          |
| JUN 05... | <.10                                      | 19                                        | 229                                                     | 23.4                                      | 19                                                     | 2.29                                         | .010                                         | 2.30                                         | .020                                         | .35                                          |
| SEP 11... | <.10                                      | 20                                        | 247                                                     | 35.1                                      | 15                                                     | 2.49                                         | .014                                         | 2.50                                         | .030                                         | .25                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 23... | .38                                                     | 2.4                                  | 11                                     | .150                                  | 1                                  | <100                                            | 30                                            | <1                                               | 2                                                  | <10                                             |
| MAR 27... | 2.3                                                     | 3.9                                  | 17                                     | .880                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 05... | .37                                                     | 2.7                                  | 12                                     | .100                                  | 1                                  | <100                                            | 40                                            | <1                                               | 2                                                  | <10                                             |
| SEP 11... | <.28                                                    | 2.8                                  | 12                                     | .250                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO YAUCO BASIN

50125780 LAGO LUCCHETTI AT DAMSITE NEAR YAUCO, PR

LOCATION.--Lat 18°05'37", long 66°51'54, Hydrologic Unit 21010004, at Antonio Lucchetti Dam on Río Yauco, 3.9 mi (6.3 km) north of Yauco.

DRAINAGE AREA.--17.4 mi<sup>2</sup> (45.1 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--December 1989 to current year. Prior to October 1994, published as Lago Lucchetti at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Lucchetti was completed in 1952. The dam is on Río Yauco and is a unit of the Southwestern Puerto Rico Project. It provides 16,500 acre-feet (20.3 hm<sup>3</sup>) of usable storage for power generation and irrigation. The dam is a concrete gravity structure with a total length of 591 ft (180 m), a maximum height of 178 ft (54 m), and a maximum width at the base of 150 ft (46 m). An ungated, overflow type spillway with a clear length of 171 ft (52 m), and a maximum capacity of 62,800 ft<sup>3</sup>/s (1,778 m<sup>3</sup>/s), at a design head of 20 ft (6 m). The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 577.56 ft (176.04 m), Sept. 22, 1998; minimum elevation, 512.09 ft (156.08 m), Sept. 9, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 577.56 ft (176.04 m), Sept. 22, minimum elevation, 529.98 ft (161.54 m), Oct 1.

Capacity Table  
(based on data from Puerto Rico Water Resources Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 512                | 1,505                  | 540                | 5,165                  |
| 520                | 2,385                  | 550                | 7,020                  |
| 525                | 2,965                  | 561                | 9,600                  |
| 527                | 3,255                  | 563                | 10,125                 |
| 530                | 3,695                  | 571                | 12,125                 |
| 532                | 3,975                  | 573                | 12,645                 |
|                    |                        | 578                | 14,061                 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 530.29 | 562.73 | 566.26 | 559.14 | 565.32 | 567.87 | 558.69 | 555.16 | 569.09 | 562.99 | 561.96 | 561.23 |
| 2   | 530.73 | 562.48 | 564.78 | 559.23 | 564.74 | 567.83 | A      | 555.10 | 570.14 | 562.23 | 561.36 | 560.46 |
| 3   | 530.41 | 563.34 | 563.49 | A      | 565.50 | 567.79 | A      | 555.08 | 569.05 | 562.28 | 561.38 | A      |
| 4   | 530.41 | 564.73 | 563.49 | 559.11 | 567.05 | 567.71 | A      | 554.86 | 569.79 | 562.28 | 561.39 | 558.16 |
| 5   | 530.38 | 565.01 | 563.09 | 557.51 | 568.36 | 566.40 | 558.48 | 554.62 | 570.14 | 562.26 | 561.39 | 557.96 |
| 6   | 530.33 | 565.03 | 562.73 | 557.52 | 568.57 | 566.40 | A      | 554.91 | 570.15 | 562.36 | 562.14 | 560.05 |
| 7   | 531.09 | 564.97 | 562.73 | 557.47 | 568.87 | 566.36 | 557.93 | 554.85 | 569.68 | 562.49 | 563.52 | 560.48 |
| 8   | 535.35 | 564.94 | 562.70 | 557.75 | 568.53 | 566.31 | A      | 555.32 | 569.60 | 562.94 | 564.22 | 559.69 |
| 9   | 539.05 | 564.98 | 562.71 | 557.83 | 569.33 | 566.25 | A      | 555.28 | 569.84 | 563.14 | 564.60 | 561.18 |
| 10  | 541.08 | 565.09 | 562.29 | 557.79 | 570.19 | 566.18 | A      | 555.12 | 569.79 | 563.51 | 564.90 | 562.60 |
| 11  | 543.72 | 565.68 | 562.25 | 557.74 | 570.53 | 564.70 | A      | 554.89 | 569.89 | 563.53 | 565.24 | 562.15 |
| 12  | 545.56 | 565.84 | 562.22 | 558.17 | 570.38 | 564.67 | A      | 554.88 | 569.60 | 563.64 | 565.52 | 563.06 |
| 13  | 547.52 | 565.89 | 562.20 | 557.19 | 570.09 | 564.58 | A      | 554.87 | 569.50 | 563.74 | 565.67 | 563.65 |
| 14  | 552.51 | 565.90 | 562.16 | 558.40 | 570.09 | 564.53 | A      | 554.92 | 569.32 | 563.73 | 565.76 | 565.00 |
| 15  | 555.39 | 566.28 | 562.12 | 559.13 | 570.05 | 564.48 | A      | 555.05 | 567.84 | 563.80 | 565.60 | 565.40 |
| 16  | 557.37 | 566.40 | 562.06 | 559.53 | 570.15 | 563.88 | A      | 555.08 | 566.51 | 563.80 | 565.48 | 566.01 |
| 17  | 558.95 | 566.41 | 562.06 | 559.52 | 569.76 | 563.86 | A      | 555.08 | 566.13 | 563.79 | 565.38 | 566.30 |
| 18  | 559.87 | 566.47 | 562.05 | 559.48 | 570.53 | 563.32 | A      | 555.07 | 566.48 | 563.80 | 565.49 | 566.13 |
| 19  | 560.27 | 566.48 | 561.04 | 559.45 | 569.96 | 562.42 | A      | 555.59 | 566.73 | 563.55 | 565.17 | 565.98 |
| 20  | 560.46 | 566.50 | 560.93 | 560.33 | 569.14 | 562.35 | A      | 558.97 | 566.70 | 563.54 | 565.21 | 564.85 |
| 21  | 560.63 | 566.51 | 560.80 | 560.45 | 569.48 | 562.32 | A      | 563.34 | 566.79 | 563.53 | 564.98 | 567.09 |
| 22  | 560.74 | 566.50 | 560.65 | 561.17 | 569.84 | 562.28 | A      | 564.13 | 567.04 | 563.48 | 565.30 | 571.68 |
| 23  | 561.09 | 566.52 | 560.61 | 560.88 | 569.41 | 561.92 | A      | 564.43 | 567.73 | 563.53 | 565.36 | 570.61 |
| 24  | 561.08 | 566.46 | 560.59 | 561.02 | 568.58 | A      | A      | 564.61 | 566.90 | 563.43 | 565.66 | 570.40 |
| 25  | 561.27 | 566.42 | 560.55 | 561.39 | 568.06 | 561.55 | A      | 565.33 | 565.37 | 563.40 | 565.99 | 571.07 |
| 26  | 562.36 | 566.50 | 560.51 | 562.47 | 568.04 | A      | A      | 566.21 | 564.83 | 563.34 | 565.67 | 570.55 |
| 27  | 562.39 | 566.52 | 560.33 | 563.11 | 567.99 | 559.26 | A      | 566.60 | 565.11 | 563.35 | 565.22 | 570.44 |
| 28  | 562.49 | 566.26 | 560.30 | 564.16 | 567.94 | 559.20 | A      | 568.64 | 565.10 | 563.13 | 564.38 | A      |
| 29  | 562.56 | 566.27 | 560.28 | 565.21 | ---    | 559.16 | A      | 568.85 | 565.09 | 563.14 | 563.54 | A      |
| 30  | 562.57 | 566.25 | 559.09 | 565.47 | ---    | 558.43 | A      | 568.96 | 564.31 | 562.92 | 562.74 | A      |
| 31  | 562.60 | ---    | 558.80 | 565.40 | ---    | 558.64 | ---    | 569.03 | ---    | 562.48 | 562.08 | ---    |
| MAX | 562.60 | 566.52 | 566.26 | ---    | 570.53 | ---    | ---    | 569.03 | 570.15 | 563.80 | 565.99 | ---    |
| MIN | 530.29 | 562.48 | 558.80 | ---    | 564.74 | ---    | ---    | 554.62 | 564.31 | 562.23 | 561.36 | ---    |

A No gage-height record

## RIO LOCO BASIN

50128900 LAGO LOCO AT DAMSITE NEAR YAUCO, PR

LOCATION.--Lat 18°02'41", long 66°53'16", Hydrologic Unit 21010004, at Damsite, 2.60 mi (4.18 km) northwest from Yauco Plaza, 0.45 mi (0.72 km) northeast from Escuela Río Cañas and 0.95 mi (1.53 km) northwest from Escuela Susua Alta.

DRAINAGE AREA.--8.40 mi<sup>2</sup> (21.8 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--May 1995 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Loco was completed in 1951. The dam is a concrete gravity structure with a total length of 600 ft (183 m), maximum structural height of 72 ft (21.9 m), the ungated overflow spillway is 150 ft (47.7 m), long with crest at elevation of 230 ft (70.1 m). It has a normal storage capacity of 1,950 acre-feet (2.40 hm<sup>3</sup>), as for May 4, 1979. The Loco Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and its part of the Southwestern Puerto Rico Project which was developed for electric power generation and irrigation of the lands in the Lajas Valley, some of the Project waters are used for water supply in the Lajas area. The maximum drawdown of the Dam is from 230 ft (70.1 m) to 220 ft (67.1 m) and the Capacity Table provided by P.R.E.P.A includes only that portion of the storage for the dam. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 234.77 ft (71.56 m), Sept. 22, 1998; minimum elevation, 217.77 ft (66.4 m), June 10, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 234.77 ft (71.56 m), Sept. 22; minimum elevation, 222.74 ft (67.8 m), Mar. 26.

## Capacity Table

(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 220                | 0                      | 230                | 639                    |
| 225                | 299                    | 232                | 787                    |
|                    |                        | 235                | 1,024                  |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 225.49 | A      | A      | 228.77 | 223.45 | 228.11 | 229.08 | 229.47 | 229.14 | 230.85 | 230.43 | 230.98 |
| 2   | 223.93 | 230.31 | 230.41 | 228.97 | 229.09 | 227.37 | 227.41 | 229.31 | 228.28 | 229.89 | 230.36 | 230.52 |
| 3   | 229.57 | 230.72 | 230.47 | A      | 230.67 | 226.27 | A      | 229.14 | 230.29 | 229.29 | 229.35 | 230.98 |
| 4   | 229.39 | 229.41 | 229.99 | 226.83 | 228.45 | 224.83 | 225.88 | 230.09 | 229.79 | 229.20 | 228.23 | 231.02 |
| 5   | 229.20 | 228.33 | 230.09 | 230.29 | 230.97 | 229.78 | 225.29 | 230.05 | 230.54 | 229.03 | 226.83 | 230.94 |
| 6   | 228.49 | 230.19 | 230.31 | A      | 230.54 | 228.87 | 224.65 | 230.15 | 229.93 | 228.64 | A      | 231.02 |
| 7   | 227.25 | 230.32 | 230.29 | 230.78 | 230.88 | 228.41 | 227.33 | 230.20 | 230.65 | 229.98 | 230.44 | 230.95 |
| 8   | A      | 230.97 | 229.48 | 228.27 | 230.48 | 227.93 | 226.59 | 230.13 | 230.72 | 230.04 | 230.37 | 230.95 |
| 9   | 228.55 | 230.34 | 229.98 | 226.87 | 230.07 | 226.89 | 225.79 | 230.13 | 230.61 | 230.87 | 230.16 | 230.18 |
| 10  | 229.28 | 229.89 | 230.15 | 225.99 | 229.86 | 225.25 | 225.66 | 230.12 | 229.93 | 230.15 | 229.67 | 230.66 |
| 11  | 230.43 | 229.55 | A      | 225.02 | 229.61 | 230.04 | 224.67 | 230.00 | 230.20 | 230.91 | 229.23 | 230.69 |
| 12  | 230.19 | 229.09 | 229.27 | 224.34 | 229.26 | 228.39 | 223.72 | 229.52 | 230.57 | 230.54 | 228.84 | 230.23 |
| 13  | 230.29 | 228.49 | 228.97 | 229.69 | A      | 227.24 | 226.96 | 228.84 | 230.45 | 230.72 | 228.48 | 230.15 |
| 14  | 230.47 | 228.06 | 228.67 | 227.84 | A      | 226.82 | 224.53 | 228.06 | 229.83 | 230.58 | 230.43 | 230.28 |
| 15  | 230.28 | A      | 228.04 | 225.69 | 228.90 | 225.97 | 228.75 | 227.64 | 230.79 | 230.86 | 230.51 | 230.04 |
| 16  | 230.19 | 228.51 | 226.71 | A      | 230.49 | 227.48 | 227.06 | 227.45 | 230.33 | 230.87 | 230.77 | 230.05 |
| 17  | 230.32 | A      | 225.56 | 227.37 | 230.66 | 225.60 | 230.04 | 227.55 | 230.47 | 230.13 | 230.40 | 229.99 |
| 18  | 230.93 | 229.51 | 224.28 | 226.96 | A      | 227.18 | 229.76 | 226.76 | 229.29 | 229.79 | 230.29 | 230.69 |
| 19  | 230.94 | 230.19 | 228.48 | 226.51 | 230.23 | 228.89 | 229.48 | 225.88 | 230.87 | 230.95 | 230.38 | 230.64 |
| 20  | 230.40 | 229.58 | 229.49 | 225.15 | 230.39 | 227.45 | 229.20 | 225.24 | 230.87 | 230.78 | 230.88 | 230.67 |
| 21  | A      | 229.18 | 229.58 | 227.62 | 229.96 | 226.77 | 228.37 | 224.86 | 229.87 | 230.92 | 230.99 | 230.86 |
| 22  | 230.80 | 229.63 | A      | 225.46 | 229.77 | 226.05 | 227.82 | 224.54 | 230.30 | 230.38 | 230.99 | 230.83 |
| 23  | 230.81 | 230.18 | A      | 228.95 | 230.55 | 226.69 | 226.79 | 224.26 | 230.66 | 230.32 | 230.94 | 230.52 |
| 24  | 230.16 | 230.01 | 228.41 | 230.18 | 230.51 | 226.46 | 226.19 | 223.88 | 230.64 | 230.96 | 231.09 | 230.45 |
| 25  | 230.27 | 230.12 | 228.00 | 230.25 | 230.32 | 223.94 | 225.81 | 224.05 | 230.64 | 229.88 | 231.07 | 230.60 |
| 26  | A      | A      | 227.58 | 228.88 | 229.50 | 225.50 | 225.44 | 226.13 | 230.03 | 230.67 | 231.02 | 230.43 |
| 27  | 230.80 | 229.37 | 227.83 | 229.68 | 228.92 | 229.55 | 224.91 | 227.54 | 230.09 | 230.35 | 231.01 | 230.44 |
| 28  | A      | 230.13 | A      | 227.96 | 228.52 | 228.29 | 224.43 | 229.46 | 229.87 | 230.32 | 231.01 | 230.40 |
| 29  | 230.28 | 229.77 | 226.18 | 226.32 | ---    | 227.11 | 226.96 | 229.90 | 229.30 | 230.56 | 231.02 | 230.79 |
| 30  | A      | 229.40 | 229.14 | 225.20 | ---    | 229.99 | 227.64 | 229.85 | 230.87 | 230.84 | 231.02 | 230.79 |
| 31  | 230.11 | ---    | 229.77 | 224.36 | ---    | 230.19 | ---    | 229.70 | ---    | 230.87 | 231.01 | ---    |
| MAX | ---    | ---    | ---    | ---    | ---    | 230.19 | ---    | 230.20 | 230.87 | 230.96 | ---    | 231.02 |
| MIN | ---    | ---    | ---    | ---    | ---    | 223.94 | ---    | 223.88 | 228.28 | 228.64 | ---    | 229.99 |

A No gage-height record

## RIO LOCO BASIN

50129700 RIO LOCO AT GUANICA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 17°58'33", Long 66°54'52", 0.6 mi (1.0 km) northwest of Guánica and 1.2 mi (1.9 km) northeast of Ensenada.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1975 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME                                     | SPECIFIC CONDUCTANCE (US/CM) (00095)      | PH WATER WHOLE FIELD (STANDARD UNITS) (00400)          | TEMPERATURE WATER (DEG C) (00010)                     | TURBIDITY (NTU) (00076)                        | OXYGEN, DIS-SOLVED (MG/L) (00300)            | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)    | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340) | COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREPTOCOCCI, FECAL, PER (COLS./100 ML) (31679)       |
|-----------|------------------------------------------|-------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|----------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|----------------------------------------------------|-------------------------------------------------------|
| OCT 23... | 1025                                     | 314                                       | 7.1                                                    | 29.0                                                  | 8.4                                            | 5.5                                          | 71                                                  | <10                                                 | 2000                                               | 2100                                                  |
| MAR 27... | 0910                                     | 18400                                     | 7.3                                                    | 29.0                                                  | 1.5                                            | 3.3                                          | 46                                                  | 93                                                  | 46000                                              | 540                                                   |
| JUN 05... | 0815                                     | 12500                                     | 7.4                                                    | 29.0                                                  | 3.7                                            | 2.4                                          | 32                                                  | 27                                                  | 230                                                | 220                                                   |
| SEP 11... | 0915                                     | 315                                       | 6.8                                                    | 26.8                                                  | 12                                             | 5.7                                          | 71                                                  | <10                                                 | 350                                                | 670                                                   |
| DATE      | HARDNESS TOTAL (MG/L AS CaCO3) (00900)   | CALCIUM DIS-SOLVED (MG/L AS Ca) (00915)   | MAGNESIUM, DIS-SOLVED (MG/L AS Mg) (00925)             | SODIUM, DIS-SOLVED (MG/L AS Na) (00930)               | SODIUM ADSORPTION RATIO (00931)                | POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)    | ANC WATER UNFLTRD FET FIELD (MG/L AS CaCO3) (00410) | SULFIDE TOTAL (MG/L AS S) (00745)                   | SULFATE DIS-SOLVED (MG/L AS SO4) (00945)           | CHLORIDE, DIS-SOLVED (MG/L AS Cl) (00940)             |
| OCT 23... | 130                                      | 30                                        | 13                                                     | 13                                                    | .5                                             | 2.7                                          | 110                                                 | <.5                                                 | 16                                                 | 15                                                    |
| MAR 27... | --                                       | --                                        | --                                                     | --                                                    | --                                             | --                                           | 240                                                 | --                                                  | --                                                 | --                                                    |
| JUN 05... | 1400                                     | 100                                       | 268                                                    | 2110                                                  | 25                                             | 87                                           | 130                                                 | --                                                  | 550                                                | 3900                                                  |
| SEP 11... | 120                                      | 28                                        | 12                                                     | 17                                                    | .7                                             | 3.1                                          | 120                                                 | <1.0                                                | 13                                                 | 15                                                    |
| DATE      | FLUORIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SiO2) (00955) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530) | NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)    | NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)  | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)         | NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)         | NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)        | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625) |
| OCT 23... | <.10                                     | 20                                        | 175                                                    | 11                                                    | 1.38                                           | .017                                         | 1.40                                                | .020                                                | .36                                                | .38                                                   |
| MAR 27... | --                                       | --                                        | --                                                     | 4                                                     | .590                                           | .050                                         | .640                                                | .130                                                | .57                                                | .70                                                   |
| JUN 05... | .29                                      | 16                                        | 7120                                                   | 17                                                    | .241                                           | .029                                         | .270                                                | .170                                                | .47                                                | .64                                                   |
| SEP 11... | .13                                      | 23                                        | 183                                                    | 20                                                    | .686                                           | .014                                         | .700                                                | .050                                                | .33                                                | .38                                                   |
| DATE      | NITROGEN, TOTAL (MG/L AS N) (00600)      | NITROGEN, TOTAL (MG/L AS NO3) (71887)     | PHOSPHORUS TOTAL (MG/L AS P) (00665)                   | ARSENIC TOTAL (UG/L AS AS) (01002)                    | BARIUM, TOTAL RECOVERABLE (UG/L AS Ba) (01007) | BORON, TOTAL RECOVERABLE (UG/L AS B) (01022) | CADMIUM, WATER UNFLTRD TOTAL (UG/L AS Cd) (01027)   | CHROMIUM, TOTAL RECOVERABLE (UG/L AS Cr) (01034)    | COPPER, TOTAL RECOVERABLE (UG/L AS Cu) (01042)     | IRON, TOTAL RECOVERABLE (UG/L AS Fe) (01045)          |
| OCT 23... | 1.8                                      | 7.9                                       | .080                                                   | <1                                                    | <100                                           | 30                                           | <1                                                  | 3                                                   | <10                                                | 560                                                   |
| MAR 27... | 1.3                                      | 5.9                                       | .160                                                   | --                                                    | --                                             | --                                           | --                                                  | --                                                  | --                                                 | --                                                    |
| JUN 05... | .91                                      | 4.0                                       | .060                                                   | <1                                                    | <100                                           | 20                                           | <1                                                  | 2                                                   | <10                                                | 290                                                   |
| SEP 11... | 1.1                                      | 4.8                                       | .130                                                   | --                                                    | --                                             | --                                           | --                                                  | --                                                  | --                                                 | --                                                    |

## RIO LOCO BASIN

50129700 RIO LOCO AT GUANICA, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]



## RIO GUANAJIBO BASIN

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR

LOCATION.--Lat 18°05'06", long 67°02'02", Hydrologic Unit 21010003, on left bank, at bridge on Hwy 119, 0.6 mi (1.0 km), southwest of junction of Highways 119 and 2, 0.2 mi (0.3 km), northeast of junction of Highways 119 and 102, 0.7 mi (1.1 km) east from public Plaza of San Germán.

DRAINAGE AREA.--34.6 mi<sup>2</sup> (89.6 km<sup>2</sup>).

PERIOD OF RECORD.--April 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 148 ft (45 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV  | DEC   | JAN   | FEB    | MAR   | APR   | MAY    | JUN  | JUL  | AUG  | SEP    |
|-------|--------|------|-------|-------|--------|-------|-------|--------|------|------|------|--------|
| 1     | 9.3    | 21   | 13    | 7.8   | 4.7    | 6.1   | 3.6   | 6.6    | 38   | 14   | 14   | 40     |
| 2     | 6.8    | 21   | 13    | 6.9   | 4.5    | 5.7   | 3.2   | 6.3    | 31   | 165  | 49   | 52     |
| 3     | 5.6    | 20   | 13    | 6.2   | 4.3    | 5.2   | 3.2   | 6.0    | 32   | 153  | 34   | 221    |
| 4     | 4.8    | 21   | 12    | 6.2   | 42     | 5.8   | 3.2   | 5.1    | 297  | 55   | 16   | 583    |
| 5     | 6.9    | 19   | 11    | 6.1   | 924    | 5.2   | 3.1   | 5.5    | 156  | 26   | 15   | 362    |
| 6     | 4.9    | 19   | 11    | 6.3   | 52     | 5.2   | 3.1   | 37     | 106  | 35   | e66  | 192    |
| 7     | 10     | 19   | 11    | 6.3   | 26     | 7.5   | 3.1   | 45     | 51   | 62   | 725  | 173    |
| 8     | 377    | 18   | 10    | 6.8   | 21     | 5.3   | 16    | 16     | 37   | 28   | 422  | 103    |
| 9     | 673    | 18   | 10    | 6.4   | 21     | 4.1   | 6.0   | 36     | 54   | 22   | 147  | 80     |
| 10    | 383    | 21   | 9.7   | 6.1   | 16     | 4.1   | 3.7   | 14     | 33   | 22   | 87   | 64     |
| 11    | 519    | 18   | 10    | 5.6   | 13     | 4.1   | 3.4   | 8.6    | 26   | 35   | 94   | 77     |
| 12    | 486    | 33   | 9.3   | 10    | 12     | 3.9   | 3.5   | 7.4    | 23   | 17   | 64   | 159    |
| 13    | 552    | 18   | 9.0   | 11    | 10     | 4.2   | 3.6   | 6.7    | 22   | 15   | 46   | 123    |
| 14    | 1180   | 17   | 8.8   | 7.1   | 10     | 4.0   | 3.2   | 6.1    | 19   | 15   | 42   | 64     |
| 15    | 380    | 279  | 8.5   | 6.2   | 12     | 7.1   | 2.8   | 12     | 17   | 14   | 94   | 53     |
| 16    | 233    | 126  | 8.4   | 6.2   | 10     | 5.5   | 12    | 12     | 16   | 13   | 48   | 50     |
| 17    | 282    | 42   | 8.0   | 6.2   | 8.5    | 5.1   | 237   | 8.5    | 184  | 14   | 41   | 44     |
| 18    | 218    | 30   | 9.6   | 6.8   | 7.9    | 12    | 23    | 8.5    | 91   | 16   | 34   | 60     |
| 19    | 116    | 25   | 10    | 6.7   | 7.9    | 6.3   | 9.4   | 143    | 38   | 22   | 29   | 85     |
| 20    | 84     | 22   | 8.8   | 5.8   | 7.2    | 4.7   | 18    | 160    | 27   | 20   | 38   | 217    |
| 21    | 62     | 19   | 9.2   | 5.2   | 7.1    | 4.2   | 9.8   | 300    | 23   | 17   | 33   | 248    |
| 22    | 50     | 18   | 8.4   | 5.4   | 6.6    | 3.9   | 7.5   | 196    | 28   | 15   | 109  | e17300 |
| 23    | 43     | 16   | 7.5   | 4.9   | 6.8    | 3.6   | 5.8   | 51     | 34   | 14   | 59   | e8830  |
| 24    | 38     | 15   | 7.9   | 4.8   | 6.1    | 3.2   | 5.1   | 30     | 53   | 15   | 48   | e5440  |
| 25    | 34     | 16   | 7.4   | 4.9   | 6.7    | 4.5   | 7.5   | 322    | 37   | 12   | 507  | e5030  |
| 26    | 32     | 30   | 7.2   | 4.6   | 7.2    | 4.0   | 39    | 257    | 26   | 10   | 198  | e3490  |
| 27    | 29     | 19   | 7.2   | 4.5   | 7.7    | 3.8   | 13    | 72     | 22   | 18   | 100  | e1800  |
| 28    | 27     | 15   | 7.2   | 4.6   | 6.1    | 3.8   | 15    | 419    | 18   | 33   | 80   | e842   |
| 29    | 26     | 15   | 7.3   | 4.6   | ---    | 3.5   | 13    | 305    | 16   | 17   | 69   | e1380  |
| 30    | 24     | 14   | 7.0   | 4.6   | ---    | 4.7   | 7.5   | 96     | 16   | 13   | 50   | e394   |
| 31    | 23     | ---  | 9.2   | 4.4   | ---    | 4.2   | ---   | 54     | ---  | 12   | 41   | ---    |
| TOTAL | 5919.3 | 984  | 289.6 | 189.2 | 1268.3 | 154.5 | 487.3 | 2652.3 | 1571 | 939  | 3399 | 47556  |
| MEAN  | 191    | 32.8 | 9.34  | 6.10  | 45.3   | 4.98  | 16.2  | 85.6   | 52.4 | 30.3 | 110  | 1585   |
| MAX   | 1180   | 279  | 13    | 11    | 924    | 12    | 237   | 419    | 297  | 165  | 725  | 17300  |
| MIN   | 4.8    | 14   | 7.0   | 4.4   | 4.3    | 3.2   | 2.8   | 5.1    | 16   | 10   | 14   | 40     |
| MED   | 43     | 19   | 9.2   | 6.2   | 8.2    | 4.5   | 5.9   | 30     | 32   | 17   | 50   | 183    |
| AC-FT | 11740  | 1950 | 574   | 375   | 2520   | 306   | 967   | 5260   | 3120 | 1860 | 6740 | 94330  |
| CFSM  | 5.52   | .95  | .27   | .18   | 1.31   | .14   | .47   | 2.47   | 1.51 | .88  | 3.17 | 45.8   |
| IN.   | 6.36   | 1.06 | .31   | .20   | 1.36   | .17   | .52   | 2.85   | 1.69 | 1.01 | 3.65 | 51.13  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

|  | MEAN | 104  | 66.6 | 23.1 | 22.0 | 22.5 | 10.7 | 20.8 | 45.9 | 22.9 | 19.4 | 48.3 | 246  |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
|  | MAX  | 205  | 127  | 52.2 | 47.5 | 45.3 | 25.8 | 55.9 | 85.6 | 52.4 | 37.6 | 110  | 1585 |
|  | (WY) | 1993 | 1997 | 1993 | 1997 | 1998 | 1995 | 1996 | 1998 | 1998 | 1995 | 1998 | 1998 |
|  | MIN  | 20.4 | 15.8 | 8.21 | 6.10 | 4.32 | 3.52 | 7.79 | 5.11 | 3.91 | 6.68 | 17.2 | 11.2 |
|  | (WY) | 1992 | 1992 | 1992 | 1998 | 1992 | 1992 | 1997 | 1994 | 1994 | 1994 | 1994 | 1997 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

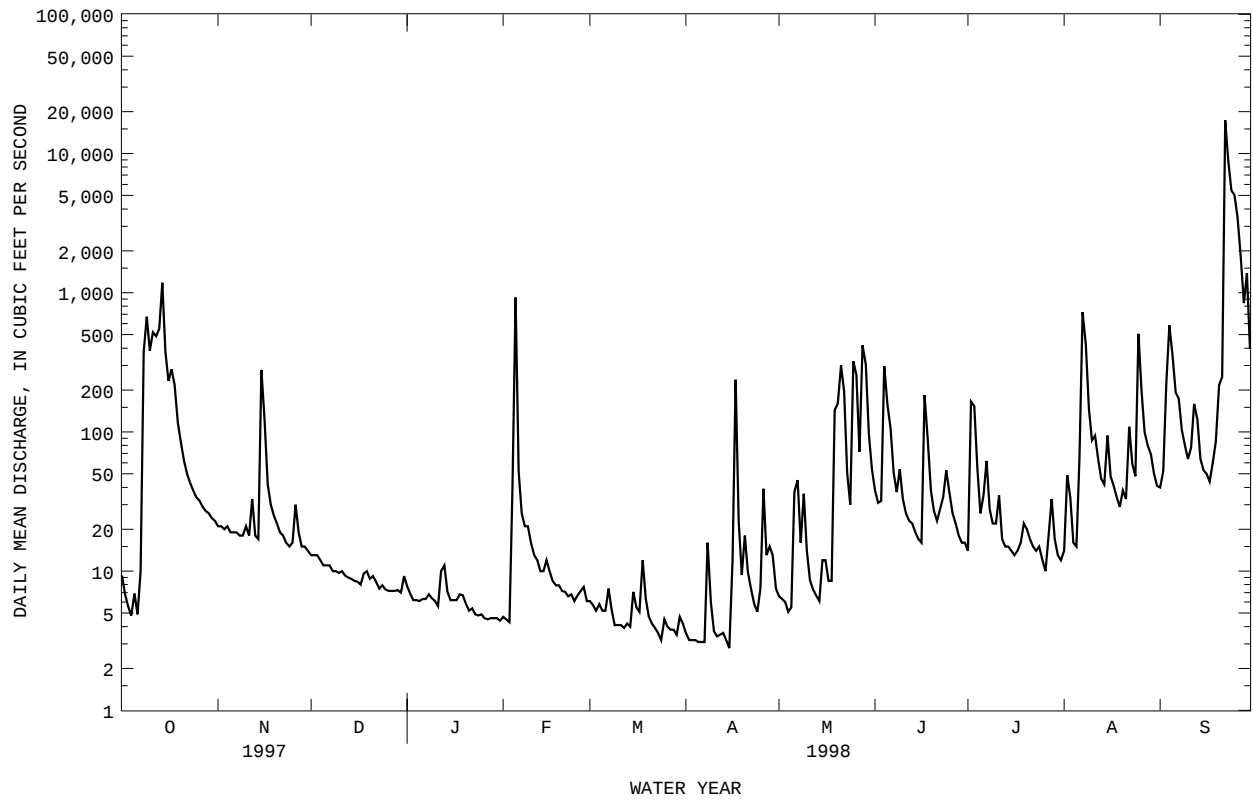
## WATER YEARS 1991 - 1998

|                          |         |         |       |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL             | 11236.9 | 65409.5 |       |
| ANNUAL MEAN              | 30.8    | 179     | 57.7  |
| HIGHEST ANNUAL MEAN      |         |         | 179   |
| LOWEST ANNUAL MEAN       |         |         | 16.6  |
| HIGHEST DAILY MEAN       | 1180    | Oct 14  | 17300 |
| LOWEST DAILY MEAN        | 3.1     | Jun 10  | 2.8   |
| ANNUAL SEVEN-DAY MINIMUM | 3.7     | Jun 8   | 3.2   |
| INSTANTANEOUS PEAK FLOW  |         |         | 24900 |
| INSTANTANEOUS PEAK STAGE |         |         | 19.53 |
| ANNUAL RUNOFF (AC-FT)    | 22290   | 129700  | 41780 |
| ANNUAL RUNOFF (CFSM)     | .89     | 5.18    | 1.67  |
| ANNUAL RUNOFF (INCHES)   | 12.08   | 70.32   | 22.65 |
| 10 PERCENT EXCEEDS       | 38      | 217     | 93    |
| 50 PERCENT EXCEEDS       | 9.3     | 16      | 15    |
| 90 PERCENT EXCEEDS       | 4.5     | 4.6     | 4.8   |

e Estimated

## RIO GUANAJIBO BASIN

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR--Continued



## RIO GUANAJIBO BASIN

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°07'18", Long 67°03'56", at bridge on Highway 347, 2.2 mi (3.5 km) northwest of San Germán.

DRAINAGE AREA.--45.5 mi<sup>2</sup> (117.8 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076) | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) |
|--------------|------|-----------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT<br>22... | 1000 | 70                                                                    | 535                                                          | 7.3                                                                  | 25.5                                            | 2.1                                     | 6.5                                            | 79                                                                        | <10                                                                        | 800                                                                        | 550                                                                |
| MAR<br>26... | 0940 | 3.7                                                                   | 784                                                          | 7.2                                                                  | 26.0                                            | .95                                     | 4.7                                            | 58                                                                        | 15                                                                         | 330                                                                        | 380                                                                |
| JUN<br>04... | 1030 | 50                                                                    | 331                                                          | 7.3                                                                  | 27.0                                            | 95                                      | 6.9                                            | 86                                                                        | <10                                                                        | K15000                                                                     | 5700                                                               |
| SEP<br>10... | 1030 | 88                                                                    | 493                                                          | 7.4                                                                  | 27.5                                            | 5.3                                     | 7.6                                            | 96                                                                        | <10                                                                        | 2100                                                                       | 580                                                                |

| DATE         | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CACO3)<br>(00900) | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915) | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925) | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930) | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931) | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935) | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>(MG/L AS<br>CACO3)<br>(00410) | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745) | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS SO4)<br>(00945) | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940) |
|--------------|------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|
| OCT<br>22... | 240                                                        | 23                                                      | 44                                                              | 20                                                      | .6                                                 | 2.8                                                            | 260                                                                      | .6                                            | 24                                                       | 25                                                             |
| MAR<br>26... | --                                                         | --                                                      | --                                                              | --                                                      | --                                                 | --                                                             | 250                                                                      | --                                            | --                                                       | --                                                             |
| JUN<br>04... | 150                                                        | 14                                                      | 27                                                              | 12                                                      | .4                                                 | 2.6                                                            | 140                                                                      | --                                            | 14                                                       | 15                                                             |
| SEP<br>10... | 180                                                        | 7.7                                                     | 13                                                              | 5.1                                                     | .3                                                 | 1.0                                                            | 220                                                                      | <1.0                                          | 18                                                       | 17                                                             |

| DATE         | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955) | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | SOLIDS,<br>DIS-<br>SOLVED<br>(TONS<br>PER<br>DAY)<br>(70302) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDED<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| OCT<br>22... | <.10                                                          | 35                                                           | 330                                                                            | 62.1                                                         | 8                                                                            | 1.42                                                            | .180                                                            | 1.60                                                            | .360                                                            | .74                                                             |
| MAR<br>26... | --                                                            | --                                                           | --                                                                             | --                                                           | <1                                                                           | 1.28                                                            | .020                                                            | 1.30                                                            | .020                                                            | .52                                                             |
| JUN<br>04... | <.10                                                          | 27                                                           | 196                                                                            | 26.6                                                         | 120                                                                          | .764                                                            | .096                                                            | .860                                                            | .180                                                            | .67                                                             |
| SEP<br>10... | <.10                                                          | 37                                                           | 230                                                                            | 54.5                                                         | 12                                                                           | 1.14                                                            | .062                                                            | 1.20                                                            | .160                                                            | .15                                                             |

| DATE         | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002) | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027) | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034) | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) |
|--------------|--------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT<br>22... | 1.1                                                                            | 2.7                                                  | 12                                                     | .160                                                  | <1                                             | <100                                                               | 60                                                               | <1                                                                 | 9                                                                         | <10                                                                |
| MAR<br>26... | .54                                                                            | 1.8                                                  | 8.1                                                    | .210                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |
| JUN<br>04... | .85                                                                            | 1.7                                                  | 7.6                                                    | .240                                                  | <1                                             | <100                                                               | 60                                                               | <1                                                                 | 75                                                                        | 15                                                                 |
| SEP<br>10... | .31                                                                            | 1.5                                                  | 6.7                                                    | .160                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |

## RIO GUANAJIBO BASIN

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

MAR

JUN

SEP

10

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°09'36", long 67°05'08", Hydrologic Unit 21010003, at bridge on Highway 348, 0.5 mi (0.8 km) southwest of Rosario Plaza.

DRAINAGE AREA.--18.3 mi<sup>2</sup> (47.4 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50.0 ft (15.2 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. The gage-height recorded during the Hurricane Georges event was affected by backwater caused by the Hwy. 348 bridge which is about 32 ft. downstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR   | APR   | MAY    | JUN  | JUL  | AUG  | SEP   |
|-------|------|------|------|------|------|-------|-------|--------|------|------|------|-------|
| 1     | e105 | 38   | 30   | 24   | 20   | 10    | 9.2   | 8.4    | 16   | 13   | 76   | 59    |
| 2     | e75  | 37   | 30   | 23   | 18   | 11    | 9.4   | 8.0    | 15   | 62   | 75   | 248   |
| 3     | e61  | 37   | 29   | 19   | 15   | 9.3   | 9.9   | 7.7    | 16   | 114  | 49   | 156   |
| 4     | e51  | 35   | 28   | 19   | 17   | 9.2   | 9.0   | 9.2    | 23   | 41   | 47   | 181   |
| 5     | e42  | 33   | 27   | 20   | 56   | 8.9   | 9.1   | 9.7    | 30   | 21   | 40   | 138   |
| 6     | e39  | 31   | 26   | 22   | 20   | 9.2   | 9.2   | 20     | 28   | 122  | 54   | 280   |
| 7     | e37  | 31   | 26   | 49   | 15   | 9.0   | 27    | 40     | 22   | e72  | 165  | 148   |
| 8     | e41  | 30   | 25   | 24   | 20   | 8.9   | 27    | 22     | 25   | e36  | 159  | 113   |
| 9     | 175  | 28   | 25   | 19   | 25   | 8.6   | 13    | 22     | 35   | 25   | 120  | 99    |
| 10    | e229 | 30   | 24   | 19   | 16   | 8.5   | 10    | 19     | 40   | 51   | 142  | 85    |
| 11    | e212 | 46   | 25   | 31   | 14   | 8.1   | 9.0   | 16     | 31   | 42   | 162  | 85    |
| 12    | e141 | 38   | 24   | 28   | 13   | 7.9   | 8.9   | 13     | 23   | 28   | e112 | 160   |
| 13    | e195 | 34   | 23   | 22   | 13   | 7.9   | 8.5   | 12     | 22   | 23   | e82  | 131   |
| 14    | 449  | 30   | 23   | 19   | 12   | 15    | 8.7   | 12     | 21   | 22   | e69  | 88    |
| 15    | e244 | 67   | 22   | 17   | 13   | 22    | 8.8   | 14     | 19   | 23   | 64   | 76    |
| 16    | 165  | 48   | 20   | 17   | 12   | 11    | 8.7   | 24     | 26   | 28   | 56   | 75    |
| 17    | 125  | 34   | 20   | 16   | 12   | 49    | 8.8   | 25     | 187  | 31   | 58   | 78    |
| 18    | 107  | 33   | 24   | 17   | 11   | 53    | 8.6   | 39     | 58   | 107  | 49   | 91    |
| 19    | 89   | 112  | 22   | 18   | 12   | 18    | 11    | 94     | 32   | 72   | 43   | 79    |
| 20    | 78   | 87   | 22   | 16   | 13   | 13    | 9.5   | 68     | 23   | 62   | 64   | 92    |
| 21    | 70   | 45   | 21   | 17   | 13   | 11    | 9.0   | 67     | 20   | 40   | 63   | 120   |
| 22    | 64   | 37   | 20   | 17   | 12   | 9.5   | 12    | 63     | 19   | 32   | 71   | e4420 |
| 23    | 59   | 33   | 25   | 16   | 12   | 8.3   | 8.8   | 32     | 20   | 65   | 61   | 422   |
| 24    | 56   | 31   | 24   | 17   | 12   | 7.9   | 8.7   | 32     | 19   | 45   | 48   | 287   |
| 25    | e56  | 31   | 22   | 17   | 12   | 8.0   | 9.8   | 138    | 17   | 36   | 152  | 258   |
| 26    | e55  | 41   | 21   | 16   | 14   | 9.9   | 10    | 75     | 16   | 33   | 85   | 244   |
| 27    | 49   | 34   | 21   | 16   | 11   | 11    | 9.7   | 30     | 16   | 92   | 263  | 237   |
| 28    | 47   | 31   | 21   | 17   | 11   | 9.6   | 19    | 31     | 14   | 69   | 130  | 233   |
| 29    | 44   | 32   | 21   | 17   | ---  | 8.9   | 11    | 43     | 13   | 47   | e81  | 336   |
| 30    | 43   | 39   | 21   | 16   | ---  | 8.9   | 8.4   | 27     | 13   | 38   | e68  | 224   |
| 31    | 40   | ---  | 23   | 15   | ---  | 10    | ---   | 21     | ---  | 42   | e64  | ---   |
| TOTAL | 3243 | 1213 | 735  | 620  | 444  | 400.5 | 329.7 | 1042.0 | 859  | 1534 | 2772 | 9243  |
| MEAN  | 105  | 40.4 | 23.7 | 20.0 | 15.9 | 12.9  | 11.0  | 33.6   | 28.6 | 49.5 | 89.4 | 308   |
| MAX   | 449  | 112  | 30   | 49   | 56   | 53    | 27    | 138    | 187  | 122  | 263  | 4420  |
| MIN   | 37   | 28   | 20   | 15   | 11   | 7.9   | 8.4   | 7.7    | 13   | 13   | 40   | 59    |
| AC-FT | 6430 | 2410 | 1460 | 1230 | 881  | 794   | 654   | 2070   | 1700 | 3040 | 5500 | 18330 |
| CFSM  | 5.72 | 2.21 | 1.30 | 1.09 | .87  | .71   | .60   | 1.84   | 1.56 | 2.70 | 4.89 | 16.8  |
| IN.   | 6.59 | 2.47 | 1.49 | 1.26 | .90  | .81   | .67   | 2.12   | 1.75 | 3.12 | 5.63 | 18.79 |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1998, BY WATER YEAR (WY)

|      | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 102  | 68.5 | 31.6 | 22.8 | 19.4 | 21.3 | 23.2 | 43.7 | 41.7 | 42.5 | 62.3 | 105  |      |
| MAX  | 206  | 117  | 53.7 | 39.7 | 37.8 | 77.0 | 57.7 | 122  | 91.1 | 75.2 | 102  | 308  |      |
| (WY) | 1986 | 1990 | 1995 | 1997 | 1995 | 1989 | 1989 | 1993 | 1993 | 1989 | 1989 | 1998 |      |
| MIN  | 33.2 | 16.1 | 9.92 | 15.1 | 8.55 | 10.1 | 11.0 | 14.8 | 12.0 | 23.2 | 25.1 | 32.7 |      |
| (WY) | 1992 | 1992 | 1992 | 1994 | 1992 | 1992 | 1998 | 1997 | 1992 | 1990 | 1991 | 1986 |      |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

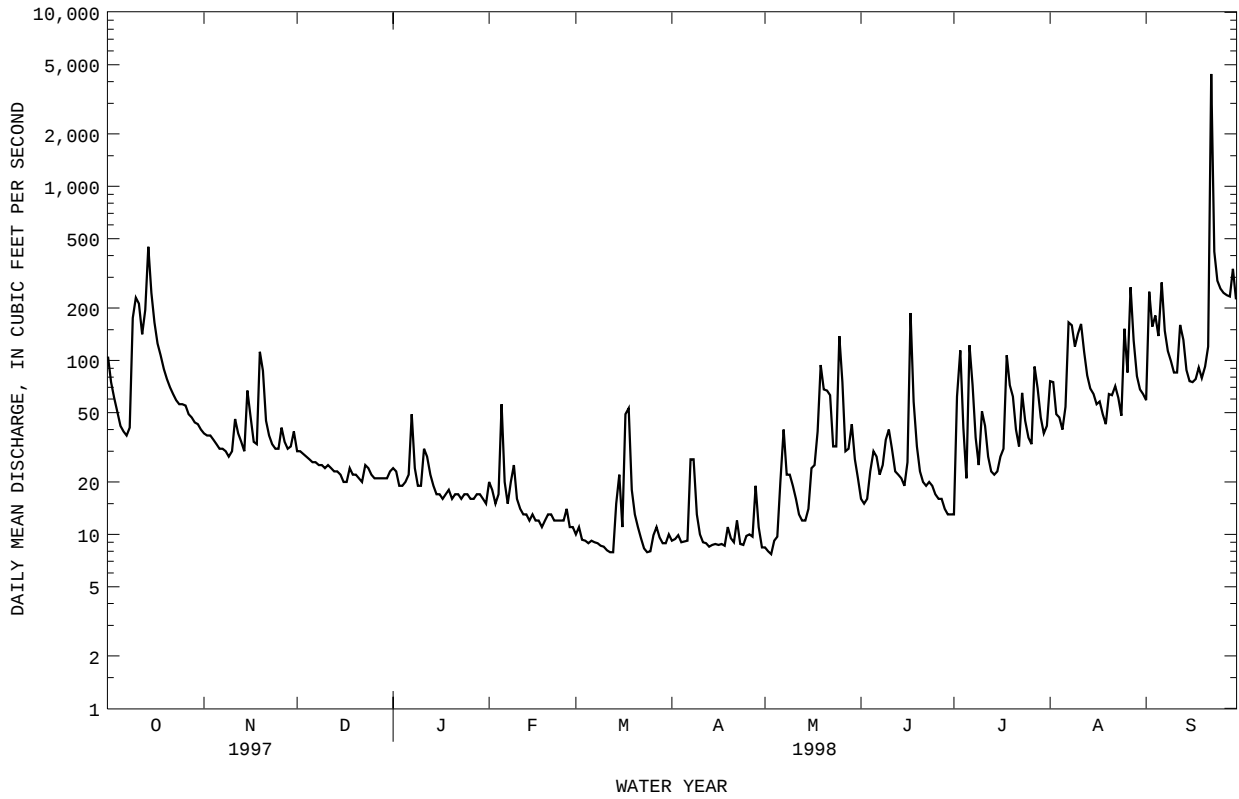
## FOR 1998 WATER YEAR

## WATER YEARS 1986 - 1998

|                          |         |         |                |
|--------------------------|---------|---------|----------------|
| ANNUAL TOTAL             | 13311.9 | 22435.2 |                |
| ANNUAL MEAN              | 36.5    | 61.5    | 48.8           |
| HIGHEST ANNUAL MEAN      |         |         | 70.6           |
| LOWEST ANNUAL MEAN       |         |         | 30.8           |
| HIGHEST DAILY MEAN       | 449     | Oct 14  | 4420           |
| LOWEST DAILY MEAN        | 8.3     | May 15  | 7.7            |
| ANNUAL SEVEN-DAY MINIMUM | 8.7     | Jun 5   | 8.4            |
| INSTANTANEOUS PEAK FLOW  |         |         | Not determined |
| INSTANTANEOUS PEAK STAGE |         |         | 18.66          |
| INSTANTANEOUS LOW FLOW   |         |         | 7.2            |
| ANNUAL RUNOFF (AC-FT)    | 26400   | 44500   | 35370          |
| ANNUAL RUNOFF (CFSM)     | 1.99    | 3.36    | 2.67           |
| ANNUAL RUNOFF (INCHES)   | 27.06   | 45.61   | 36.25          |
| 10 PERCENT EXCEEDS       | 66      | 121     | 110            |
| 50 PERCENT EXCEEDS       | 25      | 26      | 28             |
| 90 PERCENT EXCEEDS       | 11      | 9.4     | 11             |

e Estimated

RIO GUANAJIBO BASIN  
50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued



## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1979 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1985 to current year.

INSTRUMENTATION.--US D-49 Sediment sampler since October 1985. Automatic sediment sampler since 1986.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 15,900 mg/L September 22,1998; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily, 356,000 tons (323,000 tonnes); September 22,1998 Minimum daily, 0.05 ton (0.04 Tonne) several days.

EXTREMES FOR CURRENT YEAR 1998.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 15,900 mg/L ; September 22,1998; Minimum daily mean, 2.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 356,000 tons (323,000 tonnes) September 22, 1998; Minimum daily 0.09 ton (0.08 tonne) several days.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, PER (COLS./100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 22... | 1150 | 64                                              | 263                                     | 7.5                                            | 25.0                               | .98                       | 8.2                               | 99                                                | <10                                                  | K740                                                | 490                                              |
| MAR 26... | 1135 | 9.8                                             | 284                                     | 7.8                                            | 26.0                               | .49                       | 8.7                               | 108                                               | <10                                                  | 2000                                                | 45                                               |
| JUN 04... | 1215 | 13                                              | 261                                     | 8.2                                            | 29.0                               | 1.0                       | 8.0                               | 104                                               | <10                                                  | 420                                                 | 70                                               |
| SEP 10... | 1130 | 85                                              | 253                                     | 7.4                                            | 26.2                               | 2.7                       | 8.1                               | 100                                               | <10                                                  | 590                                                 | 470                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 22... | 120                                     | 22                                      | 16                                          | 7.1                                     | .3                                | 1.4                                        | 130                                                 | <.5                               | 6.5                                      | 7.3                                        |
| MAR 26... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 160                                                 | --                                | --                                       | --                                         |
| JUN 04... | 130                                     | 23                                      | 18                                          | 7.2                                     | .3                                | 1.4                                        | 130                                                 | --                                | 6.8                                      | 8.4                                        |
| SEP 10... | 120                                     | 21                                      | 16                                          | 6.6                                     | .3                                | 1.4                                        | 110                                                 | <1.0                              | 6.5                                      | 6.8                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 22... | <.10                                      | 29                                        | 168                                                     | 28.9                                      | 2                                                      | --                                           | <.010                                        | 1.10                                         | <.010                                        | --                                           |
| MAR 26... | --                                        | --                                        | --                                                      | --                                        | 1                                                      | .620                                         | .010                                         | .630                                         | .020                                         | .21                                          |
| JUN 04... | .10                                       | 28                                        | 170                                                     | 6.01                                      | 1                                                      | --                                           | <.010                                        | .540                                         | .010                                         | .21                                          |
| SEP 10... | <.10                                      | 28                                        | 152                                                     | 34.7                                      | 4                                                      | 1.18                                         | .018                                         | 1.20                                         | .030                                         | --                                           |

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600)             | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887)                     | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665)              | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002)        | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027) | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034) | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042)      |
|-----------|--------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------|
| OCT 22... | <.20                                                                           | --                                                               | --                                                                         | <.020                                                              | <1                                                    | <100                                                               | 20                                                               | <1                                                                 | 7                                                                         | <10                                                                     |
| MAR 26... | .24                                                                            | .86                                                              | 3.8                                                                        | .020                                                               | --                                                    | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                      |
| JUN 04... | .22                                                                            | .76                                                              | 3.4                                                                        | <.020                                                              | <1                                                    | <100                                                               | 20                                                               | <1                                                                 | 4                                                                         | <10                                                                     |
| SEP 10... | <.20                                                                           | --                                                               | --                                                                         | .030                                                               | --                                                    | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                      |
| DATE      | IRON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS FE)<br>(01045)               | LEAD,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS PB)<br>(01051) | MANGA-<br>NESE,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS MN)<br>(01055) | MERCURY<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS HG)<br>(71900) | SELE-<br>NIUM,<br>TOTAL<br>(UG/L<br>AS SE)<br>(01147) | SILVER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS AG)<br>(01077) | ZINC,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS ZN)<br>(01092) | CYANIDE<br>TOTAL<br>(MG/L<br>AS CN)<br>(00720)                     | PHENOLS<br>TOTAL<br>(UG/L)<br>(32730)                                     | METHY-<br>LENE<br>BLUE<br>ACTIVE<br>SUB-<br>STANCE<br>(MG/L)<br>(38260) |
| OCT 22... | 130                                                                            | <1                                                               | <10                                                                        | <.10                                                               | <1                                                    | <1                                                                 | <10                                                              | <.010                                                              | <1                                                                        | .02                                                                     |
| MAR 26... | --                                                                             | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                      |
| JUN 04... | 100                                                                            | <1                                                               | 11                                                                         | <.10                                                               | <1                                                    | <1                                                                 | <10                                                              | <.010                                                              | <1                                                                        | <.02                                                                    |
| SEP 10... | --                                                                             | --                                                               | --                                                                         | --                                                                 | --                                                    | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                      |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER |                            |                                      | NOVEMBER                            |                            |                                      | DECEMBER                            |                            |                                      |                                     |
| 1       | e105                       | 171                                  | e51                                 | 38                         | 7                                    | .70                                 | 30                         | 28                                   | 2.3                                 |
| 2       | e75                        | 41                                   | e8.5                                | 37                         | 3                                    | .27                                 | 30                         | 16                                   | 1.3                                 |
| 3       | e61                        | 25                                   | e4.1                                | 37                         | 6                                    | .60                                 | 29                         | 16                                   | 1.3                                 |
| 4       | e51                        | 25                                   | e3.4                                | 35                         | 17                                   | 1.6                                 | 28                         | 18                                   | 1.4                                 |
| 5       | e42                        | 15                                   | e1.8                                | 33                         | 18                                   | 1.6                                 | 27                         | 8                                    | .58                                 |
| 6       | e39                        | 8                                    | e.90                                | 31                         | 11                                   | .94                                 | 26                         | 3                                    | .18                                 |
| 7       | e37                        | 7                                    | e.69                                | 31                         | 7                                    | .58                                 | 26                         | 2                                    | .14                                 |
| 8       | e41                        | 7                                    | e.78                                | 30                         | 5                                    | .36                                 | 25                         | 2                                    | .14                                 |
| 9       | 175                        | 1020                                 | 1460                                | 28                         | 4                                    | .34                                 | 25                         | 4                                    | .26                                 |
| 10      | e229                       | 1200                                 | e1240                               | 30                         | 5                                    | .42                                 | 24                         | 9                                    | .58                                 |
| 11      | e212                       | 822                                  | e560                                | 46                         | 77                                   | 19                                  | 25                         | 15                                   | .99                                 |
| 12      | e141                       | 549                                  | e218                                | 38                         | 80                                   | 9.1                                 | 24                         | 21                                   | 1.3                                 |
| 13      | e195                       | 705                                  | e758                                | 34                         | 31                                   | 2.9                                 | 23                         | 20                                   | 1.3                                 |
| 14      | 449                        | 1730                                 | 2880                                | 30                         | 24                                   | 2.0                                 | 23                         | 17                                   | 1.0                                 |
| 15      | e244                       | 709                                  | e589                                | 67                         | 215                                  | 109                                 | 22                         | 18                                   | 1.1                                 |
| 16      | 165                        | 193                                  | 94                                  | 48                         | 67                                   | 9.8                                 | 20                         | 19                                   | 1.1                                 |
| 17      | 125                        | 62                                   | 21                                  | 34                         | 20                                   | 1.8                                 | 20                         | 9                                    | .48                                 |
| 18      | 107                        | 47                                   | 14                                  | 33                         | 17                                   | 1.5                                 | 24                         | 3                                    | .18                                 |
| 19      | 89                         | 29                                   | 7.0                                 | 112                        | 510                                  | 643                                 | 22                         | 2                                    | .12                                 |
| 20      | 78                         | 17                                   | 3.5                                 | 87                         | 226                                  | 64                                  | 22                         | 2                                    | .12                                 |
| 21      | 70                         | 10                                   | 1.9                                 | 45                         | 32                                   | 4.0                                 | 21                         | 2                                    | .13                                 |
| 22      | 64                         | 7                                    | 1.2                                 | 37                         | 16                                   | 1.6                                 | 20                         | 4                                    | .20                                 |
| 23      | 59                         | 6                                    | .88                                 | 33                         | 17                                   | 1.5                                 | 25                         | 36                                   | 2.5                                 |
| 24      | 56                         | 8                                    | 1.1                                 | 31                         | 11                                   | .92                                 | 24                         | 6                                    | .44                                 |
| 25      | e56                        | 16                                   | e18                                 | 31                         | 6                                    | .47                                 | 22                         | 2                                    | .14                                 |
| 26      | e55                        | 28                                   | e17                                 | 41                         | 88                                   | 10                                  | 21                         | 3                                    | .17                                 |
| 27      | 49                         | 31                                   | 4.0                                 | 34                         | 33                                   | 3.0                                 | 21                         | 4                                    | .21                                 |
| 28      | 47                         | 14                                   | 1.7                                 | 31                         | 22                                   | 1.8                                 | 21                         | 5                                    | .29                                 |
| 29      | 44                         | 6                                    | .70                                 | 32                         | 27                                   | 3.3                                 | 21                         | 7                                    | .43                                 |
| 30      | 43                         | 8                                    | .97                                 | 39                         | 87                                   | 11                                  | 21                         | 11                                   | .62                                 |
| 31      | 40                         | 13                                   | 1.4                                 | ---                        | ---                                  | ---                                 | 23                         | 11                                   | .68                                 |
| TOTAL   | 3243                       | ---                                  | 7964.52                             | 1213                       | ---                                  | 907.10                              | 735                        | ---                                  | 21.68                               |

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY |                            |                                      | FEBRUARY                            |                            |                                      | MARCH                               |                            |                                      |                                     |
| 1       | 24                         | 19                                   | 1.6                                 | 20                         | 13                                   | .67                                 | 10                         | 6                                    | .16                                 |
| 2       | 23                         | 35                                   | 2.3                                 | 18                         | 11                                   | .52                                 | 11                         | 5                                    | .16                                 |
| 3       | 19                         | 21                                   | 1.1                                 | 15                         | 12                                   | .47                                 | 9.3                        | 5                                    | .13                                 |
| 4       | 19                         | 15                                   | .75                                 | 17                         | 15                                   | .87                                 | 9.2                        | 5                                    | .14                                 |
| 5       | 20                         | 12                                   | .61                                 | 56                         | 122                                  | 34                                  | 8.9                        | 6                                    | .15                                 |
| 6       | 22                         | 9                                    | .57                                 | 20                         | 8                                    | .42                                 | 9.2                        | 8                                    | .20                                 |
| 7       | 49                         | 100                                  | 27                                  | 15                         | 7                                    | .30                                 | 9.0                        | 11                                   | .26                                 |
| 8       | 24                         | 24                                   | 1.8                                 | 20                         | 20                                   | 1.7                                 | 8.9                        | 13                                   | .31                                 |
| 9       | 19                         | 9                                    | .44                                 | 25                         | 44                                   | 3.4                                 | 8.6                        | 14                                   | .32                                 |
| 10      | 19                         | 10                                   | .52                                 | 16                         | 14                                   | .63                                 | 8.5                        | 9                                    | .20                                 |
| 11      | 31                         | 67                                   | 10                                  | 14                         | 11                                   | .42                                 | 8.1                        | 5                                    | .11                                 |
| 12      | 28                         | 47                                   | 3.8                                 | 13                         | 11                                   | .38                                 | 7.9                        | 5                                    | .10                                 |
| 13      | 22                         | 23                                   | 1.4                                 | 13                         | 10                                   | .36                                 | 7.9                        | 4                                    | .09                                 |
| 14      | 19                         | 13                                   | .65                                 | 12                         | 10                                   | .33                                 | 15                         | 22                                   | 2.9                                 |
| 15      | 17                         | 7                                    | .33                                 | 13                         | 11                                   | .36                                 | 22                         | 39                                   | 3.1                                 |
| 16      | 17                         | 6                                    | .27                                 | 12                         | 12                                   | .38                                 | 11                         | 7                                    | .22                                 |
| 17      | 16                         | 6                                    | .26                                 | 12                         | 12                                   | .39                                 | 49                         | 152                                  | 97                                  |
| 18      | 17                         | 7                                    | .30                                 | 11                         | 6                                    | .19                                 | 53                         | 103                                  | 27                                  |
| 19      | 18                         | 8                                    | .36                                 | 12                         | 5                                    | .17                                 | 18                         | 16                                   | .81                                 |
| 20      | 16                         | 9                                    | .38                                 | 13                         | 6                                    | .21                                 | 13                         | 9                                    | .33                                 |
| 21      | 17                         | 10                                   | .44                                 | 13                         | 6                                    | .21                                 | 11                         | 7                                    | .21                                 |
| 22      | 17                         | 9                                    | .41                                 | 12                         | 6                                    | .18                                 | 9.5                        | 6                                    | .16                                 |
| 23      | 16                         | 8                                    | .36                                 | 12                         | 5                                    | .17                                 | 8.3                        | 6                                    | .14                                 |
| 24      | 17                         | 8                                    | .36                                 | 12                         | 5                                    | .16                                 | 7.9                        | 6                                    | .13                                 |
| 25      | 17                         | 8                                    | .36                                 | 12                         | 5                                    | .17                                 | 8.0                        | 6                                    | .13                                 |
| 26      | 16                         | 8                                    | .32                                 | 14                         | 6                                    | .21                                 | 9.9                        | 6                                    | .16                                 |
| 27      | 16                         | 7                                    | .31                                 | 11                         | 6                                    | .18                                 | 11                         | 5                                    | .16                                 |
| 28      | 17                         | 7                                    | .33                                 | 11                         | 6                                    | .18                                 | 9.6                        | 5                                    | .13                                 |
| 29      | 17                         | 8                                    | .36                                 | ---                        | ---                                  | ---                                 | 8.9                        | 6                                    | .14                                 |
| 30      | 16                         | 10                                   | .45                                 | ---                        | ---                                  | ---                                 | 8.9                        | 7                                    | .17                                 |
| 31      | 15                         | 14                                   | .56                                 | ---                        | ---                                  | ---                                 | 10                         | 9                                    | .24                                 |
| TOTAL   | 620                        | ---                                  | 58.70                               | 444                        | ---                                  | 47.63                               | 400.5                      | ---                                  | 135.46                              |
| DAY     | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
| APRIL   |                            |                                      | MAY                                 |                            |                                      | JUNE                                |                            |                                      |                                     |
| 1       | 9.2                        | 11                                   | .27                                 | 8.4                        | 4                                    | .09                                 | 16                         | 9                                    | .40                                 |
| 2       | 9.4                        | 8                                    | .19                                 | 8.0                        | 4                                    | .09                                 | 15                         | 6                                    | .26                                 |
| 3       | 9.9                        | 5                                    | .12                                 | 7.7                        | 4                                    | .09                                 | 16                         | 7                                    | .32                                 |
| 4       | 9.0                        | 4                                    | .11                                 | 9.2                        | 5                                    | .12                                 | 23                         | 28                                   | 2.3                                 |
| 5       | 9.1                        | 5                                    | .12                                 | 9.7                        | 5                                    | .13                                 | 30                         | 52                                   | 4.8                                 |
| 6       | 9.2                        | 4                                    | .10                                 | 20                         | 33                                   | 5.0                                 | 28                         | 24                                   | 2.0                                 |
| 7       | 27                         | 44                                   | 9.8                                 | 40                         | 82                                   | 10                                  | 22                         | 11                                   | .67                                 |
| 8       | 27                         | 51                                   | 4.7                                 | 22                         | 22                                   | 1.3                                 | 25                         | 33                                   | 2.7                                 |
| 9       | 13                         | 15                                   | .52                                 | 22                         | 7                                    | .41                                 | 35                         | 71                                   | 8.2                                 |
| 10      | 10                         | 10                                   | .28                                 | 19                         | 6                                    | .33                                 | 40                         | 57                                   | 7.1                                 |
| 11      | 9.0                        | 8                                    | .20                                 | 16                         | 7                                    | .30                                 | 31                         | 49                                   | 4.4                                 |
| 12      | 8.9                        | 6                                    | .14                                 | 13                         | 7                                    | .25                                 | 23                         | 16                                   | 1.0                                 |
| 13      | 8.5                        | 4                                    | .10                                 | 12                         | 7                                    | .22                                 | 22                         | 15                                   | .86                                 |
| 14      | 8.7                        | 5                                    | .12                                 | 12                         | 7                                    | .22                                 | 21                         | 15                                   | .84                                 |
| 15      | 8.8                        | 7                                    | .16                                 | 14                         | 13                                   | .51                                 | 19                         | 14                                   | .71                                 |
| 16      | 8.7                        | 5                                    | .13                                 | 24                         | 40                                   | 2.6                                 | 26                         | 40                                   | 4.2                                 |
| 17      | 8.8                        | 4                                    | .10                                 | 25                         | 54                                   | 6.4                                 | 187                        | 818                                  | 1640                                |
| 18      | 8.6                        | 4                                    | .09                                 | 39                         | 76                                   | 8.4                                 | 58                         | 135                                  | 23                                  |
| 19      | 11                         | 18                                   | .55                                 | 94                         | 399                                  | 378                                 | 32                         | 59                                   | 5.2                                 |
| 20      | 9.5                        | 13                                   | .34                                 | 68                         | 119                                  | 24                                  | 23                         | 32                                   | 2.0                                 |
| 21      | 9.0                        | 9                                    | .21                                 | 67                         | 141                                  | 53                                  | 20                         | 32                                   | 1.9                                 |
| 22      | 12                         | 27                                   | .90                                 | 63                         | 129                                  | 27                                  | 19                         | 15                                   | .79                                 |
| 23      | 8.8                        | 18                                   | .44                                 | 32                         | 31                                   | 3.1                                 | 20                         | 23                                   | 1.7                                 |
| 24      | 8.7                        | 10                                   | .24                                 | 32                         | 64                                   | 16                                  | 19                         | 22                                   | 1.2                                 |
| 25      | 9.8                        | 6                                    | .17                                 | 138                        | 744                                  | 683                                 | 17                         | 17                                   | .77                                 |
| 26      | 10                         | 7                                    | .18                                 | 75                         | 197                                  | 50                                  | 16                         | 9                                    | .38                                 |
| 27      | 9.7                        | 8                                    | .20                                 | 30                         | 28                                   | 2.4                                 | 16                         | 9                                    | .36                                 |
| 28      | 19                         | 30                                   | 1.6                                 | 31                         | 39                                   | 5.1                                 | 14                         | 10                                   | .39                                 |
| 29      | 11                         | 20                                   | .64                                 | 43                         | 79                                   | 10                                  | 13                         | 7                                    | .27                                 |
| 30      | 8.4                        | 6                                    | .13                                 | 27                         | 40                                   | 3.1                                 | 13                         | 5                                    | .20                                 |
| 31      | ---                        | ---                                  | ---                                 | 21                         | 15                                   | .90                                 | ---                        | ---                                  | ---                                 |
| TOTAL   | 329.7                      | ---                                  | 22.85                               | 1042.0                     | ---                                  | 1292.06                             | 859                        | ---                                  | 1718.92                             |

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DAY   | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) | MEAN<br>DISCHARGE<br>(CFS) | MEAN<br>CONCEN-<br>TRATION<br>(MG/L) | SEDIMENT<br>DISCHARGE<br>(TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY  |                            |                                      | AUGUST                              |                            |                                      | SEPTEMBER                           |                            |                                      |                                     |
| 1     | 13                         | 5                                    | .18                                 | 76                         | 197                                  | 84                                  | 59                         | 55                                   | 15                                  |
| 2     | 62                         | 208                                  | 112                                 | 75                         | 192                                  | 47                                  | 248                        | 1800                                 | 4740                                |
| 3     | 114                        | 507                                  | 650                                 | 49                         | 93                                   | 13                                  | 156                        | 395                                  | 168                                 |
| 4     | 41                         | 75                                   | 11                                  | 47                         | 101                                  | 16                                  | 181                        | 688                                  | 447                                 |
| 5     | 21                         | 18                                   | 1.0                                 | 40                         | 95                                   | 10                                  | 138                        | 416                                  | 157                                 |
| 6     | 122                        | 489                                  | 505                                 | 54                         | 131                                  | 27                                  | 280                        | 1820                                 | 5300                                |
| 7     | e72                        | 163                                  | e38                                 | 165                        | 795                                  | 1160                                | 148                        | 209                                  | 87                                  |
| 8     | e36                        | 17                                   | e1.7                                | 159                        | 676                                  | 466                                 | 113                        | 22                                   | 6.9                                 |
| 9     | 25                         | 12                                   | .80                                 | 120                        | 297                                  | 125                                 | 99                         | 12                                   | 3.3                                 |
| 10    | 51                         | 168                                  | 65                                  | 142                        | 980                                  | 469                                 | 85                         | 9                                    | 2.1                                 |
| 11    | 42                         | 72                                   | 8.7                                 | 162                        | 625                                  | 349                                 | 85                         | 56                                   | 18                                  |
| 12    | 28                         | 23                                   | 1.8                                 | e112                       | 206                                  | e67                                 | 160                        | 639                                  | 856                                 |
| 13    | 23                         | 20                                   | 1.3                                 | e82                        | 36                                   | e8.2                                | 131                        | 164                                  | 64                                  |
| 14    | 22                         | 26                                   | 1.6                                 | e69                        | 16                                   | e3.0                                | 88                         | 19                                   | 4.6                                 |
| 15    | 23                         | 32                                   | 2.2                                 | 64                         | 93                                   | 19                                  | 76                         | 28                                   | 5.7                                 |
| 16    | 28                         | 38                                   | 3.3                                 | 56                         | 122                                  | 19                                  | 75                         | 46                                   | 9.3                                 |
| 17    | 31                         | 47                                   | 5.0                                 | 58                         | 92                                   | 15                                  | 78                         | 116                                  | 29                                  |
| 18    | 107                        | 332                                  | 192                                 | 49                         | 28                                   | 3.8                                 | 91                         | 170                                  | 54                                  |
| 19    | 72                         | 137                                  | 30                                  | 43                         | 12                                   | 1.4                                 | 79                         | 114                                  | 26                                  |
| 20    | 62                         | 107                                  | 23                                  | 64                         | 124                                  | 32                                  | 92                         | 172                                  | 80                                  |
| 21    | 40                         | 59                                   | 6.7                                 | 63                         | 63                                   | 11                                  | 120                        | 1140                                 | 1240                                |
| 22    | 32                         | 17                                   | 1.5                                 | 71                         | 100                                  | 22                                  | e4420                      | 15900                                | e356000                             |
| 23    | 65                         | 189                                  | 98                                  | 61                         | 36                                   | 6.4                                 | 422                        | 648                                  | 853                                 |
| 24    | 45                         | 121                                  | 16                                  | 48                         | 16                                   | 2.2                                 | 287                        | 151                                  | 118                                 |
| 25    | 36                         | 53                                   | 5.1                                 | 152                        | 413                                  | 185                                 | 258                        | 80                                   | 56                                  |
| 26    | 33                         | 30                                   | 2.7                                 | 85                         | 227                                  | 53                                  | 244                        | 43                                   | 29                                  |
| 27    | 92                         | 404                                  | 342                                 | 263                        | 1280                                 | 3160                                | 237                        | 24                                   | 15                                  |
| 28    | 69                         | 76                                   | 16                                  | 130                        | 200                                  | 86                                  | 233                        | 13                                   | 8.4                                 |
| 29    | 47                         | 17                                   | 2.1                                 | e81                        | 15                                   | 3.2                                 | 336                        | 1120                                 | 2540                                |
| 30    | 38                         | 9                                    | .90                                 | e68                        | 10                                   | 1.8                                 | 224                        | 85                                   | 55                                  |
| 31    | 42                         | 37                                   | 5.9                                 | e64                        | 7                                    | 1.3                                 | ---                        | ---                                  | ---                                 |
| TOTAL | 1534                       | ---                                  | 2150.48                             | 2772                       | ---                                  | 6466.3                              | 9243                       | ---                                  | 372987.3                            |
| YEAR  | 22435.2                    |                                      | 393773.00                           |                            |                                      |                                     |                            |                                      |                                     |

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE  | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>SUS-<br>PENDED<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDED<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) |
|-------|------|-----------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| MAY   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 25... | 1130 | 32                                                                    | 164                                                   | 14                                                                        | 99                                                                       |
| JUL   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 03... | 1730 | 794                                                                   | 3930                                                  | 8430                                                                      | 94                                                                       |
| 27... | 1730 | 517                                                                   | 2500                                                  | 3490                                                                      | 90                                                                       |
| AUG   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 10... | 1930 | 586                                                                   | 4590                                                  | 7260                                                                      | 91                                                                       |
| 11... | 1635 | 233                                                                   | 1180                                                  | 742                                                                       | 93                                                                       |
| SEP   |      |                                                                       |                                                       |                                                                           |                                                                          |
| 21... | 2315 | 599                                                                   | 9980                                                  | 16100                                                                     | 99                                                                       |
| 23... | 1630 | 360                                                                   | 248                                                   | 241                                                                       | 92                                                                       |

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE         | TIME | DIS-<br>CHARGE,<br>INST.<br>CUBIC<br>FEET<br>PER<br>SECOND<br>(00061) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(MG/L)<br>(80154) | SEDI-<br>MENT,<br>DIS-<br>CHARGE,<br>SUS-<br>PENDE<br>(T/DAY)<br>(80155) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.002 MM<br>(70326) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.004 MM<br>(70327) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.008 MM<br>(70328) |
|--------------|------|-----------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|
| OCT<br>09... | 1859 | 628                                                                   | 8620                                                                    | 14600                                                                    | 27                                                                      | 37                                                                      | 49                                                                      |
| NOV<br>19... | 1850 | 806                                                                   | 5330                                                                    | 11600                                                                    | 40                                                                      | 50                                                                      | 64                                                                      |
| JUN<br>17... | 1600 | 1760                                                                  | 7740                                                                    | 36800                                                                    | 37                                                                      | 48                                                                      | 62                                                                      |
| AUG<br>07... | 1645 | 1040                                                                  | 5460                                                                    | 15300                                                                    | 32                                                                      | 45                                                                      | 60                                                                      |
| SEP<br>22... | 0815 | 5510                                                                  | 22300                                                                   | 332000                                                                   | 35                                                                      | 51                                                                      | 69                                                                      |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.016 MM<br>(70329) | SED.<br>SUSP.<br>FALL<br>DIAM.<br>% FINER<br>THAN<br>.031 MM<br>(70330) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.062 MM<br>(70331) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.125 MM<br>(70332) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.250 MM<br>(70333) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>.500 MM<br>(70334) | SED.<br>SUSP.<br>SIEVE<br>DIAM.<br>% FINER<br>THAN<br>1.00 MM<br>(70335) |
|--------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| OCT<br>09... | 60                                                                      | 72                                                                      | 76                                                                       | 89                                                                       | 97                                                                       | 100                                                                      | 100                                                                      |
| NOV<br>19... | 75                                                                      | 83                                                                      | 86                                                                       | 94                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |
| JUN<br>17... | 73                                                                      | 82                                                                      | 86                                                                       | 95                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |
| AUG<br>07... | 72                                                                      | 85                                                                      | 89                                                                       | 96                                                                       | 99                                                                       | 100                                                                      | 100                                                                      |
| SEP<br>22... | 82                                                                      | 93                                                                      | 95                                                                       | 99                                                                       | 100                                                                      | 100                                                                      | 100                                                                      |

## RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°08'36", long 67°08'57", Hydrologic Unit 21010003, at bridge on Highway 100, 1.4 mi (2.3 km), west of Hormigueros, and 2.0 mi (3.2 km), downstream from Río Rosario.

DRAINAGE AREA.--120 mi<sup>2</sup> (311 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual low-flow measurements 1959, monthly measurements April 1959 to November 1967, January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Previous to Nov. 7, 1980, at site 0.3 mi (0.5 km) upstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Daily discharges affected by sewage treatment plant about 2.1 mi (3.4 km) upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG   | SEP    |
|-------|-------|------|------|------|------|------|------|------|------|------|-------|--------|
| 1     | 216   | 91   | 51   | 35   | 15   | 20   | 16   | e17  | 97   | 45   | 93    | 301    |
| 2     | 115   | 87   | 49   | 42   | 15   | 21   | 14   | e16  | 81   | 141  | 256   | 748    |
| 3     | 89    | 85   | 55   | 28   | 13   | 19   | 14   | e15  | 121  | 279  | 289   | 1550   |
| 4     | 76    | 83   | 47   | 26   | 17   | 19   | 12   | e13  | 293  | 236  | 109   | 1200   |
| 5     | 70    | 80   | 44   | 32   | 439  | 19   | 11   | e14  | 321  | 95   | 91    | 1030   |
| 6     | 64    | 77   | 42   | 28   | 146  | 20   | 11   | e96  | 212  | 189  | 112   | 917    |
| 7     | 90    | 75   | 40   | 56   | 74   | 20   | 13   | e120 | 109  | 219  | 462   | 1050   |
| 8     | 206   | 73   | 38   | 54   | 63   | 21   | 51   | e43  | 91   | 108  | 1070  | 631    |
| 9     | 651   | 70   | 37   | 29   | 77   | 19   | 25   | e97  | 99   | 84   | 551   | 467    |
| 10    | 1120  | 78   | 36   | 26   | 54   | 18   | 16   | e35  | 103  | 89   | 420   | 342    |
| 11    | 1070  | 77   | 36   | 24   | 46   | 19   | 13   | e23  | 84   | 127  | 538   | 246    |
| 12    | 810   | 104  | 35   | 46   | 41   | 18   | 13   | e19  | 64   | 80   | 390   | 658    |
| 13    | 592   | 81   | 33   | 35   | 36   | 18   | 12   | e17  | 67   | 68   | 218   | 1050   |
| 14    | 2770  | 70   | 32   | 28   | 33   | 22   | 11   | 16   | 57   | 64   | 192   | 358    |
| 15    | 2510  | 122  | 31   | 27   | 35   | 47   | e10  | 19   | 48   | 73   | 324   | 243    |
| 16    | 1140  | 299  | 30   | 24   | 33   | 32   | e50  | 46   | 48   | 72   | 223   | 214    |
| 17    | 655   | 113  | 29   | 23   | 28   | 26   | e600 | 33   | 362  | 103  | 161   | 200    |
| 18    | 622   | 88   | 31   | 24   | 25   | 106  | e60  | 51   | 329  | 331  | 137   | 238    |
| 19    | 406   | 121  | 31   | 24   | 24   | 39   | e24  | 230  | 126  | 313  | 115   | 273    |
| 20    | 308   | 234  | 31   | 23   | 24   | 25   | e46  | 346  | 86   | 144  | 169   | 248    |
| 21    | 251   | 98   | 29   | 22   | 22   | 20   | e24  | 313  | 71   | 126  | 167   | 343    |
| 22    | 215   | 79   | 28   | 21   | 22   | 17   | e18  | 290  | 74   | 106  | 169   | e20200 |
| 23    | 168   | 69   | 29   | 19   | 21   | 15   | e15  | 95   | 94   | 135  | 172   | e6460  |
| 24    | 148   | 63   | 36   | 18   | 21   | 14   | e13  | 76   | 172  | 111  | 122   | 2280   |
| 25    | 135   | 60   | 29   | 18   | 20   | 13   | e19  | 452  | 122  | 82   | 1370  | 1440   |
| 26    | e130  | 73   | 27   | 17   | 21   | 14   | e100 | 565  | 81   | 73   | 847   | e1310  |
| 27    | 117   | 67   | 26   | 17   | 22   | 15   | e33  | 155  | 66   | 171  | 830   | e869   |
| 28    | e111  | 56   | 26   | 16   | 21   | 15   | e39  | 163  | 58   | 214  | 1180  | 684    |
| 29    | 105   | 53   | 25   | 16   | ---  | 14   | e33  | 551  | 51   | 139  | 438   | 632    |
| 30    | 101   | 63   | 25   | 16   | ---  | 14   | e19  | 215  | 48   | 98   | 282   | 631    |
| 31    | 95    | ---  | 29   | 15   | ---  | 21   | ---  | 135  | ---  | 76   | 205   | ---    |
| TOTAL | 15156 | 2789 | 1067 | 829  | 1408 | 720  | 1335 | 4276 | 3635 | 4191 | 11702 | 46813  |
| MEAN  | 489   | 93.0 | 34.4 | 26.7 | 50.3 | 23.2 | 44.5 | 138  | 121  | 135  | 377   | 1560   |
| MAX   | 2770  | 299  | 55   | 56   | 439  | 106  | 600  | 565  | 362  | 331  | 1370  | 20200  |
| MIN   | 64    | 53   | 25   | 15   | 13   | 13   | 10   | 13   | 48   | 45   | 91    | 200    |
| AC-FT | 30060 | 5530 | 2120 | 1640 | 2790 | 1430 | 2650 | 8480 | 7210 | 8310 | 23210 | 92850  |
| CFSM  | 4.07  | .77  | .29  | .22  | .42  | .19  | .37  | 1.15 | 1.01 | 1.13 | 3.15  | 13.0   |
| IN.   | 4.70  | .86  | .33  | .26  | .44  | .22  | .41  | 1.33 | 1.13 | 1.30 | 3.63  | 14.51  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 462  | 397  | 123  | 59.5 | 51.4 | 45.6 | 68.6 | 167  | 105  | 99.9 | 223  | 491  |
| MAX  | 1254 | 1518 | 422  | 112  | 119  | 244  | 316  | 636  | 504  | 240  | 757  | 2075 |
| (WY) | 1986 | 1978 | 1976 | 1997 | 1996 | 1989 | 1989 | 1980 | 1979 | 1984 | 1988 | 1975 |
| MIN  | 97.5 | 42.7 | 15.4 | 13.8 | 13.9 | 10.6 | 16.1 | 12.7 | 9.23 | 26.4 | 42.3 | 78.5 |
| (WY) | 1992 | 1992 | 1992 | 1973 | 1977 | 1977 | 1977 | 1977 | 1977 | 1976 | 1976 | 1997 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

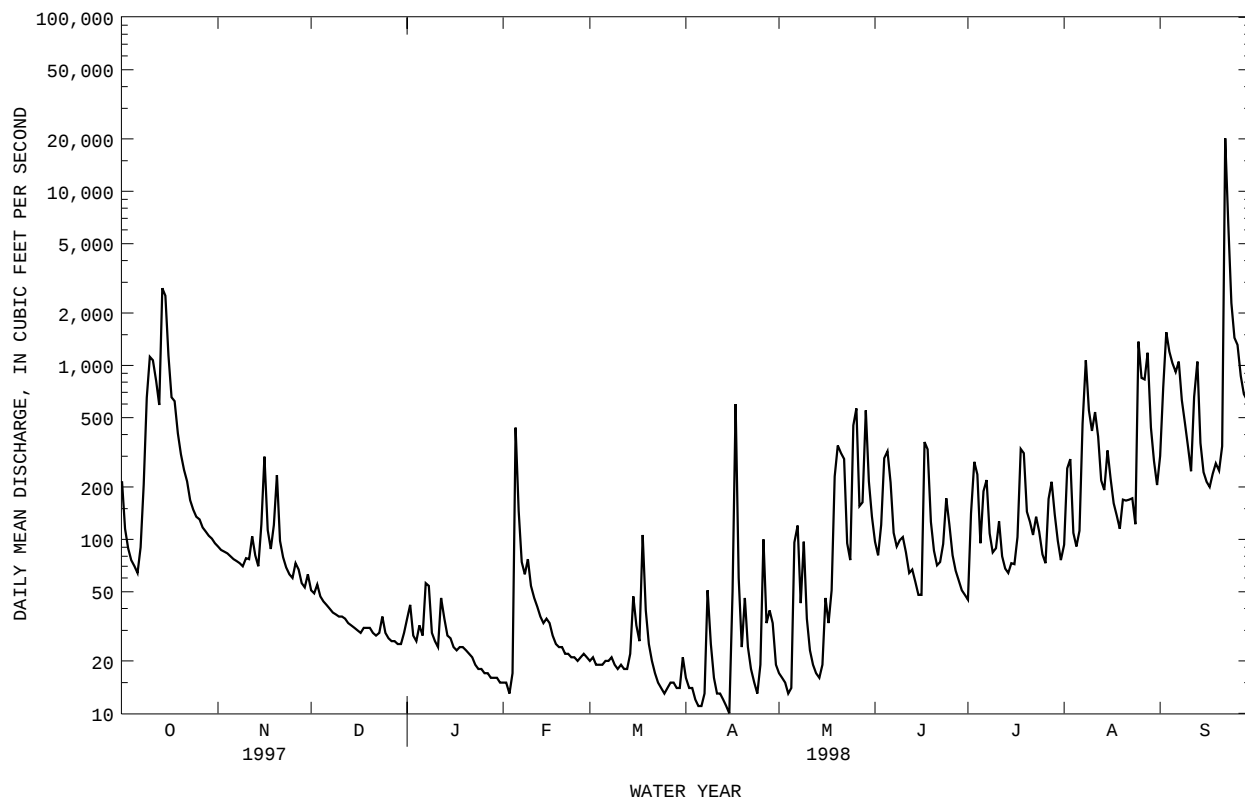
## FOR 1998 WATER YEAR

## WATER YEARS 1973 - 1998

|                          |       |        |        |
|--------------------------|-------|--------|--------|
| ANNUAL TOTAL             | 36049 | 93921  | 193    |
| ANNUAL MEAN              | 98.8  | 257    | 402    |
| HIGHEST ANNUAL MEAN      |       |        | 69.6   |
| LOWEST ANNUAL MEAN       |       |        | 1979   |
| HIGHEST DAILY MEAN       | 2770  | Oct 14 | 20200  |
| LOWEST DAILY MEAN        | 10    | Jun 16 | 10     |
| ANNUAL SEVEN-DAY MINIMUM | 11    | Jun 10 | 13     |
| INSTANTANEOUS PEAK FLOW  |       |        | 40600  |
| INSTANTANEOUS PEAK STAGE |       |        | 28.03  |
| INSTANTANEOUS LOW FLOW   |       |        | Sep 22 |
| ANNUAL RUNOFF (AC-FT)    | 71500 | 186300 | 139900 |
| ANNUAL RUNOFF (CFSM)     | .82   | 2.14   | 1.61   |
| ANNUAL RUNOFF (INCHES)   | 11.18 | 29.12  | 21.86  |
| 10 PERCENT EXCEEDS       | 150   | 551    | 419    |
| 50 PERCENT EXCEEDS       | 47    | 71     | 75     |
| 90 PERCENT EXCEEDS       | 19    | 17     | 21     |

e Estimated

RIO GUANAJIBO BASIN  
50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued



## RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 23... | 0840 | 175                                             | 425                                     | 7.2                                      | 25.5                               | 3.6                       | 5.3                               | 64                                                | <10                                                  | 580                                                 | 710                                             |
| MAR 27... | 0750 | 16                                              | 414                                     | 7.1                                      | 24.5                               | 7.1                       | 6.1                               | 74                                                | <10                                                  | 22000                                               | 330                                             |
| JUN 11... | 1015 | 83                                              | 408                                     | 6.6                                      | 26.5                               | 59                        | 6.3                               | 79                                                | <10                                                  | 3400                                                | 2900                                            |
| SEP 11... | 0745 | 250                                             | 487                                     | 7.0                                      | 26.5                               | 31                        | 5.6                               | 69                                                | <10                                                  | 4500                                                | 260                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 23... | 190                                     | 26                                      | 31                                          | 14                                      | .4                                | 2.5                                        | 180                                                 | <.5                               | 16                                       | 15                                         |
| MAR 27... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 210                                                 | --                                | --                                       | --                                         |
| JUN 11... | 180                                     | 26                                      | 29                                          | 16                                      | .5                                | 2.9                                        | 180                                                 | --                                | 17                                       | 18                                         |
| SEP 11... | 240                                     | 44                                      | 32                                          | 8.4                                     | .2                                | 4.7                                        | 200                                                 | <1.0                              | 12                                       | 11                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 23... | <.10                                      | 30                                        | 242                                                     | 114                                       | 9                                                      | 1.04                                         | .055                                         | 1.10                                         | .020                                         | .34                                          |
| MAR 27... | --                                        | --                                        | --                                                      | --                                        | 6                                                      | .940                                         | .010                                         | .950                                         | .010                                         | .20                                          |
| JUN 11... | <.10                                      | 30                                        | 246                                                     | 55.5                                      | 108                                                    | .950                                         | .020                                         | .970                                         | .050                                         | .23                                          |
| SEP 11... | .11                                       | 17                                        | 250                                                     | 169                                       | 74                                                     | --                                           | .011                                         | <.020                                        | .060                                         | .68                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 23... | .36                                                     | 1.5                                  | 6.5                                    | .160                                  | <1                                 | <100                                            | 50                                            | <1                                               | 7                                                  | <10                                             |
| MAR 27... | .20                                                     | 1.0                                  | 4.5                                    | .050                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 11... | .28                                                     | 1.3                                  | 5.5                                    | .290                                  | <1                                 | 100                                             | 60                                            | <1                                               | 23                                                 | 13                                              |
| SEP 11... | .74                                                     | --                                   | --                                     | .030                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

[illegible]

66°45'

67°10'40"

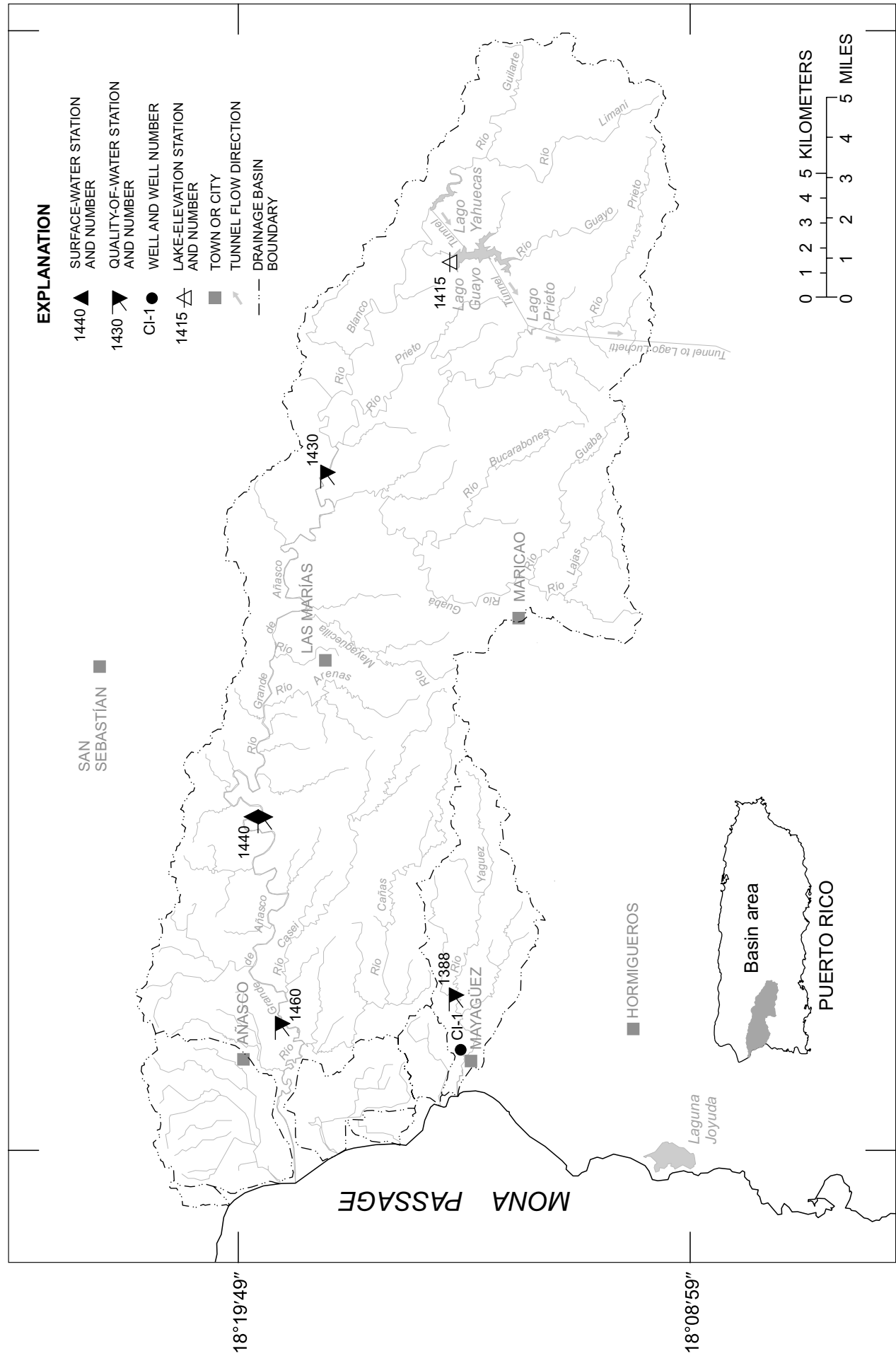


Figure 24. Río Yagüez to Río Grande de Añasco basins.

## RIO YAGÜEZ BASIN

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°12'31", long 67°07'07", at steel-truss bridge on unnumbered paved road about 800 ft (244 m) south of Highway 106, 1.8 mi (2.9 km) west of Highways 106 and 352 junction, and 1.4 mi (2.3 km) east-northeast from Mayagüez plaza.

DRAINAGE AREA.--6.7 mi<sup>2</sup> (17.3 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 22... | 1400 | 13                                              | 300                                     | 7.6                                      | 26.0                               | 1.4                       | 6.5                               | 80                                                | <10                                                  | 570                                                 | 3300                                            |
| MAR 26... | 1300 | 1.5                                             | 307                                     | 8.0                                      | 25.5                               | .55                       | 9.7                               | 119                                               | <10                                                  | 340                                                 | K140                                            |
| JUN 04... | 1400 | 2.1                                             | 321                                     | 7.7                                      | 27.5                               | 5.5                       | 7.3                               | 93                                                | <10                                                  | K1600                                               | 2000                                            |
| SEP 10... | 1320 | 24                                              | 279                                     | 7.4                                      | 27.0                               | 4.9                       | 8.0                               | 101                                               | <10                                                  | K730                                                | 820                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 22... | 130                                     | 35                                      | 11                                          | 11                                      | .4                                | 2.2                                        | 130                                                 | <.5                               | 6.9                                      | 9.5                                        |
| MAR 26... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 160                                                 | --                                | --                                       | --                                         |
| JUN 04... | 140                                     | 37                                      | 11                                          | 12                                      | .5                                | 2.6                                        | 140                                                 | --                                | 9.7                                      | 11                                         |
| SEP 10... | 120                                     | 32                                      | 9.1                                         | 9.9                                     | .4                                | 2.2                                        | 120                                                 | <1.0                              | 6.7                                      | 8.5                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 22... | <.10                                      | 31                                        | 183                                                     | 6.28                                      | 1                                                      | --                                           | <.010                                        | 1.00                                         | .020                                         | --                                           |
| MAR 26... | --                                        | --                                        | --                                                      | --                                        | 1                                                      | .950                                         | .010                                         | .960                                         | .020                                         | .20                                          |
| JUN 04... | <.10                                      | 31                                        | 198                                                     | 1.14                                      | 1                                                      | --                                           | <.010                                        | .520                                         | .030                                         | .21                                          |
| SEP 10... | <.10                                      | 30                                        | 170                                                     | 11.1                                      | 5                                                      | .988                                         | .012                                         | 1.00                                         | .020                                         | --                                           |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 22... | <.20                                                    | --                                   | --                                     | .020                                  | <1                                 | <100                                            | 30                                            | <1                                               | <1                                                 | <10                                             |
| MAR 26... | .23                                                     | .86                                  | 3.7                                    | .070                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 04... | .24                                                     | .76                                  | 3.4                                    | .040                                  | <1                                 | <100                                            | 40                                            | <1                                               | 1                                                  | <10                                             |
| SEP 10... | <.20                                                    | --                                   | --                                     | .040                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO YAGÜEZ BASIN

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GRANDE DE AÑASCO BASIN

50141500 LAGO GUAYO AT DAMSITE NEAR CASTAÑER, PR

LOCATION.--Lat 18°12'46", long 66°50'06", Hydrologic Unit 21010003, at Guayo Dam on Río Guayo, 1.1 mi (1.8 km), southwest of Lago Yahuecas, 2.6 mi (4.2 km), southwest of Lago Prieto, 2.1 mi (3.4 km) north of Castañer, and 6.0 mi (9.6 km) west of Adjuntas.

DRAINAGE AREA.--9.60 mi<sup>2</sup> (24.86 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--April 1980 to January 1985, June 1989 to current year. Prior to October 1994, published as Lago Guayo near Castañer.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guayo was completed in 1956. The dam is on Río Guayo and is the largest in the southwestern Puerto Rico project. The maximum storage is 17,400 ac-ft (21.5 hm<sup>3</sup>), for power and irrigation. The dam is a concrete gravity structure with a total length of 555 ft (169 m), a maximum structural height of 190 ft (58 m), and a maximum width at the base of 145 ft (44 m). The ungated overflow spillway with a crest elevation of 60.00 ft (18.29 m), and a crest length of 220 ft (67 m) was designed to pass a maximum flood of 30,200 ft<sup>3</sup>/s (855 m<sup>3</sup>/s) at a reservoir elevation of 70.00 ft (21.34 m). Timber flashboards that were added to increase storage capacity were subsequently removed and their use discontinued. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 1465.35 ft (446.64 m), Sept. 22, 1998; minimum elevation recorded, 1415.43 ft (431.42 m), June 2, 1990, but may have been less during period of no gage-height record June 2-5, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1465.35 ft (446.64 m), Sept. 22; minimum elevation 1434.66 ft (437.28 m), Feb 25.

Capacity Table  
(based on data from Puerto Rico Water Resources Authority)

| Elevation, in feet |  | Contents, in acre-feet |  | Elevation, in feet |  | Contents, in acre-feet |  |
|--------------------|--|------------------------|--|--------------------|--|------------------------|--|
| 1,415              |  | 3,960                  |  | 1,460              |  | 13,550                 |  |
| 1,449              |  | 10,660                 |  | 1,465              |  | 15,000                 |  |

| ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998<br>DAILY OBSERVATION AT 2400 HOURS |         |         |         |         |         |         |         |         |         |         |         |         |
|-----------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| DAY                                                                                                 | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     | JUN     | JUL     | AUG     | SEP     |
| 1                                                                                                   | 1441.69 | 1451.58 | 1453.10 | 1456.35 | 1444.11 | 1435.58 | 1441.53 | 1448.91 | 1460.17 | 1458.63 | 1444.73 | 1459.81 |
| 2                                                                                                   | 1441.95 | 1451.82 | 1453.33 | 1456.11 | 1443.29 | 1435.76 | 1442.70 | 1449.07 | 1459.21 | 1459.80 | 1445.41 | 1460.30 |
| 3                                                                                                   | 1440.94 | 1450.73 | 1453.56 | 1456.25 | 1441.27 | 1435.93 | A       | 1449.22 | 1459.64 | 1460.20 | 1445.91 | 1460.30 |
| 4                                                                                                   | 1441.16 | 1449.67 | 1453.60 | 1456.38 | 1440.46 | 1436.12 | 1443.52 | 1449.02 | 1460.39 | 1460.17 | 1446.33 | 1460.38 |
| 5                                                                                                   | 1441.38 | 1449.67 | 1453.81 | 1456.56 | 1444.61 | 1436.28 | 1443.74 | 1449.16 | 1459.86 | 1460.13 | 1446.70 | 1459.92 |
| 6                                                                                                   | 1441.66 | 1448.89 | 1454.01 | 1456.79 | 1443.74 | 1436.55 | 1443.67 | 1449.52 | 1460.21 | 1460.60 | 1448.03 | 1460.04 |
| 7                                                                                                   | 1442.91 | 1447.93 | 1453.99 | 1455.88 | 1442.38 | 1436.82 | 1444.94 | 1449.84 | 1460.20 | 1459.66 | 1452.59 | 1459.48 |
| 8                                                                                                   | 1444.54 | 1446.40 | 1454.19 | 1455.78 | 1442.96 | 1437.00 | 1445.98 | 1452.88 | 1459.93 | 1458.87 | 1454.25 | 1459.19 |
| 9                                                                                                   | 1445.79 | 1446.66 | 1454.01 | 1455.80 | 1442.46 | 1437.15 | 1446.34 | 1454.06 | 1459.41 | 1457.31 | 1455.11 | 1458.08 |
| 10                                                                                                  | 1446.67 | 1447.44 | 1454.21 | 1455.95 | 1441.67 | 1437.30 | 1446.43 | 1454.41 | 1459.09 | 1456.55 | 1455.78 | 1457.22 |
| 11                                                                                                  | 1448.20 | 1448.36 | 1454.30 | 1456.09 | 1440.86 | 1437.45 | 1446.65 | 1454.67 | 1458.75 | 1455.85 | 1456.85 | 1457.87 |
| 12                                                                                                  | 1451.54 | 1449.06 | 1454.50 | 1455.90 | 1440.13 | 1437.59 | 1446.91 | 1454.86 | 1457.84 | 1455.56 | 1457.65 | 1459.49 |
| 13                                                                                                  | 1454.24 | 1449.48 | 1454.68 | 1455.72 | 1440.36 | 1437.75 | 1446.69 | 1455.04 | 1457.13 | 1453.79 | 1458.25 | 1460.32 |
| 14                                                                                                  | 1458.09 | 1449.91 | 1454.87 | 1454.84 | 1440.64 | 1437.85 | 1446.92 | 1455.28 | 1457.46 | 1452.72 | 1457.63 | 1459.48 |
| 15                                                                                                  | 1460.75 | 1450.23 | 1455.05 | 1454.32 | 1440.92 | 1438.05 | 1447.15 | 1455.83 | 1457.76 | 1452.07 | 1457.33 | 1460.28 |
| 16                                                                                                  | 1460.41 | 1450.67 | 1455.21 | 1453.42 | 1440.32 | 1438.30 | 1447.37 | 1456.19 | 1458.07 | 1451.21 | 1457.42 | 1460.32 |
| 17                                                                                                  | 1460.45 | 1450.55 | 1455.28 | 1453.58 | 1439.44 | 1438.74 | 1446.76 | 1456.38 | 1459.62 | 1451.36 | 1456.61 | 1460.33 |
| 18                                                                                                  | 1459.93 | 1450.87 | 1455.37 | 1453.77 | 1438.10 | 1438.70 | 1447.02 | 1456.64 | A       | 1452.27 | 1455.76 | 1460.48 |
| 19                                                                                                  | 1459.90 | 1450.86 | 1455.49 | 1453.94 | 1437.22 | 1438.88 | 1447.27 | 1458.80 | 1459.40 | 1451.97 | 1455.54 | 1460.28 |
| 20                                                                                                  | 1458.92 | 1451.19 | 1455.39 | 1453.25 | 1437.13 | 1439.03 | 1447.47 | 1461.13 | 1459.11 | 1451.83 | 1454.68 | 1460.32 |
| 21                                                                                                  | 1458.57 | 1451.49 | 1455.57 | 1452.45 | 1436.80 | 1439.19 | 1447.66 | 1461.31 | 1459.45 | 1451.00 | 1454.33 | 1462.46 |
| 22                                                                                                  | 1457.99 | 1451.63 | 1455.56 | 1451.89 | 1436.45 | 1439.32 | 1446.96 | 1460.46 | 1459.01 | 1449.71 | 1453.20 | 1461.23 |
| 23                                                                                                  | 1457.27 | 1451.67 | 1455.74 | 1451.29 | 1435.80 | 1439.45 | 1447.14 | 1460.27 | 1458.21 | 1450.14 | 1453.46 | 1460.83 |
| 24                                                                                                  | 1456.98 | 1451.33 | 1455.73 | 1450.44 | 1434.90 | 1439.58 | 1447.30 | 1460.24 | 1458.05 | 1449.58 | 1453.18 | 1460.66 |
| 25                                                                                                  | 1456.43 | 1451.54 | 1455.89 | 1448.32 | 1434.73 | 1439.73 | 1447.52 | 1460.23 | 1458.37 | 1449.99 | 1456.07 | 1460.67 |
| 26                                                                                                  | 1455.69 | 1451.85 | 1456.05 | 1447.31 | 1434.96 | 1439.88 | 1447.74 | 1459.64 | 1458.65 | 1450.03 | 1455.95 | 1460.49 |
| 27                                                                                                  | 1454.71 | 1452.12 | 1456.20 | 1446.11 | 1435.18 | 1440.04 | 1448.09 | 1459.51 | 1457.74 | 1449.05 | 1457.44 | 1460.43 |
| 28                                                                                                  | 1453.29 | 1452.37 | 1456.31 | 1445.08 | 1435.39 | 1440.16 | 1448.49 | 1458.70 | 1458.01 | 1448.53 | 1458.73 | 1460.40 |
| 29                                                                                                  | A       | 1452.62 | 1456.45 | 1444.01 | ---     | 1440.38 | 1448.69 | 1459.25 | 1458.26 | 1447.44 | 1459.81 | 1460.42 |
| 30                                                                                                  | A       | 1452.87 | 1456.59 | 1443.79 | ---     | 1440.76 | 1448.84 | 1459.76 | 1458.40 | 1446.31 | 1459.85 | 1460.39 |
| 31                                                                                                  | 1451.95 | ---     | 1456.51 | 1443.96 | ---     | 1440.20 | ---     | 1460.11 | ---     | 1444.65 | 1459.73 | ---     |
| MAX                                                                                                 | ---     | 1452.87 | 1456.59 | 1456.79 | 1444.61 | 1440.76 | ---     | 1461.31 | ---     | 1460.60 | 1459.85 | 1462.46 |
| MIN                                                                                                 | ---     | 1446.40 | 1453.10 | 1443.79 | 1434.73 | 1435.58 | ---     | 1448.91 | ---     | 1444.65 | 1444.73 | 1457.22 |

A No gage-height record

## RIO GRANDE DE AÑASCO BASIN

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'26", Long 66°55'00", at bridge on Highway 124, 0.7 mi (1.1 km) downstream from confluence of Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest of Lares plaza.

DRAINAGE AREA.--26.3 mi<sup>2</sup> (68.1 km<sup>2</sup>) this does not include 36.2 mi<sup>2</sup> (93.8 km<sup>2</sup>) which contributes only during high floods, and 3.5 mi<sup>2</sup> (9.1 km<sup>2</sup>) which contributes only part of its storm runoff.

PERIOD OF RECORD.--Water years 1959-68, 1970 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (MG/L) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|----------------------------------------------------------|------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| OCT 20... | 1100 | 85                                              | 269                                     | 8.0                                            | 25.5                               | 3.0                       | 7.7                               | 93                                                       | <10                                                  | 37000                                          | K160                                             |
| MAR 05... | 0905 | 10                                              | 317                                     | 8.0                                            | 23.0                               | 1.7                       | 8.3                               | 97                                                       | <10                                                  | 200                                            | K91                                              |
| JUN 02... | 1400 | 88                                              | 251                                     | 7.2                                            | 28.5                               | 3.2                       | 7.1                               | 94                                                       | <10                                                  | 220                                            | K1100                                            |
| SEP 09... | 1130 | 100                                             | 267                                     | 7.7                                            | 27.5                               | 4.0                       | 7.5                               | 97                                                       | <10                                                  | 240                                            | 200                                              |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 20... | 110                                     | 30                                      | 8.9                                         | 10                                      | .4                                | 2.3                                        | 100                                                 | <.5                               | 16                                       | 10                                         |
| MAR 05... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 130                                                 | --                                | --                                       | --                                         |
| JUN 02... | 110                                     | 29                                      | 8.9                                         | 20                                      | .8                                | 2.3                                        | 93                                                  | --                                | 9.6                                      | 29                                         |
| SEP 09... | 100                                     | 26                                      | 8.7                                         | 19                                      | .8                                | 3.1                                        | 98                                                  | <1.0                              | 10                                       | 26                                         |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 20... | <.10                                      | 31                                        | 168                                                     | 38.6                                      | 4                                                      | 1.20                                         | .150                                         | 1.40                                         | 1.50                                         | .86                                          |
| MAR 05... | --                                        | --                                        | --                                                      | --                                        | <1                                                     | --                                           | <.010                                        | .420                                         | .030                                         | --                                           |
| JUN 02... | <.10                                      | 25                                        | 180                                                     | 42.7                                      | 3                                                      | --                                           | <.010                                        | .310                                         | .050                                         | .63                                          |
| SEP 09... | <.10                                      | 28                                        | 196                                                     | 52.9                                      | 6                                                      | 1.79                                         | .010                                         | 1.80                                         | .010                                         | --                                           |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 20... | 2.4                                                     | 3.8                                  | 17                                     | .940                                  | <1                                 | <100                                            | 10                                            | <1                                               | <1                                                 | <10                                             |
| MAR 05... | <.20                                                    | --                                   | --                                     | .030                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 02... | .68                                                     | .99                                  | 4.4                                    | .040                                  | <1                                 | <100                                            | 20                                            | <1                                               | <1                                                 | 12                                              |
| SEP 09... | <.20                                                    | --                                   | --                                     | .020                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE AÑASCO BASIN

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR

LOCATION.--Lat 18°17'05", long 67°03'05", Hydrologic Unit 21010003, on left bank, at downstream side of bridge on Highway 108, 0.4 mi (0.6 km) downstream from Quebrada La Zumbadora, 4.4 mi (7.1 km) northwest of Las Marias, 5.4 mi (8.7 km) southwest of San Sebastian.

DRAINAGE AREA.--94.3 mi<sup>2</sup> (244.2 km<sup>2</sup>), does not include 36.2 mi<sup>2</sup> (93.8 km<sup>2</sup>) which contributes only during high floods, and 3.5 mi<sup>2</sup> (9.1 km<sup>2</sup>) which contributes only part of its storm runoff.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 103.72 ft (31.614 m) above mean sea level (Puerto Rico Department of Public Works bench mark). Previous to Oct. 30, 1975, at site 600 ft (180 m) upstream at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Transbasin diversion (except during floods) to Rio Yauco basin for hydroelectric power and irrigation above Lago Guayo, Yahuecas, and Prieto, combined useable storage 17,300 acre-ft (21.3 km<sup>3</sup>). Limited storm runoff is contributed to basin by 3.5 mi<sup>2</sup> (9.1 km<sup>2</sup>) above Rio Toro Diversion dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN  | FEB  | MAR  | APR  | MAY   | JUN   | JUL   | AUG   | SEP    |
|-------|-------|-------|------|------|------|------|------|-------|-------|-------|-------|--------|
| 1     | 384   | 193   | 138  | 88   | 61   | 61   | 139  | 64    | 138   | 103   | 208   | 384    |
| 2     | 467   | 185   | 131  | 87   | 60   | 59   | 193  | 64    | 208   | 132   | 202   | 4200   |
| 3     | 239   | 181   | 126  | 79   | 60   | 58   | 121  | 63    | 185   | 213   | 230   | 1130   |
| 4     | 197   | 172   | 120  | 77   | 58   | 56   | 82   | 73    | 142   | 263   | 281   | 1020   |
| 5     | 329   | 164   | 115  | 76   | 286  | 76   | 72   | 66    | 426   | 186   | 218   | 800    |
| 6     | 210   | 160   | 113  | 81   | 121  | 72   | 66   | 97    | 298   | 462   | 167   | 1910   |
| 7     | 191   | 157   | 109  | 103  | 81   | 153  | 59   | 190   | 209   | 580   | 2200  | 816    |
| 8     | 236   | 154   | 111  | 108  | 90   | 106  | 261  | 190   | 195   | 346   | 1010  | 636    |
| 9     | 362   | 150   | 109  | 81   | 153  | 73   | 107  | 338   | 166   | 161   | 1120  | 574    |
| 10    | 413   | 151   | 108  | 77   | 94   | 69   | 79   | 118   | 134   | 305   | 1320  | 488    |
| 11    | 452   | 159   | 112  | 103  | 78   | 67   | 69   | 85    | 148   | 366   | 931   | 490    |
| 12    | 564   | 259   | 104  | 143  | 74   | 64   | 65   | 70    | 159   | 636   | 736   | 996    |
| 13    | 795   | 196   | 102  | 86   | 74   | 64   | 64   | 62    | 507   | 286   | 399   | 829    |
| 14    | 1980  | 175   | 101  | 88   | 70   | 73   | 62   | 58    | 198   | 435   | 314   | 612    |
| 15    | 1690  | 300   | 100  | 78   | 74   | 144  | 57   | 97    | 157   | 471   | 271   | 449    |
| 16    | 1380  | 280   | 98   | 74   | 74   | 100  | 55   | 140   | 709   | 419   | 246   | 1030   |
| 17    | 775   | 170   | 95   | 71   | 70   | 88   | 54   | 107   | 560   | 352   | 291   | 591    |
| 18    | 727   | 155   | 98   | 114  | 67   | 217  | 52   | 177   | 662   | 233   | 263   | 619    |
| 19    | 461   | 151   | 95   | 85   | 63   | 100  | e73  | 496   | 350   | 246   | 213   | 624    |
| 20    | 384   | 181   | 94   | 76   | 62   | 77   | 75   | 943   | 199   | 197   | 198   | 480    |
| 21    | 304   | 148   | 93   | 74   | 61   | 68   | 70   | 5740  | 156   | 195   | 233   | 528    |
| 22    | 282   | 141   | 93   | 112  | 60   | 65   | 71   | 2660  | 151   | 156   | 287   | 69900  |
| 23    | 264   | 135   | 97   | 74   | 60   | 61   | 62   | 655   | 133   | 368   | 274   | e4200  |
| 24    | 250   | 140   | 119  | 68   | 59   | 58   | 66   | 400   | 124   | 422   | 216   | e2290  |
| 25    | 237   | 169   | 94   | 67   | 57   | 62   | 68   | 328   | 272   | 202   | 1050  | e1450  |
| 26    | 231   | 311   | 88   | 67   | 66   | 65   | 77   | 420   | 153   | 166   | 419   | e1170  |
| 27    | 218   | 221   | 86   | 66   | 66   | 68   | 67   | 202   | 201   | 151   | 1430  | e1110  |
| 28    | 209   | 164   | 83   | 65   | 62   | 68   | 133  | 159   | 129   | 150   | 838   | e916   |
| 29    | 202   | 165   | 82   | 63   | ---  | 63   | 107  | 258   | 114   | 322   | 435   | e1050  |
| 30    | 197   | 183   | 82   | 62   | ---  | 116  | 72   | 210   | 108   | 163   | 435   | e3850  |
| 31    | 196   | ---   | 107  | 61   | ---  | 146  | ---  | 177   | ---   | 411   | 614   | ---    |
| TOTAL | 14826 | 5470  | 3203 | 2554 | 2261 | 2617 | 2598 | 14707 | 7291  | 9098  | 17049 | 105142 |
| MEAN  | 478   | 182   | 103  | 82.4 | 80.8 | 84.4 | 86.6 | 474   | 243   | 293   | 550   | 3505   |
| MAX   | 1980  | 311   | 138  | 143  | 286  | 217  | 261  | 5740  | 709   | 636   | 2200  | 69900  |
| MIN   | 191   | 135   | 82   | 61   | 57   | 56   | 52   | 58    | 108   | 103   | 167   | 384    |
| AC-FT | 29410 | 10850 | 6350 | 5070 | 4480 | 5190 | 5150 | 29170 | 14460 | 18050 | 33820 | 208500 |
| CFSM  | 5.07  | 1.93  | 1.10 | .87  | .86  | .90  | .92  | 5.03  | 2.58  | 3.11  | 5.83  | 37.2   |
| IN.   | 5.85  | 2.16  | 1.26 | 1.01 | .89  | 1.03 | 1.02 | 5.80  | 2.88  | 3.59  | 6.73  | 41.48  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1998, BY WATER YEAR (WY)

|      | MEAN | 428  | 221  | 141  | 115  | 104  | 143  | 374  | 287  | 268  | 364  | 691  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | 1467 | 746  | 482  | 286  | 345  | 271  | 313  | 1084 | 815  | 657  | 936  | 3505 |
| (WY) | 1993 | 1982 | 1966 | 1997 | 1996 | 1972 | 1971 | 1986 | 1979 | 1979 | 1979 | 1998 |
| MIN  | 344  | 182  | 103  | 82.4 | 62.3 | 54.4 | 49.3 | 63.7 | 71.2 | 111  | 152  | 206  |
| (WY) | 1983 | 1998 | 1992 | 1998 | 1992 | 1965 | 1968 | 1967 | 1977 | 1990 | 1967 | 1983 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

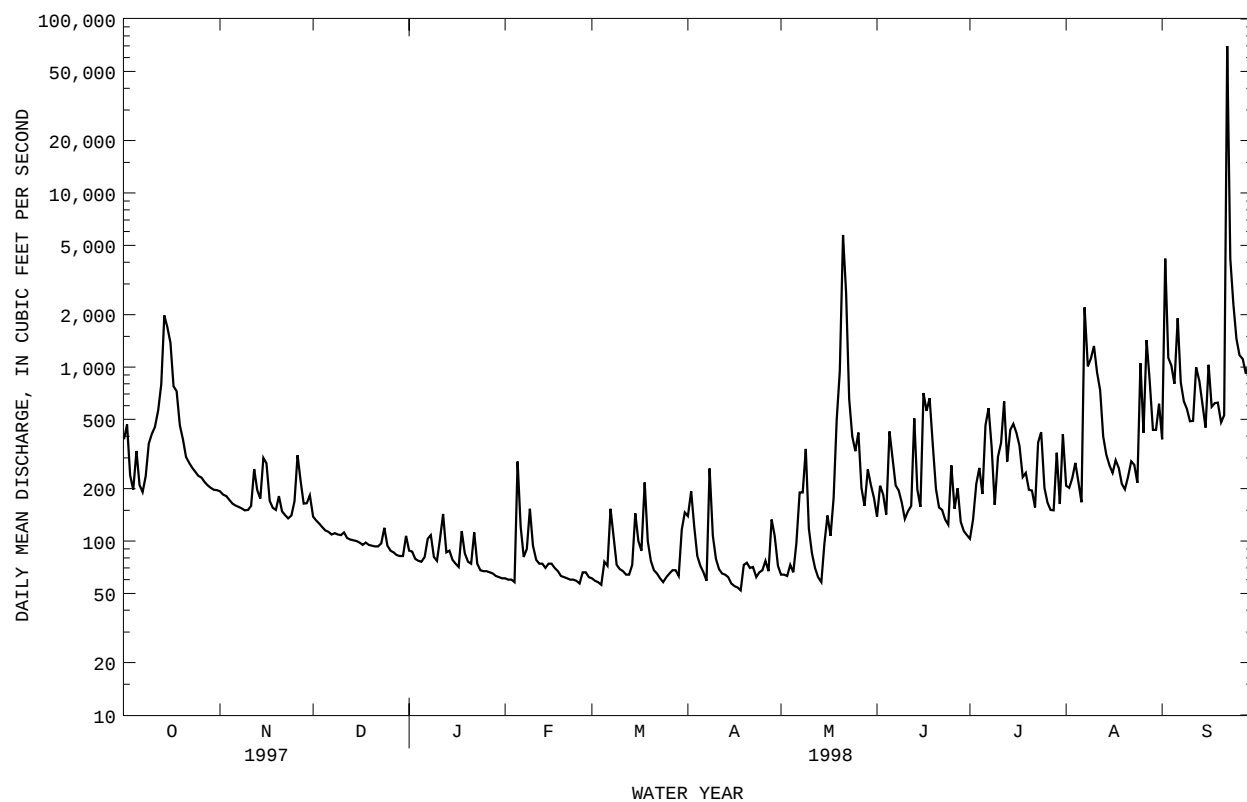
## FOR 1998 WATER YEAR

## WATER YEARS 1963 - 1998

|                          |        |        |        |
|--------------------------|--------|--------|--------|
| ANNUAL TOTAL             | 75096  | 186816 |        |
| ANNUAL MEAN              | 206    | 512    | 316    |
| HIGHEST ANNUAL MEAN      |        |        | 512    |
| LOWEST ANNUAL MEAN       |        |        | 189    |
| HIGHEST DAILY MEAN       | 1980   | 69900  | 69900  |
| LOWEST DAILY MEAN        | 56     | 52     | 32     |
| ANNUAL SEVEN-DAY MINIMUM | 58     | 58     | 35     |
| INSTANTANEOUS PEAK FLOW  |        | 163000 | 163000 |
| INSTANTANEOUS PEAK STAGE |        | 34.50  | 34.50  |
| INSTANTANEOUS LOW FLOW   |        | 51     | 31     |
| ANNUAL RUNOFF (AC-FT)    | 149000 | 370500 | 229100 |
| ANNUAL RUNOFF (CFSM)     | 2.18   | 5.43   | 3.35   |
| ANNUAL RUNOFF (INCHES)   | 29.62  | 73.70  | 45.56  |
| 10 PERCENT EXCEEDS       | 381    | 716    | 654    |
| 50 PERCENT EXCEEDS       | 153    | 153    | 184    |
| 90 PERCENT EXCEEDS       | 72     | 64     | 74     |

e Estimated

RIO GRANDE DE AÑASCO BASIN  
50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--Continued



## RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)         | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)   | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010)                      | TUR-BID-ITY (NTU) (00076)                 | OXYGEN, DIS-SOLVED (MG/L) (00300)                      | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) |                                                 |
|-----------|------|---------------------------------------------------------|-------------------------------------------|------------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
|           |      |                                                         |                                           |                                                |                                                         |                                           |                                                        |                                                   |                                                      |                                                     |                                                 |
| OCT 21... | 1210 | 312                                                     | 247                                       | 8.1                                            | 26.0                                                    | 4.6                                       | 8.0                                                    | 98                                                | <10                                                  | 360                                                 |                                                 |
| FEB 24... | 1150 | 58                                                      | 264                                       | 7.7                                            | 24.0                                                    | 3.0                                       | 8.6                                                    | 101                                               | <10                                                  | K90                                                 |                                                 |
| JUN 03... | 0900 | 145                                                     | 245                                       | 7.5                                            | 26.5                                                    | 17                                        | 7.6                                                    | 95                                                | <10                                                  | K1400                                               |                                                 |
| SEP 09... | 1600 | E488                                                    | 219                                       | 7.3                                            | 26.5                                                    | 36                                        | 7.7                                                    | 96                                                | <10                                                  | 4000                                                |                                                 |
| DATE      |      | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)         | HARD-NESS TOTAL (MG/L AS CAC03) (00900)   | CALCIUM DIS-SOLVED (MG/L AS CA) (00915)        | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)             | SODIUM, DIS-SOLVED (MG/L AS NA) (00930)   | SODIUM AD-SORP-TION RATIO (00931)                      | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)        | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410)  | SULFIDE TOTAL (MG/L AS S) (00745)                   | SULFATE DIS-SOLVED (MG/L AS S04) (00945)        |
| OCT 21... | 390  | 110                                                     | 27                                        | 9.6                                            | 8.3                                                     | .3                                        | 1.8                                                    | 98                                                | --                                                   | 9.9                                                 |                                                 |
| FEB 24... | K80  | --                                                      | --                                        | --                                             | --                                                      | --                                        | --                                                     | 110                                               | --                                                   | --                                                  |                                                 |
| JUN 03... | K600 | 100                                                     | 26                                        | 8.6                                            | 8.8                                                     | .4                                        | 2.2                                                    | 100                                               | --                                                   | 11                                                  |                                                 |
| SEP 09... | 3100 | 89                                                      | 22                                        | 8.0                                            | 8.4                                                     | .4                                        | 1.9                                                    | 90                                                | <1.0                                                 | 8.5                                                 |                                                 |
| DATE      |      | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)              | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955)      | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)      | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)         | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)        | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)    |
| OCT 21... | 7.5  | <.10                                                    | 29                                        | 152                                            | 128                                                     | 7                                         | <.010                                                  | 1.30                                              | .020                                                 | --                                                  |                                                 |
| FEB 24... | --   | --                                                      | --                                        | --                                             | --                                                      | 1                                         | <.010                                                  | .390                                              | .020                                                 | .23                                                 |                                                 |
| JUN 03... | 8.2  | .12                                                     | 25                                        | 150                                            | 58.7                                                    | 26                                        | <.010                                                  | .730                                              | .030                                                 | .25                                                 |                                                 |
| SEP 09... | 6.7  | <.10                                                    | 27                                        | 137                                            | E180                                                    | 54                                        | <.010                                                  | 1.30                                              | .030                                                 | --                                                  |                                                 |
| DATE      |      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600)      | NITRO-GEN, TOTAL (MG/L AS NO3) (71887)         | PHOS-PHORUS TOTAL (MG/L AS P) (00665)                   | ARSENIC TOTAL (UG/L AS AS) (01002)        | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)        | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)     | CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)     | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)  | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
| OCT 21... | <.20 | --                                                      | --                                        | <.020                                          | <1                                                      | <100                                      | <10                                                    | --                                                | 1                                                    | <10                                                 |                                                 |
| FEB 24... | .25  | .64                                                     | 2.8                                       | .020                                           | --                                                      | --                                        | --                                                     | --                                                | --                                                   | --                                                  |                                                 |
| JUN 03... | .28  | 1.0                                                     | 4.5                                       | .040                                           | <1                                                      | <100                                      | <10                                                    | <1                                                | 1                                                    | <10                                                 |                                                 |
| SEP 09... | <.20 | --                                                      | --                                        | .050                                           | --                                                      | --                                        | --                                                     | --                                                | --                                                   | --                                                  |                                                 |

## RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

## RIO GRANDE DE AÑASCO BASIN

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°16'00", Long 67°08'05", at bridge on Highway 430, 0.2 mi (0.3 km) south of Highway 109 at El Espino and 1.4 mi (2.3 km) east-southeast from Añasco plaza.

DRAINAGE AREA.--139 mi<sup>2</sup> (360 km<sup>2</sup>) this does not include 39.7 mi<sup>2</sup> (102.8 km<sup>2</sup>), flow is diverted to south coast.

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (000061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (000095) | PH WATER WHOLE FIELD (STAND-ARD) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|--------------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------|---------------------------|-----------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| OCT 21... | 1415 | E600                                             | 247                                      | 7.6                                      | 27.5                               | 9.6                       | 7.5                               | 94                                                | 10                                                   | 210                                                 | 360                                             |
| MAR 13... | 0920 | 81                                               | 259                                      | 7.7                                      | 25.0                               | 4.2                       | 6.7                               | 80                                                | <10                                                  | K110                                                | K40                                             |
| JUN 04... | 0830 | 219                                              | 237                                      | 7.3                                      | 27.0                               | 60                        | 6.7                               | 84                                                | <10                                                  | K1500                                               | K1600                                           |
| SEP 10... | 1450 | E500                                             | 220                                      | 7.3                                      | 27.5                               | 31                        | 7.2                               | 91                                                | <10                                                  | 39000                                               | 2700                                            |

| DATE      | HARD-NESS TOTAL (MG/L AS CaCO3) (00900) | CALCIUM DIS-SOLVED (MG/L AS Ca) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) (00925) | SODIUM, DIS-SOLVED (MG/L AS Na) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CaCO3) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS SO4) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 21... | 100                                     | 26                                      | 9.5                                         | 8.3                                     | .4                                | 1.8                                        | 100                                                 | <1.0                              | 9.7                                      | 7.8                                        |
| MAR 13... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 110                                                 | --                                | --                                       | --                                         |
| JUN 04... | 96                                      | 25                                      | 8.4                                         | 8.7                                     | .4                                | 2.3                                        | 97                                                  | --                                | 8.8                                      | 7.8                                        |
| SEP 10... | 89                                      | 23                                      | 8.0                                         | 8.3                                     | .4                                | 1.9                                        | 92                                                  | <1.0                              | 7.8                                      | 6.7                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SiO2) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 21... | <.10                                      | 29                                        | 153                                                     | E248                                      | 6                                                      | --                                           | <.010                                        | 1.10                                         | .020                                         | --                                           |
| MAR 13... | --                                        | --                                        | --                                                      | --                                        | 8                                                      | --                                           | <.010                                        | .230                                         | .040                                         | .19                                          |
| JUN 04... | <.10                                      | 24                                        | 143                                                     | 84.6                                      | 82                                                     | --                                           | <.010                                        | .670                                         | .040                                         | .45                                          |
| SEP 10... | <.10                                      | 27                                        | 138                                                     | E186                                      | 50                                                     | 1.19                                         | .012                                         | 1.20                                         | .030                                         | .22                                          |

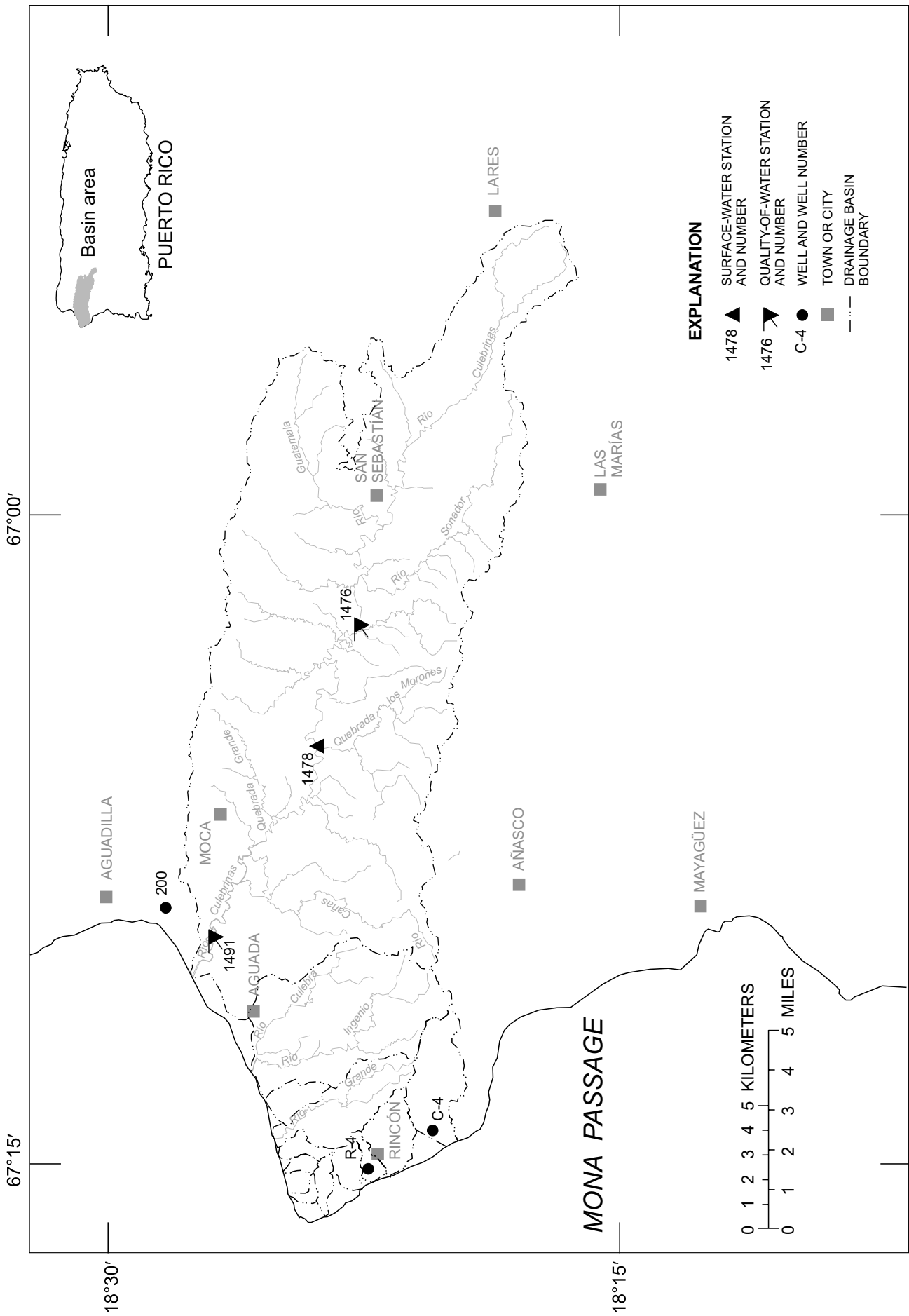
| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS NO3) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM WATER UNFLTRD TOTAL (UG/L AS Cd) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 21... | <.20                                                    | --                                   | --                                     | .030                                  | <1                                 | <100                                            | 30                                            | <1                                               | <1                                                 | 10                                              |
| MAR 13... | .23                                                     | .46                                  | 2.0                                    | .040                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |
| JUN 04... | .49                                                     | 1.2                                  | 5.1                                    | .060                                  | <1                                 | <100                                            | 20                                            | <1                                               | 2                                                  | <10                                             |
| SEP 10... | .25                                                     | 1.5                                  | 6.4                                    | .060                                  | --                                 | --                                              | --                                            | --                                               | --                                                 | --                                              |

## RIO GRANDE DE AÑASCO BASIN

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]



**Figure 25.** Río Culebrinas basin.

## RIO CULEBRINAS BASIN

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'51", long 67°02'40", at bridge on Highway 423, 1.3 mi (2.1 km) south of Quebrada El Salto Bridge on Highway 111, and 2.1 mi (3.4 km) west of Central La Plata.

DRAINAGE AREA.--58.2 mi<sup>2</sup> (150.7 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE      | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095) | PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400) | TEMPER-ATURE WATER (DEG C) (00010) | TUR-BID-ITY (NTU) (00076) | OXYGEN, DIS-SOLVED (MG/L) (00300) | OXYGEN, DEMAND, (PER-CENT (HIGH LEVEL) (00301) | OXYGEN, DEMAND, (PER-CENT (HIGH LEVEL) (00340) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) (31679) |
|-----------|------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|------------------------------------|---------------------------|-----------------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| OCT 22... | 0950 | 104                                             | 310                                     | 7.8                                            | 25.5                               | 2.8                       | 7.9                               | 96                                             | <10                                            | 5800                                                | 1000                                             |
| MAR 12... | 1205 | 31                                              | 330                                     | 7.9                                            | 24.5                               | 4.4                       | 7.9                               | 94                                             | <10                                            | 450                                                 | 280                                              |
| JUN 03... | 1430 | E1000                                           | 194                                     | 7.3                                            | 26.5                               | 760                       | 6.9                               | 86                                             | 19                                             | 60000                                               | 53000                                            |
| SEP 10... | 0945 | 246                                             | 311                                     | 7.6                                            | 25.0                               | 56                        | 7.6                               | 91                                             | <10                                            | 24000                                               | 3500                                             |

| DATE      | HARD-NESS TOTAL (MG/L AS CAC03) (00900) | CALCIUM DIS-SOLVED (MG/L AS CA) (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925) | SODIUM, DIS-SOLVED (MG/L AS NA) (00930) | SODIUM AD-SORP-TION RATIO (00931) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935) | ANC WATER UNFLTRD FET FIELD (MG/L AS CAC03) (00410) | SULFIDE TOTAL (MG/L AS S) (00745) | SULFATE DIS-SOLVED (MG/L AS S04) (00945) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) |
|-----------|-----------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------|
| OCT 22... | 140                                     | 45                                      | 5.8                                         | 11                                      | .4                                | 2.1                                        | 130                                                 | <1.0                              | 11                                       | 11                                         |
| MAR 12... | --                                      | --                                      | --                                          | --                                      | --                                | --                                         | 130                                                 | --                                | --                                       | --                                         |
| JUN 03... | 78                                      | 26                                      | 3.1                                         | 6.1                                     | .3                                | 3.9                                        | 77                                                  | --                                | 13                                       | 7.3                                        |
| SEP 10... | 130                                     | 45                                      | 4.6                                         | 8.5                                     | .3                                | 2.3                                        | 140                                                 | <1.0                              | 11                                       | 8.4                                        |

| DATE      | FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950) | SILICA, DIS-SOLVED (MG/L AS SI02) (00955) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301) | SOLIDS, DIS-SOLVED (TONS PER DAY) (70302) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605) |
|-----------|-------------------------------------------|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| OCT 22... | <.10                                      | 29                                        | 194                                                     | 54.6                                      | 3                                                      | 1.17                                         | .030                                         | 1.20                                         | .040                                         | --                                           |
| MAR 12... | --                                        | --                                        | --                                                      | --                                        | 4                                                      | 1.28                                         | .017                                         | 1.30                                         | .030                                         | .19                                          |
| JUN 03... | <.10                                      | 12                                        | 118                                                     | E318                                      | 1450                                                   | .766                                         | .034                                         | .800                                         | .250                                         | 3.0                                          |
| SEP 10... | .10                                       | 20                                        | 184                                                     | 123                                       | 62                                                     | .662                                         | .018                                         | .680                                         | .060                                         | .60                                          |

| DATE      | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | NITRO-GEN, TOTAL (MG/L AS N) (00600) | NITRO-GEN, TOTAL (MG/L AS N03) (71887) | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022) | CADMIUM, TOTAL UNFLTRD (UG/L AS CD) (01027) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042) |
|-----------|---------------------------------------------------------|--------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| OCT 22... | <.20                                                    | --                                   | --                                     | <.020                                 | <1                                 | <100                                            | <10                                           | <1                                          | <10                                                | 30                                              |
| MAR 12... | .22                                                     | 1.5                                  | 6.7                                    | .080                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |
| JUN 03... | 3.2                                                     | 4.0                                  | 18                                     | .190                                  | <1                                 | <100                                            | <10                                           | <1                                          | 10                                                 | 37                                              |
| SEP 10... | .66                                                     | 1.3                                  | 5.9                                    | .160                                  | --                                 | --                                              | --                                            | --                                          | --                                                 | --                                              |



## RIO CULEBRINAS BASIN

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR

LOCATION.--Lat 18°21'42", long 67°05'33", Hydrologic Unit 21010003, on right bank, at bridge on Highway 404, 0.3 mi (0.5 km) downstream from Quebrada Yagruma, and 2.8 mi (4.5 km) southeast of Moca.

DRAINAGE AREA.--71.2 mi<sup>2</sup> (184.4 km<sup>2</sup>).

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 45 ft (14 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC  | JAN  | FEB  | MAR  | APR  | MAY   | JUN   | JUL   | AUG   | SEP    |
|-------|-------|-------|------|------|------|------|------|-------|-------|-------|-------|--------|
| 1     | 107   | 149   | 172  | 77   | 45   | 36   | 39   | 31    | 291   | 119   | 134   | 320    |
| 2     | 313   | 126   | 131  | 73   | 44   | 35   | 36   | 31    | 402   | 108   | 122   | 3170   |
| 3     | 253   | 99    | 117  | 71   | 45   | 35   | 34   | 31    | 640   | 104   | 151   | 508    |
| 4     | 128   | 98    | 109  | 68   | 44   | 34   | 34   | 34    | 277   | 114   | 235   | 567    |
| 5     | 399   | 93    | 104  | 68   | 80   | 227  | 33   | 37    | 403   | 163   | 169   | 290    |
| 6     | 259   | 90    | 100  | 66   | 50   | 172  | 32   | 37    | 586   | 128   | 107   | 8170   |
| 7     | 172   | 88    | 97   | 86   | 44   | 198  | 30   | 67    | 499   | 220   | 104   | 1820   |
| 8     | 186   | 87    | 95   | 77   | 55   | 132  | 31   | 44    | 261   | 208   | 109   | 972    |
| 9     | 125   | 85    | 92   | 67   | 68   | 54   | 30   | 39    | 193   | 130   | 312   | 707    |
| 10    | 114   | 85    | 90   | 65   | 46   | 46   | 30   | 36    | 163   | 180   | 394   | 344    |
| 11    | 107   | 93    | 89   | 103  | 42   | 43   | 29   | 35    | 944   | 847   | 1330  | 262    |
| 12    | 1960  | 100   | 85   | 75   | 42   | 41   | 32   | 36    | 4820  | 2590  | 3230  | 368    |
| 13    | 373   | 165   | 84   | 67   | 41   | 41   | 33   | 36    | 3320  | e5680 | 511   | 4070   |
| 14    | 886   | 129   | 82   | 63   | 39   | 45   | 31   | 36    | 810   | 1180  | 282   | 497    |
| 15    | 744   | 765   | 81   | 59   | 41   | 48   | 31   | 37    | 1430  | 1370  | 236   | 316    |
| 16    | 650   | 247   | 78   | 57   | 40   | 49   | 32   | 46    | 3150  | 705   | 1450  | 525    |
| 17    | 234   | 128   | 78   | 67   | 38   | 41   | 33   | 50    | 581   | 402   | 329   | 290    |
| 18    | 186   | 111   | 79   | 150  | 38   | 47   | 32   | 58    | 1210  | 292   | 236   | 1460   |
| 19    | 160   | 102   | 80   | 143  | 38   | 51   | 35   | 208   | 527   | 235   | 308   | 647    |
| 20    | 146   | 98    | 78   | 100  | 37   | 40   | 64   | 1610  | 340   | 210   | 186   | 272    |
| 21    | 136   | 94    | 81   | 99   | 37   | 37   | 36   | 1170  | e281  | 188   | 312   | e240   |
| 22    | 129   | 92    | 92   | 89   | 37   | 35   | 34   | 2840  | e222  | 165   | 260   | e17000 |
| 23    | 124   | 90    | 150  | 61   | 36   | e34  | 34   | 3490  | e203  | 156   | 176   | 1500   |
| 24    | 119   | 113   | 166  | 55   | 36   | e35  | 40   | 473   | e300  | 615   | 157   | 1020   |
| 25    | 116   | 161   | 92   | 54   | 36   | e37  | 40   | 211   | e254  | 231   | 416   | 724    |
| 26    | 114   | 917   | 81   | 52   | 37   | e37  | 34   | 464   | e276  | 165   | 352   | 565    |
| 27    | 111   | 448   | 83   | 50   | 37   | e41  | 33   | 208   | 276   | 159   | 259   | 527    |
| 28    | 108   | 250   | 78   | 48   | 36   | 48   | 37   | 128   | 225   | 142   | 1490  | 404    |
| 29    | 106   | 517   | 75   | 48   | ---  | 67   | 33   | 106   | 161   | 133   | 500   | 471    |
| 30    | 104   | 309   | 73   | 48   | ---  | 79   | 31   | 1810  | 135   | 150   | 249   | 1510   |
| 31    | 103   | ---   | 121  | 45   | ---  | 65   | ---  | 629   | ---   | 204   | 1260  | ---    |
| TOTAL | 8772  | 5929  | 3013 | 2251 | 1209 | 1930 | 1033 | 14068 | 23180 | 17293 | 15366 | 49536  |
| MEAN  | 283   | 198   | 97.2 | 72.6 | 43.2 | 62.3 | 34.4 | 454   | 773   | 558   | 496   | 1651   |
| MAX   | 1960  | 917   | 172  | 150  | 80   | 227  | 64   | 3490  | 4820  | 5680  | 3230  | 17000  |
| MIN   | 103   | 85    | 73   | 45   | 36   | 34   | 29   | 31    | 135   | 104   | 104   | 240    |
| AC-FT | 17400 | 11760 | 5980 | 4460 | 2400 | 3830 | 2050 | 27900 | 45980 | 34300 | 30480 | 98250  |
| CFSM  | 3.97  | 2.78  | 1.37 | 1.02 | .61  | .87  | .48  | 6.37  | 10.9  | 7.83  | 6.96  | 23.2   |
| IN.   | 4.58  | 3.10  | 1.57 | 1.18 | .63  | 1.01 | .54  | 7.35  | 12.11 | 9.04  | 8.03  | 25.88  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 614  | 321  | 142  | 91.6 | 79.7 | 70.3 | 128  | 464  | 394  | 301  | 339  | 539  |
| MAX  | 1086 | 799  | 424  | 530  | 371  | 319  | 621  | 2054 | 773  | 847  | 831  | 1651 |
| (WY) | 1973 | 1982 | 1982 | 1997 | 1996 | 1981 | 1986 | 1986 | 1998 | 1979 | 1979 | 1998 |
| MIN  | 231  | 108  | 72.1 | 51.2 | 37.0 | 30.4 | 26.4 | 96.7 | 73.1 | 66.7 | 119  | 145  |
| (WY) | 1968 | 1979 | 1992 | 1979 | 1992 | 1979 | 1970 | 1973 | 1997 | 1994 | 1970 | 1986 |

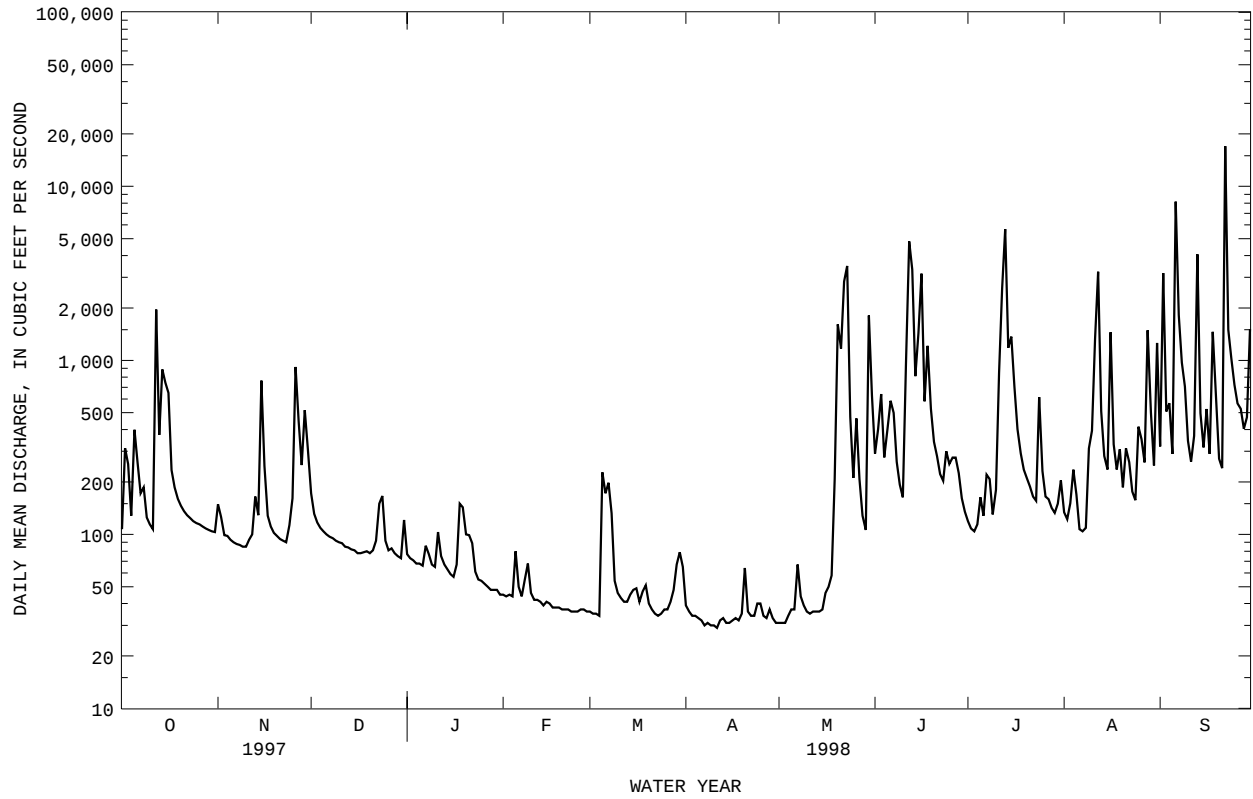
## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1967 - 1998

|                          |        |        |         |
|--------------------------|--------|--------|---------|
| ANNUAL TOTAL             | 71035  | 143580 |         |
| ANNUAL MEAN              | 195    | 393    |         |
| HIGHEST ANNUAL MEAN      |        |        | 292     |
| LOWEST ANNUAL MEAN       |        |        | 457     |
| HIGHEST DAILY MEAN       | 11000  | Jan 22 | 17000   |
| LOWEST DAILY MEAN        | 36     | May 4  | 29      |
| ANNUAL SEVEN-DAY MINIMUM | 37     | Apr 30 | 31      |
| INSTANTANEOUS PEAK FLOW  |        |        | 36900   |
| INSTANTANEOUS PEAK STAGE |        |        | unknown |
| INSTANTANEOUS LOW FLOW   |        |        | 36.60   |
| ANNUAL RUNOFF (AC-FT)    | 140900 | 284800 | 211700  |
| ANNUAL RUNOFF (CFSM)     | 2.73   | 5.52   | 4.11    |
| ANNUAL RUNOFF (INCHES)   | 37.11  | 75.02  | 55.78   |
| 10 PERCENT EXCEEDS       | 329    | 752    | 600     |
| 50 PERCENT EXCEEDS       | 93     | 109    | 133     |
| 90 PERCENT EXCEEDS       | 42     | 36     | 42      |

e Estimated

## RIO CULEBRINAS BASIN

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR--Continued



## RIO CULEBRINAS BASIN

50149100 RIO CULEBRINAS NEAR AGUADA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'03", Long 67°09'40", at bridge on Highway 2, 2.3 mi (3.7 km) northeast of Aguada plaza.

DRAINAGE AREA.--97.0 mi<sup>2</sup> (251.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958, 1970 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE         | TIME | DIS-CHARGE,<br>INST. CUBIC<br>FEET PER<br>SECOND<br>(00061) | SPE-CIFIC<br>CON-DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | TUR-<br>BID-<br>ITY<br>(NTU)<br>(00076) | OXYGEN,<br>DIS-<br>SOLVED<br>(MG/L)<br>(00300) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | OXYGEN<br>DEMAND,<br>CHEM-<br>ICAL<br>(HIGH<br>LEVEL)<br>(MG/L)<br>(00340) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679) |
|--------------|------|-------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT<br>22... | 0745 | --                                                          | 361                                                  | 7.1                                                                  | 26.0                                            | 18                                      | 6.8                                            | 83                                                                        | <10                                                                        | 2300                                                                       | 640                                                                |
| MAR<br>12... | 0915 | --                                                          | 354                                                  | 8.1                                                                  | 25.0                                            | 9.8                                     | 6.7                                            | 80                                                                        | <10                                                                        | K1200                                                                      | 340                                                                |
| JUN<br>03... | 1645 | E1500                                                       | 336                                                  | 8.2                                                                  | 28.0                                            | 160                                     | 6.7                                            | 85                                                                        | <10                                                                        | K12000                                                                     | 4000                                                               |
| SEP<br>10... | 1130 | 447                                                         | 292                                                  | 7.4                                                                  | 26.0                                            | 140                                     | 6.3                                            | 77                                                                        | <10                                                                        | 51000                                                                      | 5800                                                               |

| DATE         | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CACO3)<br>(00900) | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915) | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925) | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930) | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931) | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935) | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>(MG/L AS<br>CACO3)<br>(00410) | SULFIDE<br>TOTAL<br>(MG/L<br>AS S)<br>(00745) | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS SO4)<br>(00945) | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940) |
|--------------|------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|
| OCT<br>22... | 150                                                        | 51                                                      | 6.3                                                             | 12                                                      | .4                                                 | 2.3                                                            | 130                                                                      | <1.0                                          | 11                                                       | 13                                                             |
| MAR<br>12... | --                                                         | --                                                      | --                                                              | --                                                      | --                                                 | --                                                             | 150                                                                      | --                                            | --                                                       | --                                                             |
| JUN<br>03... | 140                                                        | 49                                                      | 5.0                                                             | 9.5                                                     | .3                                                 | 3.2                                                            | 140                                                                      | --                                            | 18                                                       | 11                                                             |
| SEP<br>10... | 130                                                        | 43                                                      | 4.6                                                             | 9.0                                                     | .3                                                 | 2.6                                                            | 130                                                                      | <1.0                                          | 8.5                                                      | 9.8                                                            |

| DATE         | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SiO2)<br>(00955) | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | SOLIDS,<br>DIS-<br>SOLVED<br>(TONS<br>PER<br>DAY)<br>(70302) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| OCT<br>22... | <.10                                                          | 29                                                           | 203                                                                            | --                                                           | 29                                                                          | .848                                                            | .012                                                            | .860                                                            | .050                                                            | .19                                                             |
| MAR<br>12... | --                                                            | --                                                           | --                                                                             | --                                                           | 20                                                                          | .839                                                            | .011                                                            | .850                                                            | .050                                                            | .46                                                             |
| JUN<br>03... | <.10                                                          | 17                                                           | 197                                                                            | E798                                                         | 208                                                                         | .795                                                            | .015                                                            | .810                                                            | .060                                                            | .72                                                             |
| SEP<br>10... | <.10                                                          | 19                                                           | 175                                                                            | 211                                                          | 192                                                                         | .982                                                            | .018                                                            | 1.00                                                            | .080                                                            | .38                                                             |

| DATE         | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | ARSENIC<br>TOTAL<br>(UG/L<br>AS AS)<br>(01002) | BARIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS BA)<br>(01007) | BORON,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS B)<br>(01022) | CADMIUM<br>WATER<br>UNFLTRD<br>TOTAL<br>(UG/L<br>AS CD)<br>(01027) | CHRO-<br>MIUM,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CR)<br>(01034) | COPPER,<br>TOTAL<br>RECOV-<br>ERABLE<br>(UG/L<br>AS CU)<br>(01042) |
|--------------|--------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|
| OCT<br>22... | .24                                                                            | 1.1                                                  | 4.9                                                    | .030                                                  | <1                                             | <100                                                               | 30                                                               | <1                                                                 | 3                                                                         | <10                                                                |
| MAR<br>12... | .51                                                                            | 1.4                                                  | 6.0                                                    | .060                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |
| JUN<br>03... | .78                                                                            | 1.6                                                  | 7.0                                                    | .050                                                  | <1                                             | <100                                                               | 40                                                               | <1                                                                 | 4                                                                         | <10                                                                |
| SEP<br>10... | .46                                                                            | 1.5                                                  | 6.5                                                    | .070                                                  | --                                             | --                                                                 | --                                                               | --                                                                 | --                                                                        | --                                                                 |

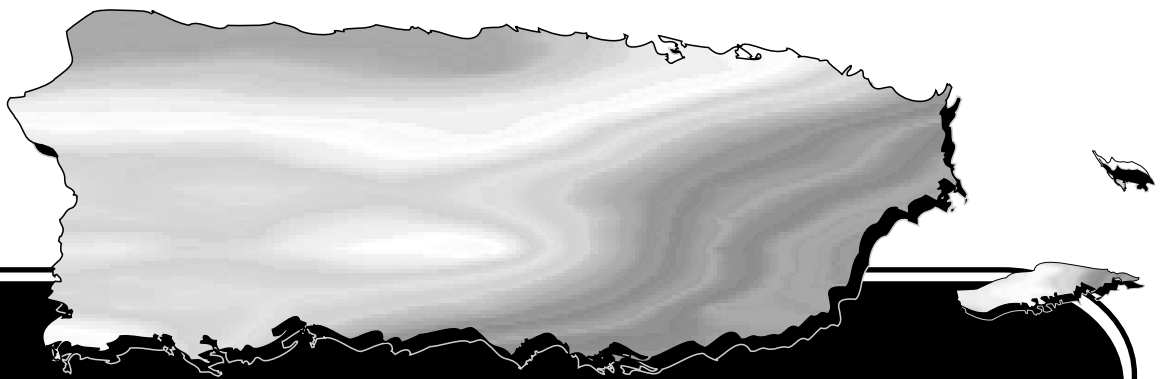
## RIO CULEBRINAS BASIN

50149100 RIO CULEBRINAS NEAR AGUADA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

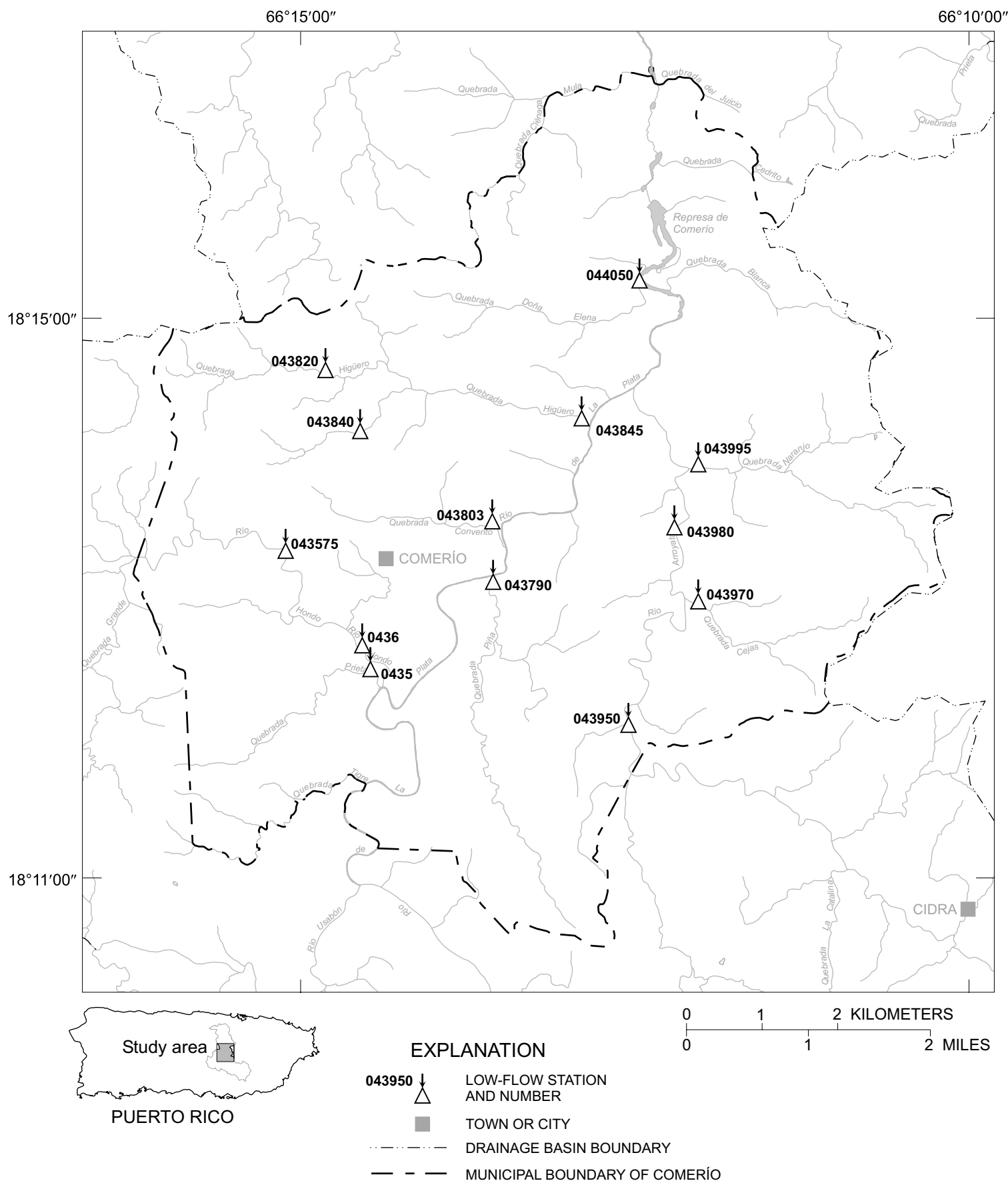
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**Discharge at  
Partial-Record Stations  
in Puerto Rico**

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**Figure 26.** Location of low-flow partial-record stations in Comerío, Puerto Rico.

## DISCHARGE AT PARTIAL-RECORD STATIONS

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

## Low-flow partial-record stations

Measurements of streamflow in the areas covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of nearby stream when continuous records are available, will give a picture of the low-flow potentiality of stream.

Discharge measurements made at low-flow partial-records stations during water year 1998

## PUBLICATION RECORD

| STATION<br>NUMBER     | STATION<br>NAME                              | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                                                                | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM-<br>FLOW<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|-----------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río de La Plata basin |                                              |                                                                                                                                                                                                                                                                                         |                                                           |         |      |                                                              |
| 50043500              | Quebrada Prieta at<br>barrio Río Hondo, PR   | Lat 18°12'27", long 66°14'38",<br>Hydrologic Unit 21010005, at<br>barrio Río Hondo, 0.3 mi (0.5<br>km) upstream of Río de La Plata,<br>1.9 mi (3.0 km) southwest of<br>Cerro Lazo, and 1.4 mi (2.2 km)<br>southwest from Comerío plaza.                                                 | 1.16<br>(3.00)                                            | 1/29/98 | 0745 | 0.14<br>(0.004)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 3/11/98 | 1045 | 0.15<br>(0.004)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 3/20/98 | 1425 | 1.03<br>(0.029)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 6/09/98 | 0810 | 0.20<br>(0.006)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 6/16/98 | 1350 | 0.17<br>(0.005)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 6/24/98 | 1050 | 0.12<br>(0.003)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 7/14/98 | 0645 | 0.07<br>(0.001)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 1/26/99 | 1200 | 0.78<br>(0.022)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 2/12/99 | 0820 | 0.52<br>(0.015)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 2/24/99 | 1145 | 0.61<br>(0.017)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 3/16/99 | 1145 | 0.34<br>(0.010)                                              |
| 50043575              | Río Hondo at Highway<br>776 at Río Hondo, PR | Lat 18°13'18", long 66°15'07",<br>Hydrologic Unit 21010005, at<br>barrio Río Hondo on Highway<br>776, 0.4 mi (0.6 km) north of<br>Escuela Segunda Unidad de Río<br>Hondo, 4.3 mi (6.9 km) north-<br>east of Barranquitas, and 4.4<br>mi (7.1 km) northeast from<br>Cañon San Cristóbal. | 9.07<br>(23.5)                                            | 1/29/98 | 0820 | 2.82<br>(0.080)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 3/11/98 | 1000 | 3.43<br>(0.097)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 3/20/98 | 1315 | 8.32<br>(0.236)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 6/09/98 | 0840 | 5.67<br>(0.160)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 6/16/98 | 1250 | 4.92<br>(0.139)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 6/24/98 | 1120 | 4.78<br>(0.135)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 7/14/98 | 0805 | 3.77<br>(0.107)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 7/15/98 | 0850 | 3.73<br>(0.106)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 1/26/99 | 1005 | 13.9<br>(0.394)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 2/12/99 | 0930 | 11.9<br>(0.337)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 2/24/99 | 1050 | 10.4<br>(0.294)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 3/16/99 | 1045 | 9.00<br>(0.255)                                              |
| 50043600              | Río Hondo near<br>Comerío, PR                | Lat 18°12'38", long 66°14'37",<br>Hydrologic Unit 21010005, at<br>Highway 156 at barrio Río<br>Hondo, 0.6 mi (1.0 km)<br>upstream of Río La Plata, and<br>1.3 mi (2.1 km) southwest from<br>Comerío plaza.                                                                              | 10.5<br>(27.2)                                            | 6/25/98 | 1045 | 4.97<br>(0.141)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 7/14/98 | 0715 | 3.56<br>(0.101)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 7/15/98 | 0810 | 3.41<br>(0.096)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 1/26/99 | 1100 | 16.1<br>(0.456)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 2/12/99 | 0845 | 13.5<br>(0.382)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 2/24/99 | 1000 | 10.4<br>(0.294)                                              |
|                       |                                              |                                                                                                                                                                                                                                                                                         |                                                           | 3/16/99 | 1000 | 8.23<br>(0.233)                                              |

## DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

| STATION<br>NUMBER     | STATION<br>NAME                                                | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                         | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|-----------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río de La Plata basin |                                                                |                                                                                                                                                                                                                                                  |                                                           |         |      |                                                              |
| 50043790              | Quebrada Piña at<br>Highway 775 at<br>Comerio, PR              | Lat 18°13'00", long 66°13'37",<br>Hydrologic Unit 21010005, at<br>Comerio, 0.2 mi (0.3 km)<br>upstream of Río de La Plata,<br>0.7 mi (1.1 km) west of Cerro<br>Lazo, and 0.3 mi (0.5 km)<br>south from Comerio plaza.                            | 2.31<br>(5.98)                                            | 1/29/98 | 0935 | 0.24<br>(0.007)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/11/98 | 0850 | 0.32<br>(0.009)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/23/98 | 1205 | 0.28<br>(0.008)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/09/98 | 0720 | 0.23<br>(0.006)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/15/98 | 1155 | 0.16<br>(0.004)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/24/98 | 1215 | 0.18<br>(0.005)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 7/14/98 | 0905 | 0.06<br>(0.002)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 1/26/99 | 0850 | 1.77<br>(0.050)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/12/99 | 1110 | 0.97<br>(0.027)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/24/99 | 0845 | 0.83<br>(0.024)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/16/99 | 0830 | 0.54<br>(0.015)                                              |
| 50043803              | Quebrada Convento<br>at Comerio, PR                            | Lat 18°13'31", long 66°13'36",<br>Hydrologic Unit 21010005, at<br>Comerio, 0.5 mi (0.8 km) south<br>of Cerro Magueyes, 0.1 mi (0.2<br>km) upstream from Río de La<br>Plata, and 0.3 mi (0.5 km)<br>north from Comerio plaza.                     | 0.98<br>(2.54)                                            | 1/29/98 | 1045 | 0.71<br>(0.020)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/11/98 | 0750 | 0.74<br>(0.021)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/09/98 | 0935 | 0.65<br>(0.018)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/11/98 | 1455 | 0.46<br>(0.013)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/24/98 | 1005 | 0.54<br>(0.015)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 7/14/98 | 0930 | 0.51<br>(0.016)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 1/26/99 | 0815 | 1.05<br>(0.030)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/09/99 | 1005 | 1.02<br>(0.029)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/24/99 | 0805 | 0.92<br>(0.026)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/16/99 | 0755 | 0.84<br>(0.024)                                              |
| 50043820              | Quebrada Higüero at<br>Highway 780 at barrio<br>Doña Elena, PR | Lat 18°14'37", long 66°14'51",<br>Hydrologic Unit 21010005, at<br>(2.4 km) northwest of Cerro<br>Magueyes, 0.8 mi (1.3 km)<br>northwest of Escuela Segunda<br>Unidad de Palomas, and 2.1 mi<br>(3.4 km) northwest from<br>Comerio plaza.         | 1.19<br>(3.08)                                            | 2/02/98 | 1520 | 0.46<br>(0.013)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/25/98 | 1035 | 0.42<br>(0.012)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/17/98 | 1210 | 0.81<br>(0.023)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/22/98 | 1315 | 0.71<br>(0.020)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 7/15/98 | 0625 | 0.62<br>(0.018)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 1/25/99 | 1220 | 2.06<br>(0.058)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/09/99 | 1125 | 2.24<br>(0.063)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/23/99 | 1150 | 1.91<br>(0.054)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/15/99 | 1040 | 1.71<br>(0.048)                                              |
| 50043840              | Tributario de Quebrada<br>Higüero at barrio<br>Palomas, PR     | Lat 18°14'10", long 66°14'35",<br>Hydrologic Unit 21010005, at<br>barrio Palomas, 1.1 mi (1.8<br>km) west of Cerro Magueyes,<br>0.2 mi (0.3 km) northwest of<br>Escuela Segunda Unidad de<br>Palomas, and 1.5 mi (2.4 km)<br>from Comerio plaza. | 0.47<br>(1.22)                                            | 2/02/98 | 1025 | 0.13<br>(0.004)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/10/98 | 1235 | 0.15<br>(0.004)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/23/98 | 1530 | 0.15<br>(0.004)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/17/98 | 1310 | 0.30<br>(0.008)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 6/22/98 | 1115 | 0.33<br>(0.009)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 7/15/98 | 0705 | 0.18<br>(0.005)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 1/25/99 | 1315 | 0.58<br>(0.016)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/09/99 | 1045 | 0.63<br>(0.018)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 2/23/99 | 1110 | 0.53<br>(0.015)                                              |
|                       |                                                                |                                                                                                                                                                                                                                                  |                                                           | 3/15/99 | 1130 | 0.47<br>(0.013)                                              |

## DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

| STATION<br>NUMBER     | STATION<br>NAME                                  | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                       | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|-----------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río de La Plata basin |                                                  |                                                                                                                                                                                                                                                |                                                           |         |      |                                                              |
| 50043845              | Quebrada Higüero at Highway 156 near Comerío, PR | Lat 18°14'15", long 66°12'55", Hydrologic Unit 21010005, at barrio Palomas, 0.8 mi (1.3 km) northeast of Cerro Magueyes, 2.1 mi (3.4 km) southwest of Cerro La Tiza, and 1.4 mi (2.2 km) northeast from Comerío plaza.                         | 3.65<br>(9.45)                                            | 1/29/98 | 1125 | 2.54<br>(0.072)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/10/98 | 1055 | 3.05<br>(0.086)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/17/98 | 1110 | 2.16<br>(0.061)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 6/09/98 | 1030 | 3.25<br>(0.092)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 6/11/98 | 1350 | 2.53<br>(0.072)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 6/24/98 | 0920 | 2.85<br>(0.081)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 7/14/98 | 1050 | 2.46<br>(0.070)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 1/25/99 | 1050 | 7.77<br>(0.220)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/09/99 | 0905 | 7.67<br>(0.217)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/23/99 | 1000 | 6.40<br>(0.181)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/15/99 | 0940 | 5.53<br>(0.157)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           |         |      |                                                              |
| 50043950              | Río Arroyata at Highway 7774 near Cidra, PR      | Lat 18°12'04", long 66°12'34", Hydrologic Unit 21010005, at barrio Vega Redonda on Highway 7774, 1.5 mi (2.4 km) northwest of Cerro Almirante, 1.6 mi (2.6 km) north of Cerro Viento Caliente, and 1.8 mi (2.9 km) southeast of Comerío plaza. | 9.42<br>(24.4)                                            | 1/28/98 | 1130 | 2.12<br>(0.060)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/16/98 | 1105 | 2.49<br>(0.070)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 6/25/98 | 0945 | 1.88<br>(0.053)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 7/13/98 | 0915 | 1.03<br>(0.029)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/04/99 | 1100 | 9.28<br>(0.263)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/11/99 | 1000 | 7.88<br>(0.223)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/25/99 | 1035 | 6.44<br>(0.182)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/17/99 | 1025 | 4.67<br>(0.132)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           |         |      |                                                              |
| 50043970              | Quebrada Cejas at barrio Vega Redonda, PR        | Lat 18°12'56", long 66°12'04", Hydrologic Unit 21010005, at barrio Vega Redonda, 1.0 mi (1.6 km) east of Cerro Lazo, 2.2 mi (3.5 km) southwest of Cerro La Tiza, and 1.7 mi (2.7 km) southeast from Comerío plaza.                             | 1.29<br>(3.34)                                            | 1/28/98 | 1310 | 0.80<br>(0.023)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/16/98 | 1155 | 0.95<br>(0.027)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/18/98 | 1335 | 0.68<br>(0.019)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 6/10/98 | 1625 | 0.82<br>(0.023)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 6/25/98 | 0850 | 1.56<br>(0.044)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 7/13/98 | 0950 | 0.14<br>(0.004)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/04/99 | 1010 | 2.00<br>(0.057)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/11/99 | 1050 | 2.03<br>(0.057)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/25/99 | 0940 | 1.72<br>(0.049)                                              |
| 3/17/99               | 0940                                             | 1.44<br>(0.041)                                                                                                                                                                                                                                |                                                           |         |      |                                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           |         |      |                                                              |
| 50043980              | Río Arroyata at barrio Naranjo, PR               | Lat 18°13'30", long 66°12'12", Hydrologic Unit 21010005, at barrio Naranjo, 1.1 mi (1.8 km) northeast of Cerro Lazo, 1.8 mi (2.9 km) southwest of Cerro La Tiza, and 1.6 mi (2.6 km) northeast of Comerío plaza.                               | 12.9<br>(33.4)                                            | 1/28/98 | 1345 | 2.55<br>(0.072)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 3/16/98 | 1245 | 3.39<br>(0.096)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 6/25/98 | 0805 | 2.82<br>(0.080)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 7/13/98 | 1025 | 1.19<br>(0.034)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/04/99 | 0925 | 12.1<br>(0.343)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/11/99 | 1130 | 11.0<br>(0.312)                                              |
|                       |                                                  |                                                                                                                                                                                                                                                |                                                           | 2/25/99 | 0855 | 9.17<br>(0.260)                                              |
| 3/17/99               | 0850                                             | 7.61<br>(0.216)                                                                                                                                                                                                                                |                                                           |         |      |                                                              |

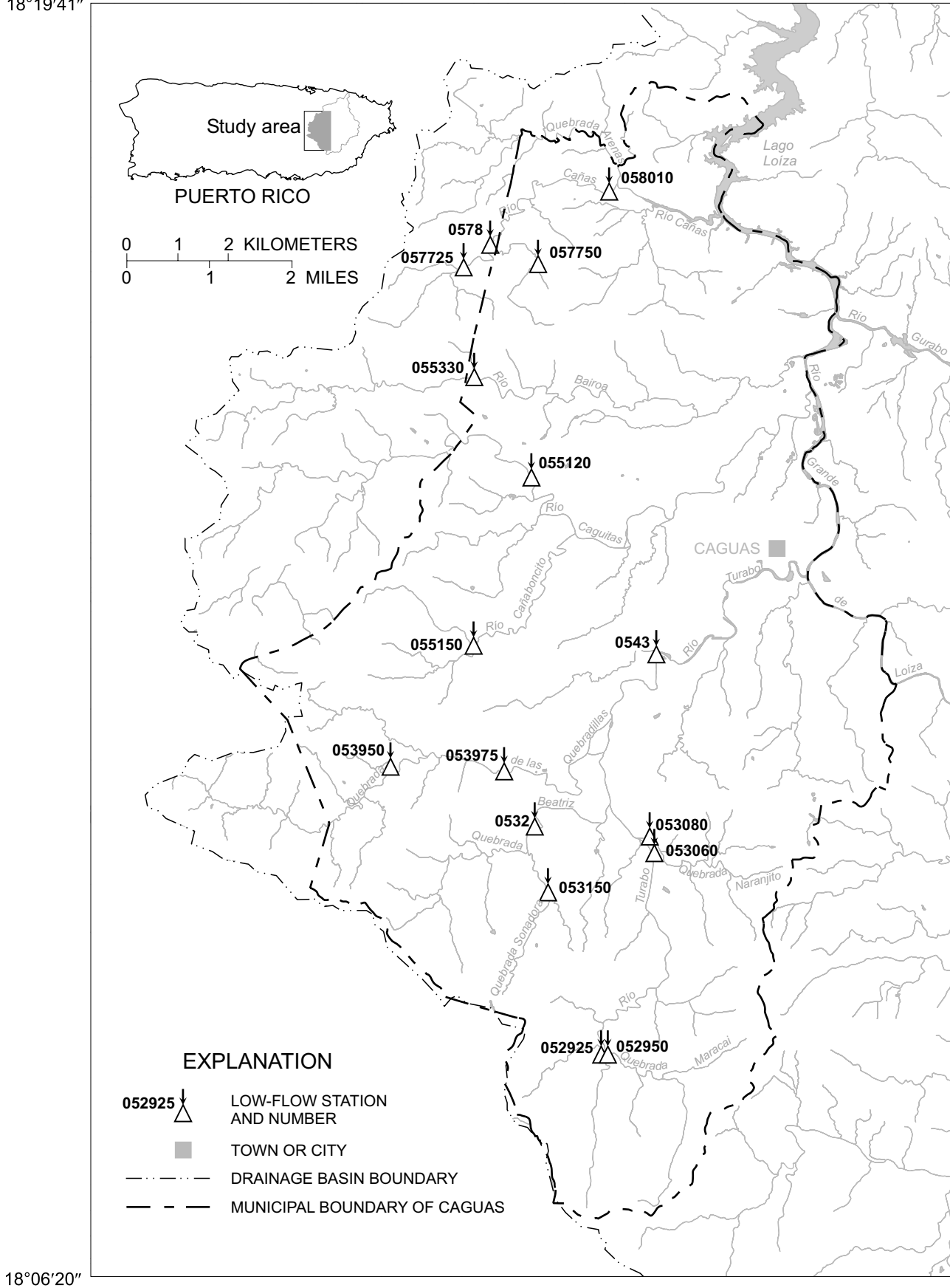
DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

| STATION<br>NUMBER     | STATION<br>NAME                                           | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                    | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|-----------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río de La Plata basin |                                                           |                                                                                                                                                                                                                                             |                                                           |         |      |                                                              |
| 50043995              | Quebrada Naranjo at<br>barrio Naranjo, PR                 | Lat 18°13'54", long 66°12'06",<br>Hydrologic Unit 21010005, at<br>barrio Naranjo, 1.5 mi (2.4 km)<br>northeast of Cerro Lazo, 1.4 mi<br>(2.2 km) southwest of Cerro La<br>Tiza, and 1.8 mi (2.9 km) north-<br>east from Comerío plaza.      | 2.58<br>(6.68)                                            | 1/28/98 | 1430 | 1.16<br>(0.033)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 3/16/98 | 1330 | 1.29<br>(0.036)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 3/18/98 | 1430 | 1.08<br>(0.030)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 6/10/98 | 1540 | 0.86<br>(0.024)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 6/25/98 | 0720 | 1.13<br>(0.032)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 7/13/98 | 1100 | 0.85<br>(0.024)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 2/04/99 | 0835 | 4.37<br>(0.124)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 2/11/99 | 1215 | 3.99<br>(0.113)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 2/25/99 | 0805 | 3.43<br>(0.097)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 3/17/99 | 0800 | 3.10<br>(0.088)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           |         |      |                                                              |
| 50044050              | Quebrada Doña Elena<br>at Highway 167 near<br>Comerío, PR | Lat 18°15'04", long 66°12'29",<br>Hydrologic Unit 21010005, at<br>barrio Doña Elena, 0.2 mi (0.3<br>km) upstream of Río de La<br>Plata, 2.4 mi (3.9 km) south-<br>east of Cerro Avispa, 4.3 mi<br>(6.9 km) southeast from<br>Comerío plaza. | 1.28<br>(3.32)                                            | 1/29/98 | 1220 | 0.70<br>(0.020)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 3/10/98 | 1010 | 0.86<br>(0.024)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 3/20/98 | 1020 | 0.70<br>(0.020)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 6/09/98 | 1200 | 0.70<br>(0.020)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 6/11/98 | 1230 | 0.67<br>(0.019)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 6/24/98 | 0825 | 0.62<br>(0.018)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 7/13/98 | 1145 | 0.60<br>(0.017)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 7/15/98 | 1005 | 0.54<br>(0.015)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 1/25/99 | 0955 | 1.76<br>(0.050)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 2/09/99 | 0820 | 1.68<br>(0.048)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 2/23/99 | 0920 | 1.48<br>(0.042)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           | 3/15/99 | 0905 | 1.36<br>(0.038)                                              |
|                       |                                                           |                                                                                                                                                                                                                                             |                                                           |         |      |                                                              |

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66°08'45"  
18°19'41"

65°59'14"



18°06'20"

**Figure 27.** Location of low-flow partial-record stations in Caguas, Puerto Rico.

## DISCHARGE AT PARTIAL-RECORD STATIONS

## Low-flow partial-record stations

| STATION<br>NUMBER         | STATION<br>NAME                                   | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                                 | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|---------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río Grande de Loíza basin |                                                   |                                                                                                                                                                                                                                                          |                                                           |         |      |                                                              |
| 50052925                  | Río Turabo at barrio San Salvador, PR             | Lat 18°08'37", long 66°03'05", Hydrologic Unit 21010005, at barrio San Salvador, 2.7 mi (4.3 km) southwest of Cerro Gregorio, 0.8 mi (1.3 km) northwest of Escuela Segunda Unidad de Mercedes Palma, and 2.4 mi (3.9 km) southwest from Villa Borinquen. | 1.38<br>(3.57)                                            | 2/24/98 | 1120 | 3.23<br>(0.091)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 5/13/98 | 1220 | 3.16<br>(0.089)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 6/16/98 | 0655 | 3.20<br>(0.091)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 7/01/98 | 1025 | 2.59<br>(0.073)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 9/17/98 | 1130 | 8.35<br>(0.236)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 2/19/99 | 0805 | 3.99<br>(0.113)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/05/99 | 0815 | 3.15<br>(0.089)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/19/99 | 0735 | 2.60<br>(0.074)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 4/19/99 | 0845 | 2.05<br>(0.058)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           |         |      |                                                              |
| 50052950                  | Quebrada Maracai at barrio San Salvador, PR       | Lat 18°08'37", long 66°03'04", Hydrologic Unit 21010005, at barrio San Salvador, 2.7 mi (4.3 km) southwest of Cerro Gregorio, 0.8 mi (1.3 km) northwest of Escuela Segunda Unidad de Mercedes Palma, and 2.4 mi (3.9 km) southwest of Villa Borinquen.   | 2.31<br>(5.98)                                            | 2/24/98 | 1200 | 4.09<br>(0.116)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 5/13/98 | 1140 | 5.10<br>(0.144)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 6/16/98 | 0735 | 3.77<br>(0.107)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 7/01/98 | 1105 | 3.29<br>(0.093)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 9/17/98 | 1210 | 5.54<br>(0.157)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 2/19/99 | 0725 | 6.49<br>(0.184)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/05/99 | 0730 | 5.19<br>(0.147)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/19/99 | 0700 | 4.70<br>(0.133)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 4/19/99 | 0810 | 3.45<br>(0.093)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           |         |      |                                                              |
| 50053060                  | Río Turabo at Highway 765 at barrio Borinquen, PR | Lat 18°10'45", long 66°02'33", Hydrologic Unit 21010005, at barrio Borinquen, 2.8 mi (4.5 km) northwest of Cerro Gregorio, 3.0 mi (4.8 km) northeast of Cerro Las Piñas, and 1.0 mi (1.6 km) from El Naranjito.                                          | 8.06<br>(20.9)                                            | 2/24/98 | 0750 | 12.2<br>(0.346)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/19/98 | 1055 | 15.3<br>(0.433)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 5/12/98 | 1355 | 13.7<br>(0.388)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 7/01/98 | 0840 | 9.46<br>(0.268)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 2/18/99 | 1150 | 15.6<br>(0.442)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/04/99 | 1215 | 12.8<br>(0.362)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/22/99 | 1055 | 10.0<br>(0.283)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 4/19/99 | 1030 | 8.22<br>(0.233)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           |         |      |                                                              |
| 50053080                  | Quebrada Naranjito at barrio Borinquen, PR        | Lat 18°10'56", long 66°02'35", Hydrologic Unit 21010005, at barrio Borinquen, 3.0 mi (4.8 km) northwest of Cerro Gregorio, 3.1 mi (5.0 km) northeast of Cerro Las Piñas, and 1.1 mi (1.8 km) northwest from El Naranjito.                                | 2.24<br>(5.80)                                            | 2/24/98 | 0715 | 1.14<br>(0.032)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/19/98 | 1025 | 0.95<br>(0.027)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 5/12/98 | 1300 | 0.91<br>(0.026)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 7/01/98 | 0805 | 0.33<br>(0.009)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 2/18/99 | 1240 | 1.15<br>(0.032)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/04/99 | 1305 | 1.17<br>(0.033)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 3/22/99 | 1140 | 0.61<br>(0.017)                                              |
|                           |                                                   |                                                                                                                                                                                                                                                          |                                                           | 4/19/99 | 1115 | 0.54<br>(0.015)                                              |

DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

| STATION<br>NUMBER         | STATION<br>NAME                                                      | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                        | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|---------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río Grande de Loíza basin |                                                                      |                                                                                                                                                                                                                                                 |                                                           |         |      |                                                              |
| 50053150                  | Quebrada Sonadora<br>at barrio Beatriz,<br>PR                        | Lat 18°10'22", long 66°03'42",<br>Hydrologic Unit 21010005, at<br>barrio Beatriz, 3.6 mi (5.8 km)<br>northwest of Cerro Gregorio,<br>1.8 mi (2.9 km) northeast of<br>Cerro Las Piñas, and 1.4 mi<br>(2.2 km) southeast from Villa<br>Borinquen. | 1.20<br>(3.11)                                            | 2/24/98 | 0900 | 1.33<br>(0.038)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 5/14/98 | 1210 | 0.98<br>(0.028)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 6/16/98 | 0930 | 0.90<br>(0.025)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 7/02/98 | 1130 | 0.75<br>(0.021)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 9/17/98 | 1405 | 1.98<br>(0.056)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 2/19/99 | 1000 | 1.76<br>(0.050)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/05/99 | 1000 | 1.56<br>(0.044)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/19/99 | 0930 | 1.27<br>(0.036)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 4/20/98 | 1105 | 1.06<br>(0.030)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           |         |      |                                                              |
| 50053200                  | Quebrada Beatriz at<br>barrio Beatriz, PR                            | Lat 18°11'01", long 66°03'52",<br>Hydrologic Unit 21010005, at<br>barrio Beatriz, 4.1 mi (6.6 km)<br>northwest of Cerro Gregorio,<br>2.3 mi (3.7 km) northeast of<br>Cerro Las Piñas, and 1.6 mi<br>(2.6 km) northwest from Villa<br>Borinquen. | 4.39<br>(11.4)                                            | 2/24/98 | 1000 | 4.59<br>(0.130)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 6/03/98 | 1045 | 1.99<br>(0.056)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 6/16/98 | 1025 | 2.43<br>(0.069)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 7/02/98 | 1020 | 2.23<br>(0.063)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 2/19/99 | 1050 | 5.74<br>(0.162)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/05/99 | 1055 | 4.75<br>(0.134)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/19/99 | 1030 | 3.90<br>(0.110)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 4/20/99 | 0955 | 3.00<br>(0.085)                                              |
| 50053950                  | Quebrada de Las<br>Quebradillas at<br>barrio Beatriz,<br>PR          | Lat 18°11'40", long 66°05'25",<br>Hydrologic Unit 21010005, at<br>barrio Beatriz, 2.8 mi (4.5 km)<br>northwest of Cerro Las Piñas,<br>1.8 mi (2.9 km) northeast of<br>Las Cruces, and 3.4 mi (5.5 km)<br>northwest from Villa Borinquen.        | 3.85<br>(9.97)                                            | 2/04/98 | 1205 | 3.57<br>(0.101)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 6/04/98 | 1135 | 3.01<br>(0.085)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 6/16/98 | 1145 | 3.31<br>(0.094)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 7/02/98 | 0915 | 2.41<br>(0.068)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 2/18/99 | 0935 | 8.14<br>(0.230)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/03/99 | 1000 | 6.57<br>(0.186)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/04/99 | 1010 | 7.77<br>(0.220)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/22/99 | 0910 | 5.40<br>(0.153)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 4/20/99 | 0845 | 4.57<br>(0.129)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           |         |      |                                                              |
| 50053975                  | Quebrada de Las<br>Quebradillas above<br>Dam at barrio<br>Turabo, PR | Lat 18°11'37", long 66°04'10",<br>Hydrologic Unit 21010005, at<br>barrio Beatriz, 2.8 mi (4.5 km)<br>northeast of Cerro Las Piñas,<br>2.1 mi (3.4 km) northwest of<br>Villa Borinquen, and 3.7 mi<br>(6.0 km) southwest from<br>Caguas plaza.   | 6.27<br>(16.2)                                            | 2/04/98 | 1050 | 4.70<br>(0.133)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 5/26/98 | 1200 | 9.15<br>(0.259)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 6/16/98 | 1250 | 4.72<br>(0.137)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 7/02/98 | 0845 | 4.14<br>(0.117)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 2/18/99 | 0825 | 11.5<br>(0.326)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/02/99 | 0930 | 12.3<br>(0.348)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/04/99 | 0850 | 10.5<br>(0.297)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 3/22/99 | 0810 | 8.57<br>(0.242)                                              |
|                           |                                                                      |                                                                                                                                                                                                                                                 |                                                           | 4/20/99 | 0730 | 6.99<br>(0.198)                                              |

## DISCHARGE AT PARTIAL-RECORD STATIONS

## Low-flow partial-record stations--Continued

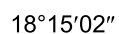
| STATION<br>NUMBER         | STATION<br>NAME                             | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                             | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|---------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río Grande de Loíza basin |                                             |                                                                                                                                                                                                                                      |                                                           |         |      |                                                              |
| 50054300                  | Río Turabo at Villa del Rey near Caguas, PR | Lat 18°12'51", long 66°02'30", Hydrologic Unit 21010005, at barrio Turabo, 2.5 mi (4.0 km) north of Villa Borinquen, 4.8 mi (7.7 km) northwest of Cerro Gregorio, and 1.6 mi (2.6 km) southwest from Caguas plaza.                   | 25.0<br>(64.8)                                            | 2/04/98 | 0945 | 10.8<br>(0.306)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 6/02/98 | 1150 | 11.0<br>(0.312)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 6/16/98 | 1350 | 9.72<br>(0.275)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 7/01/98 | 0650 | 5.31<br>(0.150)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 9/17/99 | 1015 | 37.1<br>(1.051)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 2/18/99 | 1040 | 27.0<br>(0.765)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/04/99 | 1110 | 21.2<br>(0.600)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/19/99 | 1140 | 14.1<br>(0.400)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 4/19/99 | 1310 | 12.1<br>(0.343)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           |         |      |                                                              |
| 50055120                  | Río Cagüitas at Highway 156 near Caguas, PR | Lat 18°14'41", long 66°03'52", Hydrologic Unit 21010005, at barrio Cañabón at Highway 156, 3.4 mi (5.5 km) northeast of Los Sumideros, 1.2 mi (1.9 km) northeast of Escuela Bunker, and 2.0 mi (3.2 km) northwest from Caguas plaza. | 7.44<br>(19.3)                                            | 2/03/98 | 1140 | 0.89<br>(0.025)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/19/98 | 0820 | 1.35<br>(0.038)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 5/19/98 | 1010 | 3.51<br>(0.099)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 6/30/98 | 1135 | 1.73<br>(0.049)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 8/05/98 | 1015 | 3.04<br>(0.086)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 2/17/99 | 1200 | 7.89<br>(0.223)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/08/99 | 1125 | 6.62<br>(0.187)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/18/99 | 1130 | 5.48<br>(0.153)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 4/21/99 | 1200 | 4.27<br>(0.121)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           |         |      |                                                              |
| 50055150                  | Río Cañaboncito at barrio Cañaboncito, PR   | Lat 18°12'53", long 66°04'31", Hydrologic Unit 21010005, at barrio Cañaboncito, 2.6 mi (4.2 km) southeast of Los Sumideros, 4.1 mi (6.6 km) northeast of Cerro Las Piñas, and 3.0 mi (4.8 km) Southwest from Caguas plaza.           | 1.61<br>(4.17)                                            | 2/04/98 | 0845 | 0.65<br>(0.018)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/19/98 | 0910 | 0.83<br>(0.024)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 5/21/98 | 1035 | 0.50<br>(0.014)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 7/02/98 | 0715 | 0.58<br>(0.016)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 8/05/98 | 1125 | 0.64<br>(0.018)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 9/18/98 | 1140 | 0.74<br>(0.021)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 2/18/99 | 0715 | 2.75<br>(0.078)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/04/99 | 0740 | 2.46<br>(0.070)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/22/99 | 0715 | 1.65<br>(0.047)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 4/19/99 | 1225 | 1.27<br>(0.036)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           |         |      |                                                              |
| 50055330                  | Río Bairoa at barrio Bairoa near Caguas, PR | Lat 18°15'44", long 66°04'31", Hydrologic Unit 21010005, at barrio Bairoa, 0.5 mi (0.8 km) northwest of Las Carolinas, 2.8 mi (4.5 km) southwest of Cerro La Marquesa, and 1.9 mi (3.0 km) northeast of Aguas Buenas plaza.          | 3.03<br>(7.85)                                            | 2/03/98 | 1050 | 2.38<br>(0.067)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/19/98 | 0725 | 2.89<br>(0.082)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 5/11/98 | 1310 | 2.66<br>(0.075)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 6/30/98 | 1045 | 2.38<br>(0.067)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 8/05/98 | 0930 | 1.91<br>(0.054)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 9/18/98 | 1400 | 3.18<br>(0.090)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 2/17/99 | 1250 | 6.15<br>(0.174)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/08/99 | 1215 | 7.27<br>(0.206)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 3/18/99 | 1215 | 6.09<br>(0.172)                                              |
|                           |                                             |                                                                                                                                                                                                                                      |                                                           | 4/21/99 | 1245 | 4.60<br>(0.130)                                              |

DISCHARGE AT PARTIAL-RECORD STATION  
Low-flow partial-record stations--Continued

| STATION<br>NUMBER         | STATION<br>NAME                                    | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                   | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE     | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|---------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------|------|--------------------------------------------------------------|
| Río Grande de Loíza basin |                                                    |                                                                                                                                                                                                                                            |                                                           |          |      |                                                              |
| 50057725                  | Río Cañas at barrio Jagüeyes near Aguas Buenas, PR | Lat 18°16'54", long 66°04'41", Hydrologic Unit 21010005, at barrio Jagüeyes, 2.8 mi (4.5 km) east of Cerro La Marquesa, 1.8 mi (2.9 km) northwest of Las Carolinas, and 2.3 mi, (3.7 km) northeast of Aguas Buenas plaza.                  | 1.39<br>(3.60)                                            | 2/03/98  | 0725 | 0.30<br>(0.008)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/98  | 0900 | 0.54<br>(0.015)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 6/30/98  | 0655 | 0.37<br>(0.010)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 2/17/99  | 0815 | 1.98<br>(0.056)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/08/99  | 0835 | 1.69<br>(0.048)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/99  | 0810 | 1.61<br>(0.045)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 4/21/99  | 0815 | 1.25<br>(0.035)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           |          |      |                                                              |
| 50057750                  | Tributario de Río Cañas at barrio Río Cañas, PR    | Lat 18°17'56", long 66°03'49", Hydrologic Unit 21010005, at barrio Río Cañas, 3.3 mi (5.3 km) east of Cerro Marquesa, 1.7 mi (2.7 km) north of Las Carolinas, and 3.1 mi (5.0 km) northeast from Aguas Buenas plaza.                       | 0.68<br>(1.76)                                            | 2/03/98  | 0815 | 0.24<br>(0.007)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/98  | 0950 | 0.24<br>(0.007)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 6/30/98  | 0730 | 0.21<br>(0.006)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 2/17/99  | 0900 | 0.86<br>(0.024)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/08/99  | 0910 | 0.90<br>(0.025)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/99  | 0850 | 0.76<br>(0.022)                                              |
| 50057800                  | Río Cañas at barrio Jagüeyes near Río Cañas, PR    | Lat 18°17'09", long 66°04'21", Hydrologic Unit 21010005, at barrio Jagüeyes, 2.7 mi (4.3 km) northeast of Cerro Marquesa, 2.0 mi (3.2 km) northwest of Las Carolinas, and 2.8 mi (4.5 km) northeast from Aguas Buenas plaza.               | 2.74<br>(7.10)                                            | 2/03/98  | 0850 | 0.86<br>(0.024)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/98  | 1025 | 1.06<br>(0.030)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 5/05/98  | 0925 | 0.94<br>(0.027)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 6/30/98  | 0825 | 0.77<br>(0.022)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 11/19/98 | 1155 | 9.15<br>(0.259)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 2/17/99  | 0730 | 3.72<br>(0.105)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/08/99  | 0735 | 2.90<br>(0.082)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/99  | 0720 | 2.97<br>(0.084)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 5/21/99  | 0715 | 2.10<br>(0.059)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           |          |      |                                                              |
| 50058010                  | Río Cañas at Highway 1 at barrio Río Cañas, PR     | Lat 18°17'41", long 66°03'02", Hydrologic unit 21010005, at barrio Río Cañas at Highway 1, 2.7 mi (4.3 km) northeast of Las Carolinas, 4.2 mi (6.8 km) northeast of Cerro Marquesa, and 4.3 mi (6.9 km) northeast from Aguas Buenas plaza. | 3.60<br>(9.32)                                            | 2/03/98  | 0940 | 1.14<br>(0.032)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/98  | 1115 | 1.64<br>(0.046)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 5/05/98  | 1045 | 1.11<br>(0.031)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 6/30/98  | 0910 | 1.04<br>(0.029)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 11/19/98 | 1425 | 11.6<br>(0.328)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 2/17/99  | 1000 | 5.24<br>(0.148)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/08/99  | 0940 | 4.79<br>(0.136)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           | 3/18/99  | 0935 | 4.31<br>(0.122)                                              |
| 50058010                  | Río Cañas at Highway 1 at barrio Río Cañas, PR     | Lat 18°17'41", long 66°03'02", Hydrologic unit 21010005, at barrio Río Cañas at Highway 1, 2.7 mi (4.3 km) northeast of Las Carolinas, 4.2 mi (6.8 km) northeast of Cerro Marquesa, and 4.3 mi (6.9 km) northeast from Aguas Buenas plaza. | 3.60<br>(9.32)                                            | 4/21/99  | 0930 | 4.14<br>(0.117)                                              |
|                           |                                                    |                                                                                                                                                                                                                                            |                                                           |          |      |                                                              |

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**Figure 28.** Location of low-flow partial-record stations in Carolina, Puerto Rico.

## DISCHARGE AT PARTIAL-RECORD STATIONS

## Low-flow partial-record stations

| STATION<br>NUMBER         | STATION<br>NAME                                           | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                                          | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|---------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río Grande de Loíza basin |                                                           |                                                                                                                                                                                                                                                   |                                                           |         |      |                                                              |
| 50059210                  | Quebrada Grande at<br>barrio Dos Bocas,<br>PR             | Lat 18°21'22", long 65°59'23",<br>Hydrologic Unit 21010005, at<br>barrio Dos Bocas, 0.5 mi (0.8<br>km) upstream of Río Grande de<br>Loíza, 4.0 mi (6.4 km) north-<br>west of Cerro Gordo, and 1.5<br>mi (2.4 km) northwest from<br>Canto de Sapo. | 12.9<br>(33.4)                                            | 2/26/98 | 0735 | 5.89<br>(0.167)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/17/98 | 1420 | 7.54<br>(0.214)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 6/29/98 | 1330 | 4.19<br>(0.119)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 8/06/98 | 1420 | 8.21<br>(0.232)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 2/22/99 | 1350 | 9.63<br>(0.273)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/09/99 | 1400 | 9.60<br>(0.272)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/23/99 | 1335 | 7.96<br>(0.225)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 4/22/99 | 1340 | 5.56<br>(0.157)                                              |
| 50060160                  | Quebrada Maracuta<br>at barrio Santa<br>Cruz, PR          | Lat 18°21'07", long 65°57'00",<br>Hydrologic Unit 21010005, at<br>barrio Santa Cruz, 1.6 mi<br>(2.6 km) northwest of Cerro<br>Gordo, 1.2 mi (1.9 km) north-<br>east from Canto de Sapo, and<br>1.2 mi (1.9 km) northeast<br>From Mariana.         | 6.31<br>(16.3)                                            | 2/25/98 | 1030 | 1.93<br>(0.055)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/17/98 | 0940 | 1.77<br>(0.050)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 6/29/98 | 0900 | 1.31<br>(0.037)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 8/06/98 | 1010 | 1.53<br>(0.046)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 2/22/99 | 0915 | 3.37<br>(0.095)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/09/99 | 0950 | 3.49<br>(0.099)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/23/99 | 0925 | 2.82<br>(0.080)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 4/22/99 | 0900 | 1.90<br>(0.054)                                              |
| 50060190                  | Quebrada Pastrana<br>near Mariana at<br>barrio Cacaos, PR | Lat 18°20'23", long 65°57'35",<br>Hydrologic Unit 21010005, at<br>barrio Cacaos, 1.8 mi (2.9 km)<br>northwest of Cerro Gordo, 0.8<br>mi (1.3 km) southeast of Canto<br>de Sapo, and 5.7 mi (9.2 km)<br>northeast from Gurabo plaza.               | 0.79<br>(2.05)                                            | 2/25/98 | 0940 | 0.50<br>(0.014)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/17/98 | 1025 | 0.34<br>(0.010)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 4/07/98 | 1340 | 0.35<br>(0.010)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 6/29/98 | 0735 | 0.37<br>(0.010)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 8/06/98 | 0940 | 0.52<br>(0.015)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 8/07/98 | 1020 | 0.56<br>(0.016)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 2/22/99 | 0835 | 0.69<br>(0.020)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/09/99 | 0910 | 0.72<br>(0.020)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/23/99 | 0845 | 0.50<br>(0.014)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 4/22/98 | 0820 | 0.57<br>(0.016)                                              |
| 50060195                  | Quebrada Pastrana<br>near mouth at<br>barrio Cacaos, PR   | Lat 18°21'38", long 65°57'40",<br>Hydrologic unit 21010005, at<br>barrio Cacaos, 2.6 mi (4.2 km)<br>northwest of Cerro Gordo, 0.9<br>mi (1.4 km) northeast of Canto<br>de Sapo, and 2.6 mi (4.2 km)<br>southwest from Cambute.                    | 2.04<br>(5.28)                                            | 2/25/98 | 0835 | 0.58<br>(0.016)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/17/98 | 0855 | 0.63<br>(0.018)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 4/07/98 | 1130 | 0.27<br>(0.008)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 6/29/98 | 0750 | 0.67<br>(0.019)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 8/05/98 | 1120 | 1.92<br>(0.054)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 8/06/98 | 0850 | 1.46<br>(0.041)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 2/22/99 | 0750 | 1.39<br>(0.039)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/09/99 | 0820 | 1.30<br>(0.037)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 3/23/99 | 0805 | 0.96<br>(0.027)                                              |
|                           |                                                           |                                                                                                                                                                                                                                                   |                                                           | 4/22/99 | 0730 | 0.86<br>(0.024)                                              |

DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

| STATION<br>NUMBER         | STATION<br>NAME                             | LOCATION<br>AND<br>BASIN                                                                                                                                                                                                    | DRAINAGE<br>AREA<br>mi <sup>2</sup><br>(km <sup>2</sup> ) | DATE    | TIME | STREAM<br>FLOWS<br>ft <sup>3</sup> /s<br>(m <sup>3</sup> /s) |
|---------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------|------|--------------------------------------------------------------|
| Río Grande de Loíza basin |                                             |                                                                                                                                                                                                                             |                                                           |         |      |                                                              |
| 50060200                  | Quebrada Maracuta at Trujillo Bajo, PR      | Lat 18°22'11", long 65°57'28", Hydrologic unit 21010005, at bridge on Highway 853, and 0.3 mi (0.5 km) above Junction with Río Grande de Loíza.                                                                             | 10.2<br>(26.4)                                            | 2/25/98 | 0735 | 3.70<br>(0.105)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/17/98 | 0815 | 3.49<br>(0.099)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 6/29/98 | 0700 | 2.80<br>(0.079)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 8/06/98 | 0800 | 4.46<br>(0.126)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 2/22/99 | 0700 | 5.40<br>(0.153)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/09/99 | 0730 | 5.67<br>(0.160)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/23/99 | 0715 | 4.02<br>(0.114)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 4/97/99 | 0630 | 4.97<br>(0.141)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           |         |      |                                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           |         |      |                                                              |
| 50061200                  | Río Canovanillas at Carruzos, PR            | Lat 18°19'03", long 65°54'16", Hydrologic Unit 21010005, at bridge on road 500 ft (152 m) off of Highway 185, and 0.7 mi (1.1 km) east of Jesús T. Piñero school.                                                           | 9.10<br>(23.6)                                            | 2/25/98 | 1355 | 3.20<br>(0.091)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/17/98 | 1310 | 3.13<br>(0.089)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 4/17/98 | 1335 | 7.46<br>(0.211)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 6/29/98 | 1210 | 1.89<br>(0.054)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 8/06/98 | 1310 | 2.26<br>(0.064)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 8/14/98 | 1145 | 2.45<br>(0.069)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 2/22/99 | 1240 | 6.56<br>(0.186)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/09/99 | 1255 | 6.33<br>(0.179)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/23/99 | 1225 | 6.32<br>(0.179)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 4/22/99 | 1235 | 3.34<br>(0.094)                                              |
| 50061325                  | Río Canovanillas at barrio Canovanillas, PR | Lat 18°21'51", long 65°55'09", Hydrologic Unit 21010005, at barrio Canovanillas, 3.6 mi (5.8 km) northwest of Cerro Pitahaya, 2.2 mi (3.5 km) northeast of Cerro Gordo, and 1.6 mi (2.8 km) southwest from Canóvanas plaza. | 15.0<br>(38.8)                                            | 2/25/98 | 1120 | 5.18<br>(0.147)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/17/98 | 1105 | 5.53<br>(0.157)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 4/13/98 | 1240 | 15.7<br>(0.445)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 6/29/98 | 0950 | 3.00<br>(0.085)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 8/06/98 | 1110 | 3.29<br>(0.093)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 8/12/98 | 1245 | 4.88<br>(0.138)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 2/22/99 | 1010 | 9.69<br>(0.274)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/09/99 | 1045 | 8.57<br>(0.242)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 3/23/99 | 1020 | 7.27<br>(0.206)                                              |
|                           |                                             |                                                                                                                                                                                                                             |                                                           | 4/22/99 | 0955 | 5.34<br>(0.151)                                              |

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**Water-Quality at  
Partial Record Stations  
in Puerto Rico**

## MISCELLANEOUS STATION ANALYSES

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

Water-quality partial-record stations are particular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrological analysis. The data are collected usually less than quarterly.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE                        | TIME                                                                                  | SAM-<br>PLING<br>DEPTH<br>(FEET)<br>(00003) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TRANS-<br>PAR-<br>ENCY<br>(SECCHI<br>DISK)<br>(IN)<br>(00077) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00300) | COLI-<br>FORM,<br>FECAL,<br>0.45<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) |
|-----------------------------|---------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|
| RIO DE GUAJATACA BASIN      |                                                                                       |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| 50010720                    | LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18° 22' 05"N LONG 66° 54' 36"W) |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| DEC<br>03...                | 0850                                                                                  | 1.00                                        | 27.3                                            | 273                                                          | 7.9                                                                  | 37.0                                                          | 11.8                                                                      | K13                                                                        |
| MAR<br>18...                | 0900                                                                                  | 1.00                                        | 26.3                                            | 312                                                          | 8.0                                                                  | 51.0                                                          | 10.5                                                                      | K20                                                                        |
| JUL<br>29...                | 0935                                                                                  | 1.00                                        | 28.7                                            | 297                                                          | 7.6                                                                  | 48.0                                                          | 6.1                                                                       | K4                                                                         |
| RIO GRANDE DE ARECIBO BASIN |                                                                                       |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| 50025110                    | LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18° 19' 15"N LONG 66° 40' 11"W) |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| DEC<br>08...                | 0830                                                                                  | 1.00                                        | 26.4                                            | 238                                                          | 7.6                                                                  | 37.0                                                          | 6.7                                                                       | K130                                                                       |
| MAR<br>19...                | 1000                                                                                  | 1.00                                        | 27.3                                            | 275                                                          | 8.5                                                                  | 34.0                                                          | 9.8                                                                       | 240                                                                        |
| JUL<br>23...                | 0915                                                                                  | 1.00                                        | 29.1                                            | 248                                                          | 8.0                                                                  | 17.0                                                          | 8.9                                                                       | K120                                                                       |
| RIO DE LA PLATA BASIN       |                                                                                       |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| 50039900                    | LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18° 05' 04"N LONG 66° 06' 03"W) |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| NOV<br>25...                | 0905                                                                                  | 1.00                                        | 24.8                                            | 96                                                           | 7.6                                                                  | 30.0                                                          | 7.7                                                                       | K26                                                                        |
| MAR<br>24...                | 1035                                                                                  | 1.00                                        | 24.2                                            | 121                                                          | 8.5                                                                  | 42.0                                                          | 9.0                                                                       | 44                                                                         |
| JUL<br>16...                | 1015                                                                                  | 1.00                                        | 28.6                                            | 114                                                          | 7.3                                                                  | 40.0                                                          | 7.53                                                                      | K11                                                                        |
| 50044400                    | LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18° 19' 33"N LONG 66° 12' 28"W)     |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| NOV<br>20...                | 1020                                                                                  | 1.00                                        | 27.4                                            | 265                                                          | 7.6                                                                  | 36.0                                                          | 9.0                                                                       | K72                                                                        |
| MAR<br>26...                | 1000                                                                                  | 1.00                                        | 27.1                                            | 408                                                          | 8.2                                                                  | 42.0                                                          | 12.8                                                                      | 64                                                                         |
| JUL<br>22...                | 1015                                                                                  | 1.00                                        | 29.6                                            | 422                                                          | 8.0                                                                  | 15.0                                                          | 7.2                                                                       | K130                                                                       |
| RIO DE BAYAMON BASIN        |                                                                                       |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| 50047537                    | LAGO DE CIDRA NR RIO BAYAMON MOUTH (LAT 18° 11' 02"N LONG 66° 08' 6"W)                |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| DEC<br>01...                | 1015                                                                                  | 1.00                                        | 25.9                                            | 211                                                          | 7.3                                                                  | 31.0                                                          | 6.5                                                                       | K8                                                                         |
| MAR<br>23...                | 1215                                                                                  | 1.00                                        | 25.8                                            | 255                                                          | 8.4                                                                  | 24.0                                                          | 9.0                                                                       | 56                                                                         |
| JUL<br>21...                | 0955                                                                                  | 1.00                                        | 27.8                                            | 256                                                          | 7.4                                                                  | 14.0                                                          | 5.1                                                                       | 550                                                                        |
| RIO GRANDE DE LOIZA BASIN   |                                                                                       |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| 50057500                    | LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18° 16' 51"N LONG 66° 00' 35"W)           |                                             |                                                 |                                                              |                                                                      |                                                               |                                                                           |                                                                            |
| NOV<br>21...                | 1130                                                                                  | 1.00                                        | 28.0                                            | 293                                                          | 7.2                                                                  | 6.00                                                          | 5.3                                                                       | 68                                                                         |
| MAR<br>25...                | 1030                                                                                  | 1.00                                        | 27.4                                            | 264                                                          | 6.8                                                                  | 4.00                                                          | 4.6                                                                       | 500                                                                        |
| JUL<br>24...                | 1035                                                                                  | 1.00                                        | 29.9                                            | 304                                                          | 7.1                                                                  | 10.0                                                          | 5.5                                                                       | 84                                                                         |

## MISCELLANEOUS STATION ANALYSES

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE                                  | STREP-<br>TOCOCCI<br>FECAL,<br>(COLS.<br>PER<br>100 ML)<br>(31679)                   | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>CAC03<br>(00410) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDE<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L)<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L)<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L)<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L)<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L)<br>AS N)<br>(00605) |
|---------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| RIO GUAJATACA BASIN-Continued         |                                                                                      |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| 50010720                              | LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS,PR (LAT 18° 22' 05"N LONG 66° 54' 36"W) |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| DEC 03...                             | K8                                                                                   | 120                                                         | <1                                                                          | --                                                               | <.010                                                            | <.020                                                            | .080                                                             | .92                                                              |
| MAR 18...                             | 90                                                                                   | 130                                                         | 1                                                                           | --                                                               | <.010                                                            | .210                                                             | .060                                                             | .56                                                              |
| JUL 29...                             | K2                                                                                   | 146                                                         | <1                                                                          | --                                                               | <.010                                                            | <.020                                                            | .010                                                             | .56                                                              |
| RIO GRANDE DE ARECIBO BASIN-Continued |                                                                                      |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| 50025110                              | LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO,PR (LAT 18° 19' 15"N LONG 66° 40' 11"W) |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| DEC 08...                             | 44                                                                                   | 85                                                          | --                                                                          | .533                                                             | .017                                                             | .550                                                             | .080                                                             | .36                                                              |
| MAR 19...                             | K29                                                                                  | 90                                                          | 6                                                                           | .253                                                             | .027                                                             | .280                                                             | .070                                                             | .51                                                              |
| JUL 23...                             | 30                                                                                   | 85                                                          | 9                                                                           | .406                                                             | .020                                                             | .430                                                             | .030                                                             | .64                                                              |
| RIO DE LA PLATA BASIN-Continued       |                                                                                      |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| 50039900                              | LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY,PR (LAT 18° 05' 04"N LONG 66° 06' 03"W) |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| NOV 25...                             | 210                                                                                  | 31                                                          | <1                                                                          | --                                                               | <.010                                                            | <.020                                                            | .030                                                             | .24                                                              |
| MAR 24...                             | K28                                                                                  | 36                                                          | 58                                                                          | .010                                                             | .010                                                             | <.020                                                            | .040                                                             | .35                                                              |
| JUL 16...                             | K20                                                                                  | 35                                                          | 7                                                                           | --                                                               | <.010                                                            | <.020                                                            | .020                                                             | --                                                               |
| 50044400                              | LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18° 19' 33"N LONG 66° 12' 28"W)    |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| NOV 20...                             | 44                                                                                   | 92                                                          | 1                                                                           | .706                                                             | .034                                                             | .740                                                             | .020                                                             | .44                                                              |
| MAR 26...                             | 42                                                                                   | 140                                                         | --                                                                          | .020                                                             | .010                                                             | .030                                                             | .070                                                             | .68                                                              |
| JUL 22...                             | K10                                                                                  | 131                                                         | 15                                                                          | .380                                                             | .020                                                             | .040                                                             | .010                                                             | .39                                                              |
| RIO DE BAYAMON BASIN-Continued        |                                                                                      |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| 50047537                              | LAGO DE CIDRA NR RIO BAYAMON MOUTH (LAT 18° 11' 02"N LONG 66° 08' 06"W)              |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| DEC 01...                             | K15                                                                                  | 77                                                          | <1                                                                          | --                                                               | <.010                                                            | <.020                                                            | .020                                                             | .65                                                              |
| MAR 23...                             | K8                                                                                   | 84                                                          | 26                                                                          | .420                                                             | .080                                                             | .500                                                             | 1.20                                                             | .50                                                              |
| JUL 21...                             | 690                                                                                  | 79                                                          | 28                                                                          | .221                                                             | .05                                                              | .27                                                              | .68                                                              | .56                                                              |
| RIO GRANDE DE LOIZA BASIN-Continued   |                                                                                      |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| 50057500                              | LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18° 16' 51"N LONG 66° 00' 35"W)          |                                                             |                                                                             |                                                                  |                                                                  |                                                                  |                                                                  |                                                                  |
| NOV 21...                             | K120                                                                                 | 88                                                          | 40                                                                          | --                                                               | <.010                                                            | 1.80                                                             | .140                                                             | .83                                                              |
| MAR 25...                             | K170                                                                                 | 69                                                          | 54                                                                          | .448                                                             | .042                                                             | .490                                                             | .080                                                             |                                                                  |
| JUL 24...                             | K110                                                                                 | 80                                                          | 19                                                                          | 1.51                                                             | .09                                                              | 1.6                                                              | .35                                                              | .75                                                              |

## MISCELLANEOUS STATION ANALYSES

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE | NITRO-<br>GEN, AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS N)<br>(00600) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | CHLOR-A<br>PHYTO-<br>PLANK-<br>TON<br>CHROMO<br>FLUOROM<br>(UG/L)<br>(70953) | CHLOR-B<br>PHYTO-<br>PLANK-<br>TON<br>CHROMO<br>FLUOROM<br>(UG/L)<br>(70954) | PLANK-<br>TON<br>BIOMASS<br>ASH WT<br>(MG/L)<br>(81353) | PLANK-<br>TON<br>BIOMASS<br>DRY WT<br>(MG/L)<br>(81354) |
|------|--------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
|------|--------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|

## RIO GUAJATACA BASIN-Continued

50010720 LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18° 22' 5"N LONG 66° 54' 36"W)

|              |     |     |     |      |     |     |     |     |
|--------------|-----|-----|-----|------|-----|-----|-----|-----|
| DEC<br>03... | 1.0 | 1.1 | 4.9 | .050 | 11  | .1  | 271 | 276 |
| MAR<br>18... | .62 | .83 | 3.7 | .020 | 23  | .5  | 274 | 284 |
| JUL<br>29... | .57 | .68 | 3.0 | .04  | 8.5 | 2.1 | 536 | 549 |

## RIO GRANDE DE ARECIBO BASIN-Continued

50025110 LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18° 19' 15"N LONG 66° 40' 11"W)

|              |     |     |     |      |      |     |     |     |
|--------------|-----|-----|-----|------|------|-----|-----|-----|
| DEC<br>08... | .44 | .99 | 4.4 | .030 | 5.10 | .4  | 260 | 260 |
| MAR<br>19... | .58 | .86 | 3.8 | .040 | 8.4  | .4  | 267 | 274 |
| JUL<br>23... | .67 | 1.1 | 4.9 | .11  | 28   | 2.8 | 372 | 386 |

## RIO DE LA PLATA BASIN-Continued

50039900 LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18° 05' 04"N LONG 66° 06' 03"W)

|              |      |    |    |       |     |     |     |     |
|--------------|------|----|----|-------|-----|-----|-----|-----|
| NOV<br>25... | .27  | -- | -- | <.020 | 3.9 | .3  | 259 | 264 |
| MAR<br>24... | --   | -- | -- | --    | 6.9 | .7  | 278 | 285 |
| JUL<br>16... | <.20 | -- | -- | .02   | 6.5 | 1.7 | 611 | 623 |

50044400 LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18° 19' 33"N LONG 66° 12' 28"W)

|              |     |     |     |      |     |    |     |     |
|--------------|-----|-----|-----|------|-----|----|-----|-----|
| NOV<br>20... | .46 | 1.2 | 5.3 | .070 | 5.7 | .7 | 265 | 272 |
| MAR<br>26... | --  | --  | --  | --   | 6.1 | .4 | 240 | 251 |
| JUL<br>22... | --  | --  | --  | --   | 6.5 | .1 | 393 | 403 |

## RIO DE BAYAMON BASIN-Continued

50047537 LAGO DE CIDRA NR RIO BAYAMON MOUTH (LAT 18° 11' 02"N LONG 66° 08' 06"W)

|              |     |     |     |      |     |     |     |     |
|--------------|-----|-----|-----|------|-----|-----|-----|-----|
| DEC<br>01... | .67 | --  | --  | .050 | 14  | 1.4 | 269 | 275 |
| MAR<br>23... | --  | --  | --  | --   | 14  | 2.1 | 272 | 282 |
| JUL<br>21... | .66 | .93 | 4.1 | .03  | 8.3 | .9  | 544 | 558 |

## RIO GRANDE DE LOIZA BASIN-Continued

50057500 LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18° 16' 51"N LONG 66° 00' 35"W)

|              |     |     |    |      |     |     |      |      |
|--------------|-----|-----|----|------|-----|-----|------|------|
| NOV<br>21... | .97 | 2.8 | 12 | .270 | 17  | .9  | 298  | 308  |
| MAR<br>25... | --  | --  | -- | --   | 1.6 | <.1 | 1420 | 1460 |
| JUL<br>24... | 1.1 | 2.7 | 12 | .34  | 7.6 | 1.2 | 567  | 583  |

MISCELLANEOUS STATION ANALYSES  
ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION  
WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE | TIME | SAM-<br>PLING<br>DEPTH<br>(FEET)<br>(00003) | TEMPER-<br>ATURE<br>WATER<br>(DEG C)<br>(00010) | SPE-<br>CIFIC<br>CON-<br>DUCT-<br>ANCE<br>(US/CM)<br>(00095) | PH<br>WATER<br>WHOLE<br>FIELD<br>(STAND-<br>ARD<br>UNITS)<br>(00400) | TRANS-<br>PAR-<br>ENCY<br>(SECCHI<br>DISK)<br>(IN)<br>(00077) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(MG/L)<br>(00300) | OXYGEN,<br>DIS-<br>SOLVED<br>(PER-<br>CENT<br>SATUR-<br>ATION)<br>(00301) | COLI-<br>FORM,<br>FECAL,<br>UM-MF<br>(COLS./<br>100 ML)<br>(31616) | STREP-<br>TOCOCCI<br>FECAL,<br>PER<br>(COLS.<br>100 ML)<br>(31679) |
|------|------|---------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
|------|------|---------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|

RIO DE LA PLATA BASIN-Continued

50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18° 20' 18"N LONG 66° 14' 01"W)

|       |      |      |      |     |      |      |     |     |     |     |
|-------|------|------|------|-----|------|------|-----|-----|-----|-----|
| NOV   |      |      |      |     |      |      |     |     |     |     |
| 20... | 0915 | 1.00 | 27.6 | 254 | 7.7  | 63.0 | 8.9 | 112 | 48  | K33 |
| 20... | 0930 | 48.0 | 24.3 | 185 | 7.0  | --   | --  | --  | --  | --  |
| MAR   |      |      |      |     |      |      |     |     |     |     |
| 26... | 0930 | 1.00 | 27.3 | 313 | 7.1  | 82.0 | 8.3 | 103 | 44  | K15 |
| 26... | 0935 | 72.0 | 23.8 | 209 | 6.6  | --   | --  | --  | --  | --  |
| JUL   |      |      |      |     |      |      |     |     |     |     |
| 22... | 1145 | 1.00 | 29.1 | 341 | 6.94 | 113  | .2  | 2   | K19 | K21 |
| 22... | 1200 | 48.0 | 24.3 | 249 | 6.9  | --   | --  | --  | --  | --  |

RIO DE BAYAMON BASIN-Continued

50047549 LAGO DE CIDRA NR DAM (LAT 18° 11' 52"N LONG 66° 08' 24"W)

|       |      |      |      |     |     |      |     |     |      |     |
|-------|------|------|------|-----|-----|------|-----|-----|------|-----|
| DEC   |      |      |      |     |     |      |     |     |      |     |
| 01... | 0945 | 1.00 | 26.1 | 203 | 7.1 | 42.0 | 6.7 | 86  | K14  | K4  |
| 01... | 0950 | 48.0 | 23.9 | 148 | 7.0 | --   | --  | --  | --   | --  |
| MAR   |      |      |      |     |     |      |     |     |      |     |
| 23... | 1135 | 1.00 | 25.8 | 242 | 8.5 | 32.0 | 9.2 | 117 | K20  | <2  |
| 23... | 1145 | 52.0 | 23.0 | 174 | 7.2 | --   | --  | --  | --   | --  |
| JUL   |      |      |      |     |     |      |     |     |      |     |
| 21... | 0900 | 1.00 | 28.0 | 248 | 7.3 | 24.0 | 3.2 | 43  | K180 | 100 |
| 21... | 0910 | 42.0 | 23.7 | 229 | 7.0 | --   | --  | --  | --   | --  |

RIO GRANDE DE LOIZA BASIN-Continued

50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18° 19' 29"N LONG 66° 00' 47"W)

|       |      |      |      |     |     |      |     |    |      |      |
|-------|------|------|------|-----|-----|------|-----|----|------|------|
| NOV   |      |      |      |     |     |      |     |    |      |      |
| 21... | 1100 | 1.00 | 28.8 | 254 | 7.1 | 9.00 | 5.4 | 70 | K140 | 84   |
| 21... | 1105 | 36.0 | 26.1 | 206 | 7.1 | --   | --  | -- | --   | --   |
| MAR   |      |      |      |     |     |      |     |    |      |      |
| 25... | 1000 | 1.00 | 27.1 | 235 | 6.6 | 4.00 | 4.0 | 50 | K32  | K150 |
| 25... | 1005 | 56.0 | 25.3 | 316 | 6.4 | --   | --  | -- | --   | --   |
| JUL   |      |      |      |     |     |      |     |    |      |      |
| 24... | 1015 | 1.00 | 29.8 | 332 | 6.9 | 17.0 | 3.9 | 51 | K110 | 84   |
| 24... | 1020 | 35.0 | 26.8 | 179 | 6.8 | --   | --  | -- | --   | --   |

## MISCELLANEOUS STATION ANALYSES

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE                                | HARD-<br>NESS<br>TOTAL<br>(MG/L<br>AS<br>CAC03)<br>(00900)                       | CALCIUM<br>DIS-<br>SOLVED<br>(MG/L<br>AS CA)<br>(00915) | MAGNE-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS MG)<br>(00925) | SODIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS NA)<br>(00930) | SODIUM<br>AD-<br>SORP-<br>TION<br>RATIO<br>(00931) | POTAS-<br>SIUM,<br>DIS-<br>SOLVED<br>(MG/L<br>AS K)<br>(00935) | ANC<br>WATER<br>UNFLTRD<br>FET<br>FIELD<br>MG/L AS<br>CAC03<br>(00410) | SULFATE<br>DIS-<br>SOLVED<br>(MG/L<br>AS S04)<br>(00945) | CHLO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS CL)<br>(00940) |
|-------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|
| RIO DE LA PLATA BASIN-Continued     |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 50044950                            | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18° 20' 18"N LONG 66° 14' 01"W)  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| NOV                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 20...                               | 92                                                                               | 23                                                      | 8.4                                                             | 16                                                      | .7                                                 | 2.7                                                            | 87                                                                     | 13                                                       | 20                                                             |
| 20...                               | 65                                                                               | 17                                                      | 5.8                                                             | 11                                                      | .6                                                 | 2.8                                                            | 56                                                                     | 11                                                       | 15                                                             |
| MAR                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 26...                               | 65                                                                               | 16                                                      | 6.1                                                             | 11                                                      | .6                                                 | 2.8                                                            | 61                                                                     | 9.5                                                      | 14                                                             |
| 26...                               | 78                                                                               | 18                                                      | 7.0                                                             | 18                                                      | .9                                                 | 2.4                                                            | 98                                                                     | 12                                                       | 21                                                             |
| JUL                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 22...                               | 120                                                                              | 27                                                      | 12                                                              | 20                                                      | .8                                                 | 2.8                                                            | 116                                                                    | 12                                                       | 23                                                             |
| 22...                               | 89                                                                               | 22                                                      | 8.3                                                             | 13                                                      | .6                                                 | 2.7                                                            | 123                                                                    | 9.3                                                      | 15                                                             |
| RIO DE BAYAMON BASIN-Continued      |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 50047549                            | LAGO DE CIDRA NR DAM (LAT 18° 11' 52"N LONG 66° 08' 24"W)                        |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| DEC                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 01...                               | 61                                                                               | 12                                                      | 7.3                                                             | 17                                                      | 1                                                  | 3.5                                                            | 71                                                                     | 5.2                                                      | 17                                                             |
| 01...                               | 74                                                                               | 20                                                      | 5.8                                                             | 10                                                      | .5                                                 | 2.4                                                            | 69                                                                     | 8.7                                                      | 10                                                             |
| MAR                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 23...                               | 70                                                                               | 15                                                      | 7.6                                                             | 17                                                      | .9                                                 | 3.0                                                            | 80                                                                     | 7.1                                                      | 18                                                             |
| 23...                               | 46                                                                               | 9.9                                                     | 5.1                                                             | 12                                                      | .8                                                 | 3.5                                                            | 90                                                                     | 7.5                                                      | 11                                                             |
| JUL                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 21...                               | 75                                                                               | 16                                                      | 8.6                                                             | 19                                                      | 1                                                  | 2.3                                                            | 78                                                                     | 7.3                                                      | 18                                                             |
| 21...                               | 64                                                                               | 14                                                      | 6.9                                                             | 15                                                      | .8                                                 | 3.2                                                            | 78                                                                     | 7.1                                                      | 13                                                             |
| RIO GRANDE DE LOIZA BASIN-Continued |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 50058800                            | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18° 19' 29"N LONG 66° 00' 47"W) |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| NOV                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 21...                               | 80                                                                               | 20                                                      | 7.5                                                             | 19                                                      | .9                                                 | 3.4                                                            | 80                                                                     | 14                                                       | 21                                                             |
| 21...                               | 64                                                                               | 16                                                      | 6.0                                                             | 15                                                      | .8                                                 | 3.3                                                            | 64                                                                     | 11                                                       | 17                                                             |
| MAR                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 25...                               | 61                                                                               | 15                                                      | 6.7                                                             | 15                                                      | .8                                                 | 3.3                                                            | 57                                                                     | 10                                                       | 14                                                             |
| 25...                               | 59                                                                               | 15                                                      | 5.4                                                             | 15                                                      | .9                                                 | 2.7                                                            | 61                                                                     | 11                                                       | 16                                                             |
| JUL                                 |                                                                                  |                                                         |                                                                 |                                                         |                                                    |                                                                |                                                                        |                                                          |                                                                |
| 24...                               | 94                                                                               | 23                                                      | 8.7                                                             | 26                                                      | 1                                                  | 3.7                                                            | 98                                                                     | 14                                                       | 26                                                             |
| 24...                               | 58                                                                               | 15                                                      | 5.3                                                             | 14                                                      | .8                                                 | 3.5                                                            | 99                                                                     | 10                                                       | 16                                                             |

## MISCELLANEOUS STATION ANALYSES

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE | FLUO-<br>RIDE,<br>DIS-<br>SOLVED<br>(MG/L<br>AS F)<br>(00950) | SILICA,<br>DIS-<br>SOLVED<br>(MG/L<br>AS<br>SI02)<br>(00955) | SOLIDS,<br>SUM OF<br>CONSTI-<br>TUENTS,<br>DIS-<br>SOLVED<br>(MG/L)<br>(70301) | RESIDUE<br>TOTAL<br>AT 105<br>DEG. C,<br>SUS-<br>PENDED<br>(MG/L)<br>(00530) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS N)<br>(00620) | NITRO-<br>GEN,<br>NITRITE<br>TOTAL<br>(MG/L<br>AS N)<br>(00615) | NITRO-<br>GEN,<br>NO2+NO3<br>TOTAL<br>(MG/L<br>AS N)<br>(00630) | NITRO-<br>GEN,<br>AMMONIA<br>TOTAL<br>(MG/L<br>AS N)<br>(00610) | NITRO-<br>GEN,<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00605) |
|------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
|------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|

## RIO DE LA PLATA BASIN-Continued

50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18° 20'18"N LONG 66° 14' 01"W)

|       |    |    |     |    |      |       |       |       |     |
|-------|----|----|-----|----|------|-------|-------|-------|-----|
| NOV   |    |    |     |    |      |       |       |       |     |
| 20... | .1 | 18 | 153 | <1 | .160 | .010  | .170  | <.010 | --  |
| 20... | .2 | 15 | 112 | -- | --   | --    | --    | --    | --  |
| MAR   |    |    |     |    |      |       |       |       |     |
| 26... | .2 | 23 | 119 | <1 | .120 | .140  | .260  | .040  | .56 |
| 26... | .1 | 14 | 151 | -- | --   | --    | --    | --    | --  |
| JUL   |    |    |     |    |      |       |       |       |     |
| 22... | .1 | 20 | 188 | <1 | --   | <.010 | <.020 | .020  | --  |
| 22... | .1 | 16 | 139 | -- | --   | --    | --    | --    | --  |

## RIO DE BAYAMON BASIN-Continued

50047549 LAGO DE CIDRA NR DAM (LAT 18° 11' 52"N LONG 66° 08' 24"W)

|       |     |    |     |    |      |       |       |      |     |
|-------|-----|----|-----|----|------|-------|-------|------|-----|
| DEC   |     |    |     |    |      |       |       |      |     |
| 01... | <.1 | 17 | 122 | 1  | --   | <.010 | <.020 | .040 | .52 |
| 01... | <.1 | 23 | 120 | -- | --   | --    | --    | --   | --  |
| MAR   |     |    |     |    |      |       |       |      |     |
| 23... | <.1 | 16 | 133 | 52 | .280 | .020  | .300  | .020 | .28 |
| 23... | <.1 | 11 | 114 | -- | --   | --    | --    | --   | --  |
| JUL   |     |    |     |    |      |       |       |      |     |
| 21... | .1  | 21 | 139 | 9  | .114 | .030  | .140  | .480 | --  |
| 21... | <.1 | 16 | 130 | -- | --   | --    | --    | --   | --  |

## RIO GRANDE DE LOIZA BASIN-Continued

50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18° 19 '29"N LONG 66° 00' 47"W)

|       |     |    |     |    |      |       |      |      |     |
|-------|-----|----|-----|----|------|-------|------|------|-----|
| NOV   |     |    |     |    |      |       |      |      |     |
| 21... | .1  | 25 | 156 | 17 | --   | <.010 | 1.60 | .060 | .65 |
| 21... | .1  | 19 | 126 | -- | --   | --    | --   | --   | --  |
| MAR   |     |    |     |    |      |       |      |      |     |
| 25... | .1  | 17 | 110 | 11 | .460 | <.010 | .460 | .180 | .50 |
| 25... | <.1 | 18 | 120 | -- | --   | --    | --   | --   | --  |
| JUL   |     |    |     |    |      |       |      |      |     |
| 24... | .1  | 29 | 189 | 7  | .776 | .080  | .860 | .140 | .70 |
| 24... | <.1 | 19 | 116 | -- | --   | --    | --   | --   | --  |

### MISCELLANEOUS STATION ANALYSES

### ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

**WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998**

|      | NITRO-<br>GEN,AM-<br>MONIA +<br>ORGANIC<br>TOTAL<br>(MG/L<br>AS N)<br>(00625) | NITRO-<br>GEN,<br>NITRATE<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71850) | NITRO-<br>GEN,<br>TOTAL<br>(MG/L<br>AS NO3)<br>(71887) | PHOS-<br>PHORUS<br>TOTAL<br>(MG/L<br>AS P)<br>(00665) | CHLOR-A<br>PHYTO-<br>PLANK-<br>TON<br>CHROMO<br>FLUOROM<br>(UG/L)<br>(70953) | CHLOR-B<br>PHYTO-<br>PLANK-<br>TON<br>CHROMO<br>FLUOROM<br>(UG/L)<br>(70954) | PLANK-<br>TON<br>BIOMASS<br>ASH WT<br>(MG/L)<br>(81353) | PLANK-<br>TON<br>BIOMASS<br>DRY WT<br>(MG/L)<br>(81354) |
|------|-------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| DATE |                                                                               |                                                                   |                                                        |                                                       |                                                                              |                                                                              |                                                         |                                                         |

## RIO DE LA PLATA BASIN-Continued

50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18° 20' 18"N LONG 66° 14' 01"W)

[illegible]

## RIO DE BAYAMON BASIN-Continued

50047549 LAGO DE CIDRA NR DAM (LAT 18° 11' 52"N LONG 66° 08' 24"W)

[illegible]

## RIO GRANDE DE LOIZA BASIN-Continued

50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18° 19' 29"N LONG 66° 00' 47"W)

[illegible]

MISCELLANEOUS STATION ANALYSES  
 PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORDS STATIONS  
 WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE                                  | TIME | PCB,<br>TOTAL<br>(UG/L)<br>(39516)                                                 | ALDRIN,<br>TOTAL<br>(UG/L)<br>(39330) | CHLOR-<br>DANE,<br>TECH-<br>NICAL<br>TOTAL<br>(UG/L)<br>(39350) | P,P'-<br>DDD<br>UNFILT<br>RECOVER<br>(UG/L)<br>(39360) | P,P'-<br>DDE,<br>TOTAL<br>RECOVER<br>(UG/L)<br>(39365) | P,P'-<br>DDT<br>UNFILT<br>RECOVER<br>(UG/L)<br>(39370) | DI-<br>AZINON,<br>TOTAL<br>(UG/L)<br>(39570) | DI-<br>ELDRIN<br>TOTAL<br>(UG/L)<br>(39380) | ENDO-<br>SULFAN<br>I<br>TOTAL<br>(UG/L)<br>(39388) |
|---------------------------------------|------|------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|----------------------------------------------|---------------------------------------------|----------------------------------------------------|
| RIO GUAJATACA BASIN-Continued         |      |                                                                                    |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| 50010790                              |      | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18° 23' 56"N LONG 66° 55' 23"W) |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| JUL<br>29...                          | 1000 | <.100                                                                              | <.010                                 | <.100                                                           | <.010                                                  | <.010                                                  | <.010                                                  | <.010                                        | <.010                                       | <.010                                              |
| RIO GRANDE DE ARECIBO BASIN-Continued |      |                                                                                    |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| 50020050                              |      | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18° 08' 21"N LONG 66° 44' 35"W)        |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| JUL<br>28...                          | 1200 | <.100                                                                              | <.010                                 | <.100                                                           | <.010                                                  | <.010                                                  | <.010                                                  | <.010                                        | <.010                                       | <.010                                              |
| 50027090                              |      | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18° 20' 09"N LONG 66° 40' 04"W)       |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| JUL<br>23...                          | 0945 | <.100                                                                              | <.010                                 | <.100                                                           | <.010                                                  | <.010                                                  | <.010                                                  | <.010                                        | <.010                                       | <.010                                              |
| RIO DE LA PLATA BASIN-Continued       |      |                                                                                    |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| 50039950                              |      | LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18° 04' 39"N LONG 66° 06' 19"W)        |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| JUL<br>16...                          | 1100 | <.100                                                                              | <.010                                 | <.100                                                           | <.010                                                  | <.010                                                  | <.010                                                  | <.010                                        | <.010                                       | <.010                                              |
| 50044950                              |      | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18° 20' 18"N LONG 66° 14' 01"W)    |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| JUL<br>22...                          | 1145 | <.100                                                                              | <.010                                 | <.100                                                           | <.010                                                  | <.010                                                  | <.010                                                  | <.010                                        | <.010                                       | <.010                                              |
| RIO DE BAYAMON BASIN-Continued        |      |                                                                                    |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| 50047549                              |      | LAGO DE CIDRA NR DAM (LAT 18° 11' 52"N LONG 66° 08' 24"W)                          |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| JUL<br>21...                          | 0900 | <.100                                                                              | <.010                                 | <.100                                                           | <.010                                                  | <.010                                                  | <.010                                                  | <.010                                        | <.010                                       | <.010                                              |
| RIO GRANDE DE LOIZA BASIN-Continued   |      |                                                                                    |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| 50058800                              |      | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18° 19' 29"N LONG 66° 00' 47"W)   |                                       |                                                                 |                                                        |                                                        |                                                        |                                              |                                             |                                                    |
| JUL<br>24...                          | 1015 | <.100                                                                              | <.010                                 | <.100                                                           | <.010                                                  | <.010                                                  | <.010                                                  | .018                                         | <.010                                       | <.010                                              |

## MISCELLANEOUS STATION ANALYSES

## PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORDS STATIONS

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE                                  | ENDRIN<br>WATER<br>UNFLTRD<br>REC<br>(UG/L)<br>(39390)                             | ETHION,<br>TOTAL<br>(UG/L)<br>(39398) | HEPTA-<br>CHLOR,<br>TOTAL<br>(UG/L)<br>(39410) | HEPTA-<br>CHLOR<br>EPOXIDE<br>TOTAL<br>(UG/L)<br>(39420) | LINDANE<br>TOTAL<br>(UG/L)<br>(39340) | MALA-<br>THION,<br>TOTAL<br>(UG/L)<br>(39530) | METH-<br>OXY-<br>CHLOR,<br>TOTAL<br>(UG/L)<br>(39480) | METHYL<br>PARA-<br>THION,<br>TOTAL<br>(UG/L)<br>(39600) | METHYL<br>TRI-<br>THION,<br>TOTAL<br>(UG/L)<br>(39790) | MIREX,<br>TOTAL<br>(UG/L)<br>(39755) |
|---------------------------------------|------------------------------------------------------------------------------------|---------------------------------------|------------------------------------------------|----------------------------------------------------------|---------------------------------------|-----------------------------------------------|-------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------|--------------------------------------|
| RIO GUAJATACA BASIN-Continued         |                                                                                    |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| 50010790                              | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18° 23' 56"N LONG 66° 55' 23"W) |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| JUL<br>29...                          | <.010                                                                              | <.010                                 | <.010                                          | <.010                                                    | <.010                                 | <.010                                         | <.010                                                 | <.010                                                   | --                                                     | <.010                                |
| RIO GRANDE DE ARECIBO BASIN-Continued |                                                                                    |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| 50020050                              | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18° 08' 21"N LONG 66° 44' 35"W)        |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| JUL<br>28...                          | <.010                                                                              | <.010                                 | <.010                                          | <.010                                                    | <.010                                 | <.010                                         | <.010                                                 | <.010                                                   | --                                                     | <.010                                |
| 50027090                              | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18° 20' 09"N LONG 66° 40' 04"W)       |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| JUL<br>23...                          | <.010                                                                              | <.010                                 | <.010                                          | <.010                                                    | <.010                                 | <.010                                         | <.010                                                 | <.010                                                   | --                                                     | <.010                                |
| RIO DE LA PLATA BASIN-Continued       |                                                                                    |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| 50039950                              | LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18° 04' 39"N LONG 66° 06' 19"W)        |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| JUL<br>16...                          | <.010                                                                              | <.010                                 | <.010                                          | <.010                                                    | <.010                                 | <.010                                         | <.010                                                 | <.010                                                   | --                                                     | <.010                                |
| 50044950                              | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18° 20' 18"N LONG 66° 14' 01"W)    |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| JUL<br>22...                          | <.010                                                                              | <.010                                 | <.010                                          | <.010                                                    | <.010                                 | <.010                                         | <.010                                                 | <.010                                                   | --                                                     | <.010                                |
| RIO DE BAYAMON BASIN-Continued        |                                                                                    |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| 50047549                              | LAGO DE CIDRA NR DAM (LAT 18° 11' 52"N LONG 66° 08' 24"W)                          |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| JUL<br>21...                          | <.010                                                                              | <.010                                 | <.010                                          | <.010                                                    | <.010                                 | <.010                                         | <.010                                                 | <.010                                                   | --                                                     | <.010                                |
| RIO GRANDE DE LOIZA BASIN-Continued   |                                                                                    |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| 50058800                              | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18° 19' 29"N LONG 66° 00' 47"W)   |                                       |                                                |                                                          |                                       |                                               |                                                       |                                                         |                                                        |                                      |
| JUL<br>24...                          | <.010                                                                              | <.010                                 | <.010                                          | <.010                                                    | <.010                                 | .008                                          | <.010                                                 | <.010                                                   | --                                                     | <.010                                |

## MISCELLANEOUS STATION ANALYSES

## PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORDS STATIONS

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| DATE                                  | PARA-<br>THION,<br>TOTAL<br>(UG/L)<br>(39540)                                       | PCNS<br>UNFILT<br>RECOVER<br>(UG/L)<br>(39250) | PER-<br>THANE<br>TOTAL<br>(UG/L)<br>(39034) | TOX-<br>APHENE,<br>TOTAL<br>(UG/L)<br>(39400) | TOTAL<br>TRI-<br>THION<br>(UG/L)<br>(39786) | 2,4-D,<br>TOTAL<br>(UG/L)<br>(39730) | 2,4,5-T<br>TOTAL<br>(UG/L)<br>(39740) | 2,4-DP<br>TOTAL<br>(UG/L)<br>(82183) | SILVEX,<br>TOTAL<br>(UG/L)<br>(39760) |
|---------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------|-----------------------------------------------|---------------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| RIO GUAJATACA BASIN-Continued         |                                                                                     |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| 50010790                              | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18° 23' 56"N LONG 66° 55' 23"W) |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| JUL<br>29...                          | <.010                                                                               | <.100                                          | <.100                                       | <1.00                                         | <.010                                       | .173                                 | <.010                                 | <.010                                | <.010                                 |
| RIO GRANDE DE ARECIBO BASIN-Continued |                                                                                     |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| 50020050                              | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18° 08' 21"N LONG 66° 44' 35"W)        |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| JUL<br>28...                          | <.010                                                                               | <.100                                          | <.100                                       | <1.00                                         | <.010                                       | .024                                 | <.010                                 | <.010                                | <.010                                 |
| 50027090                              | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18° 20' 09"N LONG 66° 40' 04"W)       |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| JUL<br>23...                          | <.010                                                                               | <.100                                          | <.100                                       | <1.00                                         | <.010                                       | .109                                 | <.010                                 | <.010                                | <.010                                 |
| RIO DE LA PLATA BASIN-Continued       |                                                                                     |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| 50039950                              | LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18° 04' 39"N LONG 66° 06' 19"W)         |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| JUL<br>16...                          | <.010                                                                               | <.100                                          | <.100                                       | <1.00                                         | <.010                                       | <.010                                | <.010                                 | <.010                                | <.010                                 |
| 50044950                              | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18° 20' 18"N LONG 66° 14' 01"W)     |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| JUL<br>22...                          | <.010                                                                               | <.100                                          | <.100                                       | <1.00                                         | <.010                                       | <.010                                | <.010                                 | <.010                                | <.010                                 |
| RIO DE BAYAMON BASIN-Continued        |                                                                                     |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| 50047549                              | LAGO DE CIDRA NR DAM (LAT 18° 11' 52"N LONG 66° 08' 24"W)                           |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| JUL<br>21...                          | <.010                                                                               | <.100                                          | <.100                                       | <1.00                                         | <.010                                       | .010                                 | <.010                                 | <.010                                | <.010                                 |
| RIO GRANDE DE LOIZA BASIN-Continued   |                                                                                     |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| 50058800                              | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18° 19' 29"N LONG 66° 00' 47"W)    |                                                |                                             |                                               |                                             |                                      |                                       |                                      |                                       |
| JUL<br>24...                          | <.010                                                                               | <.100                                          | <.100                                       | <1.00                                         | <.010                                       | .157                                 | <.010                                 | <.010                                | <.010                                 |

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# **Ground-Water Records for Puerto Rico**

## GROUND-WATER LEVELS

## RIO GUAJATACA BASIN

182925067031100. Local number, OT-1.

LOCATION.--Lat 18°29'25", long 67°03'11", Hydrologic Unit 21010002, 0.15 mi northwest of Hwy 472, 1.90 mi northwest of the intersection of Hwy 112 with Hwy 2, and 1.32 mi east of Hwy 466. Owner: Otilio Milán, Name: Otilio No. 1.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 0-10 ft (0-3.05 m), open hole 10-347 ft (3.05-105.8 m). Depth 347 ft (105.8 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 295 ft (89.9 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.08 ft (0.94 m), above land-surface datum.

REMARKS.--Recording observation well. Eletronic Data Logger (EDL), installed on May 16, 1997, removed on June 16, 1998.

PERIOD OF RECORD.--May 16, 1997 to September 30, 1998. From June 16, 1998 only tape down measurements.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 292.4 ft (89.1 m), below land-surface datum, Oct. 18, 19, 1997; lowest water level recorded, 293.5 ft (89.5 m), below land-surface datum, May 12, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|-----|-----|-----|-----|-----|-----|-----|--------|--------|--------|--------|--------|
| 1    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.72 | 292.92 | 292.89 | 292.68 |
| 2    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.74 | 292.93 | 292.90 | 292.65 |
| 3    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.75 | 292.93 | 292.91 | 292.62 |
| 4    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.72 | 292.94 | 292.91 | 292.62 |
| 5    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.72 | 292.96 | 292.92 | 292.60 |
| 6    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.72 | 292.96 | 292.91 | 292.57 |
| 7    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.74 | 292.96 | 292.89 | 292.55 |
| 8    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.76 | 292.96 | 292.90 | 292.54 |
| 9    | --- | --- | --- | --- | --- | --- | --- | ---    | 292.78 | 292.96 | 292.91 | 292.54 |
| 10   | --- | --- | --- | --- | --- | --- | --- | ---    | 292.79 | 292.95 | 292.93 | 292.55 |
| 11   | --- | --- | --- | --- | --- | --- | --- | ---    | 292.80 | 292.95 | 292.95 | 292.55 |
| 12   | --- | --- | --- | --- | --- | --- | --- | ---    | 292.82 | 292.94 | 292.97 | 292.59 |
| 13   | --- | --- | --- | --- | --- | --- | --- | ---    | 292.80 | 292.93 | 292.97 | 292.60 |
| 14   | --- | --- | --- | --- | --- | --- | --- | ---    | 292.79 | 292.94 | 292.99 | 292.61 |
| 15   | --- | --- | --- | --- | --- | --- | --- | ---    | 292.81 | 292.92 | 292.99 | 292.63 |
| 16   | --- | --- | --- | --- | --- | --- | --- | ---    | 292.81 | 292.91 | 292.99 | 292.63 |
| 17   | --- | --- | --- | --- | --- | --- | --- | 292.88 | 292.82 | 292.88 | 293.00 | 292.63 |
| 18   | --- | --- | --- | --- | --- | --- | --- | 292.91 | 292.83 | 292.88 | 293.01 | 292.63 |
| 19   | --- | --- | --- | --- | --- | --- | --- | 292.92 | 292.85 | 292.86 | 293.01 | 292.64 |
| 20   | --- | --- | --- | --- | --- | --- | --- | 292.84 | 292.86 | 292.86 | 293.00 | 292.65 |
| 21   | --- | --- | --- | --- | --- | --- | --- | 292.85 | 292.89 | 292.86 | 293.01 | 292.67 |
| 22   | --- | --- | --- | --- | --- | --- | --- | 292.85 | 292.88 | 292.86 | 292.95 | 292.68 |
| 23   | --- | --- | --- | --- | --- | --- | --- | 292.72 | 292.92 | 292.88 | 292.90 | 292.68 |
| 24   | --- | --- | --- | --- | --- | --- | --- | 292.72 | 292.90 | 292.89 | 292.90 | 292.69 |
| 25   | --- | --- | --- | --- | --- | --- | --- | 292.72 | 292.91 | 292.89 | 292.90 | 292.71 |
| 26   | --- | --- | --- | --- | --- | --- | --- | 292.72 | 292.91 | 292.90 | 292.88 | 292.72 |
| 27   | --- | --- | --- | --- | --- | --- | --- | 292.71 | 292.91 | 292.88 | 292.84 | 292.74 |
| 28   | --- | --- | --- | --- | --- | --- | --- | 292.73 | 292.91 | 292.88 | 292.81 | 292.74 |
| 29   | --- | --- | --- | --- | --- | --- | --- | 292.73 | 292.92 | 292.87 | 292.77 | 292.76 |
| 30   | --- | --- | --- | --- | --- | --- | --- | 292.71 | 292.94 | 292.86 | 292.74 | 292.75 |
| 31   | --- | --- | --- | --- | --- | --- | --- | 292.74 | ---    | 292.90 | 292.70 | ---    |
| MEAN | --- | --- | --- | --- | --- | --- | --- | 292.78 | 292.82 | 292.91 | 292.91 | 292.64 |

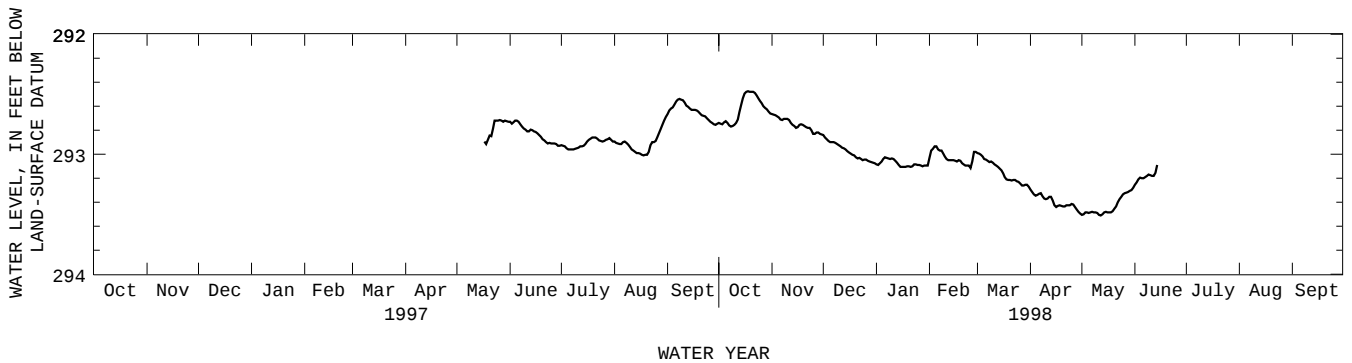
WTR YR 1997 MEAN 292.82 HIGHEST 292.5 SEPT. 8, 1997 LOWEST 293.04 AUG. 18-21, 1997

## GROUND-WATER LEVELS

## RIO GUAJATACA BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT         | NOV            | DEC               | JAN           | FEB          | MAR    | APR    | MAY    | JUN    | JUL | AUG | SEP |
|-------------|-------------|----------------|-------------------|---------------|--------------|--------|--------|--------|--------|-----|-----|-----|
| 1           | 292.74      | 292.66         | 292.83            | 293.08        | 293.09       | 292.99 | 293.28 | 293.50 | 293.26 | --- | --- | --- |
| 2           | 292.74      | 292.67         | 292.85            | 293.09        | 292.97       | 292.99 | 293.31 | 293.51 | 293.25 | --- | --- | --- |
| 3           | 292.75      | 292.67         | 292.87            | 293.09        | 292.97       | 293.00 | 293.32 | 293.49 | 293.22 | --- | --- | --- |
| 4           | 292.75      | 292.68         | 292.88            | 293.06        | 292.94       | 293.01 | 293.35 | 293.48 | 293.20 | --- | --- | --- |
| 5           | 292.72      | 292.69         | 292.90            | 293.06        | 292.93       | 293.03 | 293.34 | 293.49 | 293.19 | --- | --- | --- |
| 6           | 292.73      | 292.70         | 292.90            | 293.02        | 292.94       | 293.05 | 293.34 | 293.49 | 293.21 | --- | --- | --- |
| 7           | 292.75      | 292.72         | 292.90            | 293.03        | 292.98       | 293.04 | 293.32 | 293.48 | 293.19 | --- | --- | --- |
| 8           | 292.77      | 292.71         | 292.90            | 293.03        | 292.96       | 293.07 | 293.33 | 293.48 | 293.19 | --- | --- | --- |
| 9           | 292.77      | 292.70         | 292.91            | 293.04        | 292.98       | 293.06 | 293.37 | 293.49 | 293.17 | --- | --- | --- |
| 10          | 292.76      | 292.71         | 292.92            | 293.04        | 293.01       | 293.06 | 293.37 | 293.48 | 293.17 | --- | --- | --- |
| 11          | 292.75      | 292.70         | 292.93            | 293.03        | 293.03       | 293.08 | 293.38 | 293.50 | 293.18 | --- | --- | --- |
| 12          | 292.73      | 292.73         | 292.94            | 293.05        | 293.05       | 293.09 | 293.36 | 293.51 | 293.18 | --- | --- | --- |
| 13          | 292.69      | 292.75         | 292.95            | 293.06        | 293.05       | 293.10 | 293.35 | 293.51 | 293.18 | --- | --- | --- |
| 14          | 292.61      | 292.76         | 292.95            | 293.08        | 293.05       | 293.11 | 293.36 | 293.49 | 293.13 | --- | --- | --- |
| 15          | 292.57      | 292.77         | 292.97            | 293.10        | 293.05       | 293.13 | 293.41 | 293.48 | 293.05 | --- | --- | --- |
| 16          | 292.50      | 292.79         | 292.98            | 293.11        | 293.05       | 293.14 | 293.44 | 293.48 | ---    | --- | --- | --- |
| 17          | 292.49      | 292.76         | 292.99            | 293.10        | 293.06       | 293.18 | 293.44 | 293.49 | ---    | --- | --- | --- |
| 18          | 292.47      | 292.75         | 293.00            | 293.11        | 293.06       | 293.20 | 293.42 | 293.48 | ---    | --- | --- | --- |
| 19          | 292.48      | 292.75         | 293.01            | 293.10        | 293.04       | 293.22 | 293.43 | 293.49 | ---    | --- | --- | --- |
| 20          | 292.48      | 292.76         | 293.01            | 293.10        | 293.07       | 293.21 | 293.43 | 293.46 | ---    | --- | --- | --- |
| 21          | 292.48      | 292.77         | 293.04            | 293.10        | 293.08       | 293.22 | 293.44 | 293.45 | ---    | --- | --- | --- |
| 22          | 292.48      | 292.78         | 293.03            | 293.11        | 293.09       | 293.22 | 293.43 | 293.42 | ---    | --- | --- | --- |
| 23          | 292.50      | 292.78         | 293.03            | 293.09        | 293.10       | 293.21 | 293.42 | 293.38 | ---    | --- | --- | --- |
| 24          | 292.52      | 292.78         | 293.05            | 293.08        | 293.09       | 293.22 | 293.43 | 293.37 | ---    | --- | --- | --- |
| 25          | 292.55      | 292.82         | 293.05            | 293.09        | 293.10       | 293.23 | 293.42 | 293.34 | ---    | --- | --- | --- |
| 26          | 292.56      | 292.84         | 293.04            | 293.09        | 293.13       | 293.23 | 293.41 | 293.33 | ---    | --- | --- | --- |
| 27          | 292.59      | 292.82         | 293.05            | 293.09        | 292.99       | 293.26 | 293.43 | 293.32 | ---    | --- | --- | --- |
| 28          | 292.61      | 292.82         | 293.06            | 293.10        | 292.97       | 293.26 | 293.45 | 293.32 | ---    | --- | --- | --- |
| 29          | 292.62      | 292.82         | 293.06            | 293.10        | ---          | 293.26 | 293.47 | 293.31 | ---    | --- | --- | --- |
| 30          | 292.63      | 292.84         | 293.07            | 293.09        | ---          | 293.25 | 293.49 | 293.30 | ---    | --- | --- | --- |
| 31          | 292.66      | ---            | 293.07            | 293.10        | ---          | 293.26 | ---    | 293.30 | ---    | --- | --- | --- |
| MEAN        | 292.63      | 292.75         | 292.97            | 293.08        | 293.03       | 293.14 | 293.39 | 293.44 | 293.18 | --- | --- | --- |
| WTR YR 1998 | MEAN 293.06 | HIGHEST 292.45 | OCT. 18, 19, 1997 | LOWEST 293.55 | MAY 12, 1998 |        |        |        |        |     |     |     |



## GROUND-WATER LEVELS

## RIO GUAJATACA BASIN

182422067015100. Local number, 165.

LOCATION.--Lat 18°24'22", long 67°01'51", Hydrologic Unit 21010003, 5.60 mi northeast of Moca plaza, 4.70 mi southeast of Aguadilla US Naval Reservation radio antenna, and 1.63 mi northwest of La Virgen del Rosario Church. Owner: PR Aqueduct and Sewer Authority, Name: Saltos # 1 (Mateo Pérez).

AQUIFER.--Cibao Formation. Aguada Limestone.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 16 in (0.40 m), cased 16 in (0.40 m) 0-40.0 ft (0-12.2 m), cased 12 in (0.30 m) 40-200 ft (12.2-61.0 m). Depth 200 ft (61.0 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 689 ft (210 m), above mean sea level.

Measuring point: Hole on pump base, 0.50 ft (0.15 m), above land-surface datum. Prior to October 6, 1988, hole on top of pipe on top of pump base, 0.80 ft (0.24 m), above land-surface datum. Prior to November 1985, hole on top of pump base, 1.00 ft (0.30 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1998. Formerly published as 182421067015000.

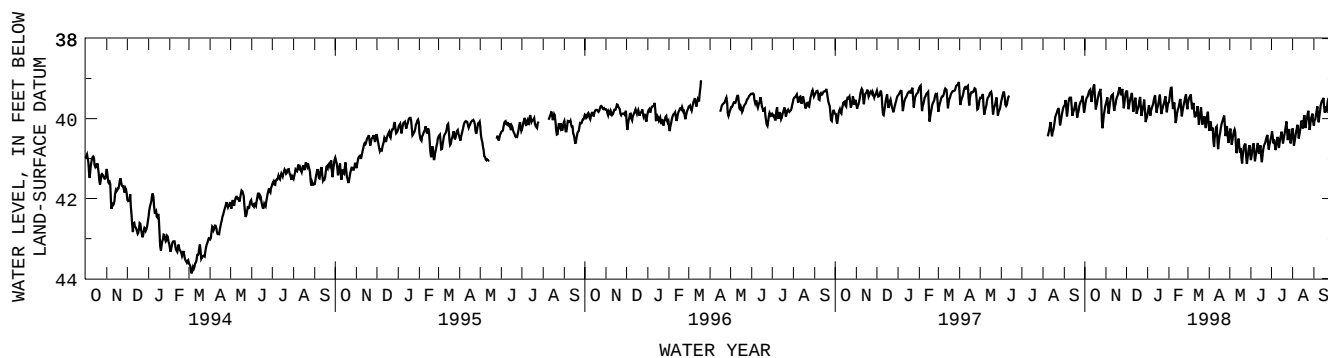
PERIOD OF RECORD.--January 1982 to March 1985, November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 38.36 ft (11.7 m), below land-surface datum, July 12, 1993; lowest water level measured, 70.6 ft (21.5 m), below land-surface datum, June 18, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 39.78 | 39.66 | 39.31 | 39.92 | 39.61 | 39.65 | 40.35 | 40.36 | 41.10 | 40.47 | 40.32 | 40.31 |
| 2    | 39.70 | 39.58 | 39.32 | 39.81 | 39.58 | 39.57 | 40.26 | 40.29 | 40.98 | 40.37 | 40.17 | 40.05 |
| 3    | 39.55 | 39.50 | 39.32 | 39.71 | 39.41 | 39.49 | 40.14 | 40.21 | 40.84 | 40.28 | 40.74 | 40.04 |
| 4    | 39.48 | 39.44 | 39.82 | 39.62 | 39.24 | 39.45 | 40.01 | 40.71 | 40.72 | 40.67 | 40.62 | 40.00 |
| 5    | 39.48 | 39.97 | 39.71 | 40.01 | 39.23 | 39.44 | 40.39 | 40.60 | 40.65 | 40.57 | 40.50 | 39.87 |
| 6    | 39.43 | 39.78 | 39.61 | 39.85 | 39.23 | 39.35 | 40.22 | 40.48 | 40.59 | 40.48 | 40.38 | 39.75 |
| 7    | 39.38 | 39.66 | 39.50 | 39.75 | 39.81 | 39.83 | 40.23 | 40.38 | 41.15 | 40.88 | 40.28 | 39.64 |
| 8    | 39.30 | 39.54 | 39.47 | 39.72 | 39.71 | 39.70 | 40.82 | 40.28 | 40.98 | 40.70 | 40.23 | 40.18 |
| 9    | 39.30 | 39.46 | 39.39 | 39.65 | 39.61 | 39.64 | 40.60 | 40.27 | 40.89 | 40.62 | 40.08 | 40.01 |
| 10   | 39.25 | 39.41 | 39.33 | 39.60 | 39.59 | 39.58 | 40.40 | 40.40 | 40.76 | 40.52 | 40.57 | 39.91 |
| 11   | 39.70 | 39.41 | 39.88 | 39.48 | 40.15 | 40.04 | 40.29 | 40.96 | 40.66 | 40.40 | 40.42 | 39.73 |
| 12   | 39.47 | 39.37 | 39.79 | 39.43 | 40.07 | 39.90 | 40.16 | 40.77 | 40.56 | 40.83 | 40.36 | 39.63 |
| 13   | 39.34 | 39.88 | 39.62 | 39.40 | 39.93 | 39.86 | 40.24 | 40.68 | 40.99 | 40.64 | 40.24 | 39.57 |
| 14   | 39.24 | 39.74 | 39.54 | 39.93 | 39.82 | 39.94 | 40.89 | 40.55 | 40.78 | 40.53 | 40.08 | 39.54 |
| 15   | 39.12 | 39.69 | 39.42 | 39.78 | 39.74 | 39.74 | 40.64 | 40.45 | 40.69 | 40.44 | 40.02 | 39.52 |
| 16   | 39.17 | 39.58 | 39.94 | 39.71 | 39.72 | 39.64 | 40.50 | 40.92 | 40.65 | 40.37 | 40.31 | 39.45 |
| 17   | 39.81 | 39.49 | 39.82 | 39.66 | 39.58 | 40.25 | 40.40 | 40.78 | 41.22 | 40.29 | 40.18 | 39.96 |
| 18   | 39.73 | 39.44 | 39.76 | 39.53 | 39.51 | 40.06 | 40.30 | 40.69 | 40.96 | 40.68 | 39.99 | 39.74 |
| 19   | 39.65 | 39.40 | 39.73 | 39.42 | 39.51 | 39.94 | 40.17 | 41.22 | 40.84 | 40.56 | 39.83 | 39.64 |
| 20   | 39.55 | 39.33 | 39.63 | 39.38 | 40.06 | 39.81 | 40.11 | 41.02 | 40.71 | 40.43 | 40.39 | 39.98 |
| 21   | 39.46 | 39.22 | 39.46 | 39.94 | 39.83 | 39.64 | 40.07 | 40.87 | 40.65 | 40.36 | 40.08 | 39.66 |
| 22   | 39.37 | 39.22 | 39.46 | 39.83 | 39.79 | 40.23 | 40.00 | 40.73 | 40.63 | 40.24 | 40.02 | 39.51 |
| 23   | 39.33 | 39.46 | 40.00 | 39.75 | 39.67 | 40.07 | 39.93 | 40.67 | 40.56 | 40.11 | 39.94 | 39.50 |
| 24   | 39.30 | 39.37 | 39.87 | 39.70 | 39.58 | 40.01 | 39.92 | 40.62 | 40.50 | 40.04 | 39.81 | 39.51 |
| 25   | 39.22 | 39.30 | 39.76 | 39.62 | 39.50 | 39.99 | 40.52 | 40.68 | 40.42 | 40.64 | 39.80 | 39.43 |
| 26   | 39.83 | 39.22 | 39.70 | 39.59 | 39.42 | 39.90 | 40.36 | 41.20 | 40.40 | 40.44 | 40.36 | 39.35 |
| 27   | 40.33 | 39.78 | 39.59 | 39.47 | 39.37 | 40.35 | 40.23 | 41.07 | 40.85 | 40.29 | 40.21 | 39.26 |
| 28   | 40.15 | 39.70 | 39.46 | 39.42 | 39.88 | 40.12 | 40.14 | 40.94 | 40.70 | 40.23 | 40.02 | 39.19 |
| 29   | 39.96 | 39.53 | 40.14 | 39.91 | ---   | 39.99 | 40.69 | 40.78 | 40.63 | 40.68 | 39.98 | 39.18 |
| 30   | 39.85 | 39.40 | 40.04 | 39.78 | ---   | 39.87 | 40.53 | 40.70 | 40.54 | 40.56 | 39.90 | 39.20 |
| 31   | 39.73 | ---   | 39.99 | 39.61 | ---   | 39.79 | ---   | 40.63 | ---   | 40.43 | 39.85 | ---   |
| MEAN | 39.55 | 39.52 | 39.66 | 39.68 | 39.65 | 39.83 | 40.32 | 40.67 | 40.75 | 40.48 | 40.18 | 39.68 |

WTR YR 1998 MEAN 40.00 HIGHEST 38.93 SEPT. 21, 22, 1998 LOWEST 41.27 MAY 19, JUNE 17, 1998



## GROUND-WATER LEVELS

## RIO GUAJATACA BASIN

182647066552400. Local number, 202.

LOCATION.--Lat 18°26'47", long 66°55'24", Hydrologic Unit 21010002, 2.22 mi southeast of Quebradillas plaza, 1.29 mi north of Escuela José de Diego, and 1.99 mi northwest of El Calvario Church. Owner: PR Aqueduct and Sewer

Authority, Name: Carmelo Barreto García well.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-296 ft (0-90.2 m), diameter 13 in (0.33 m), cased 13 in (0.33 m) 0-550 ft (0-168 m), perforated 270-529 ft (82.3-161 m). Depth 550 ft (168 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 475 ft (145 m), above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.50 ft (0.46 m), above land-surface datum. Prior July 25, 1986, top of shelter floor, 3.30 ft (1.00 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1998.

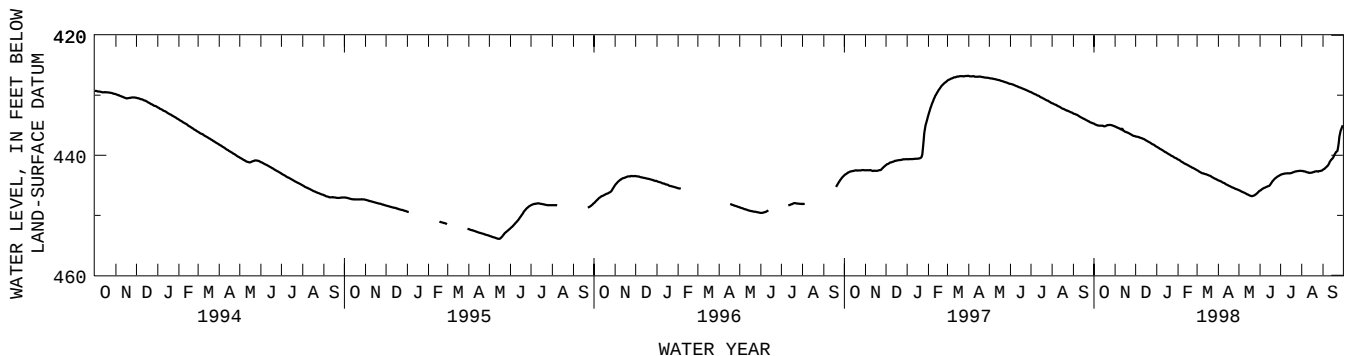
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 409.2 ft (125 m), below land-surface datum, Sept. 25, 1986; lowest water level recorded, 453.9 ft (138 m), below land-surface datum, May 14, 15, 16, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | 434.72 | 435.20 | 436.83 | 438.57 | 440.69 | 442.46 | 444.16 | 445.78 | 445.90 | 443.29 | 442.61 | 442.44 |
| 2    | 434.75 | 435.23 | 436.89 | 438.63 | 440.74 | 442.53 | 444.22 | 445.85 | 445.85 | 443.21 | 442.61 | 442.35 |
| 3    | 434.83 | 435.29 | 436.91 | 438.69 | 440.76 | 442.59 | 444.25 | 445.89 | 445.77 | 443.17 | 442.61 | 442.32 |
| 4    | 434.90 | 435.34 | 436.90 | 438.75 | 440.81 | 442.66 | 444.29 | 445.94 | 445.67 | 443.14 | 442.66 | 442.25 |
| 5    | 434.92 | 435.39 | 436.93 | 438.83 | 440.94 | 442.76 | 444.33 | 446.01 | 445.60 | 443.12 | 442.69 | 442.10 |
| 6    | 434.99 | 435.43 | 436.96 | 438.91 | 441.02 | 442.80 | 444.38 | 446.08 | 445.54 | 443.08 | 442.71 | 442.00 |
| 7    | 435.01 | 435.49 | 437.02 | 438.96 | 441.09 | 442.88 | 444.49 | 446.12 | 445.47 | 443.04 | 442.74 | 441.89 |
| 8    | 435.05 | 435.53 | 437.07 | 439.04 | 441.14 | 442.96 | 444.55 | 446.17 | 445.42 | 443.03 | 442.79 | 441.77 |
| 9    | 435.06 | 435.59 | 437.10 | 439.11 | 441.23 | 442.98 | 444.58 | 446.23 | 445.39 | 443.04 | 442.84 | 441.66 |
| 10   | 435.07 | 435.70 | 437.14 | 439.19 | 441.31 | 443.01 | 444.61 | 446.27 | 445.31 | 443.03 | 442.83 | 441.46 |
| 11   | 435.08 | 435.74 | 437.19 | 439.24 | 441.36 | 443.03 | 444.70 | 446.33 | 445.27 | 442.99 | 442.88 | 441.20 |
| 12   | 435.08 | 435.40 | 437.24 | 439.33 | 441.43 | 443.09 | 444.77 | 446.41 | 445.21 | 443.00 | 442.94 | 440.99 |
| 13   | 435.08 | 435.87 | 437.28 | 439.42 | 441.47 | 443.13 | 444.87 | 446.46 | 445.17 | 443.00 | 442.93 | 440.85 |
| 14   | 435.07 | 435.91 | 437.32 | 439.46 | 441.55 | 443.17 | 444.91 | 446.51 | 445.16 | 443.02 | 442.92 | 440.71 |
| 15   | 435.10 | 435.98 | 437.40 | 439.51 | 441.61 | 443.18 | 444.94 | 446.57 | 445.07 | 443.02 | 442.92 | 440.58 |
| 16   | 435.19 | 436.06 | 437.45 | 439.61 | 441.67 | 443.23 | 445.03 | 446.63 | 444.97 | 443.00 | 442.92 | 440.44 |
| 17   | 435.17 | 436.10 | 437.54 | 439.67 | 441.72 | 443.29 | 445.10 | 446.70 | 444.79 | 442.96 | 442.87 | 440.24 |
| 18   | 435.14 | 436.16 | 437.60 | 439.74 | 441.79 | 443.33 | 445.14 | 446.74 | 444.59 | 442.92 | 442.80 | 439.97 |
| 19   | 435.11 | 436.19 | 437.68 | 439.80 | 441.85 | 443.38 | 445.19 | 446.79 | 444.44 | 442.89 | 442.77 | 439.76 |
| 20   | 435.04 | 436.23 | 437.73 | 439.87 | 441.90 | 443.41 | 445.25 | 446.81 | 444.28 | 442.82 | 442.77 | 439.59 |
| 21   | 435.00 | 436.31 | 437.78 | 439.95 | 441.97 | 443.46 | 445.32 | 446.81 | 444.15 | 442.80 | 442.69 | 439.40 |
| 22   | 434.98 | 436.36 | 437.86 | 440.01 | 442.04 | 443.54 | 445.35 | 446.78 | 444.04 | 442.74 | 442.70 | 439.41 |
| 23   | 434.97 | 436.41 | 437.93 | 440.10 | 442.09 | 443.61 | 445.39 | 446.75 | 443.92 | 442.71 | 442.68 | 439.10 |
| 24   | 434.94 | 436.47 | 438.00 | 440.14 | 442.14 | 443.69 | 445.46 | 446.70 | 443.83 | 442.68 | 442.63 | 438.40 |
| 25   | 434.94 | 436.54 | 438.08 | 440.21 | 442.21 | 443.76 | 445.51 | 446.61 | 443.72 | 442.67 | 442.72 | 437.38 |
| 26   | 434.96 | 436.61 | 438.14 | 440.27 | 442.29 | 443.79 | 445.57 | 446.54 | 443.62 | 442.63 | 442.69 | 436.57 |
| 27   | 434.97 | 436.70 | 438.18 | 440.34 | 442.34 | 443.86 | 445.60 | 446.46 | 443.54 | 442.61 | 442.65 | 436.06 |
| 28   | 435.01 | 436.77 | 438.24 | 440.41 | 442.40 | 443.92 | 445.64 | 446.36 | 443.48 | 442.63 | 442.61 | 435.70 |
| 29   | 435.07 | 436.79 | 438.33 | 440.47 | ---    | 443.97 | 445.70 | 446.24 | 443.42 | 442.60 | 442.64 | 435.44 |
| 30   | 435.08 | 436.79 | 438.43 | 440.52 | ---    | 444.02 | 445.75 | 446.14 | 443.35 | 442.60 | 442.57 | 435.15 |
| 31   | 435.14 | ---    | 438.51 | 440.59 | ---    | 444.11 | ---    | 446.02 | ---    | 442.60 | 442.52 | ---    |
| MEAN | 435.01 | 435.99 | 437.54 | 439.59 | 441.56 | 443.28 | 444.97 | 446.38 | 444.73 | 442.90 | 442.74 | 439.91 |

WTR YR 1998 MEAN 441.21 HIGHEST 434.65 OCT. 1, 1997 LOWEST 446.85 MAY 20, 1998



## GROUND-WATER LEVELS

## RIO CAMUY BASIN

182723066511200. Local number, Z-4.

LOCATION.--Lat 18°27'23", long 66°51'12", Hydrologic Unit 21010002, 1.60 mi south of the intersection of Hwy 119 with Hwy 2, 1.35 mi east of Hwy 119 of, and 0.01 mi east of Hwy 486. Owner: PR Aqueduct and Sewer Authority,

Name: Zanja 4.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.30 m). Depth 585 ft (178 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 360 ft (110 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.00 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on February 25, 1997. Record is poor when the water level is below the level of the pressure transducer which is set at 331 ft (101 m), below land-surface datum.

PERIOD OF RECORD.--February 25, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 161.8 ft (49.3 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 331.2 ft (101 m), below land-surface datum, Mar. 11, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT         | NOV            | DEC          | JAN           | FEB           | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-------------|-------------|----------------|--------------|---------------|---------------|--------|--------|--------|--------|--------|--------|--------|
| 1           | ---         | ---            | ---          | ---           | ---           | 310.79 | 323.19 | 329.10 | 324.09 | 329.12 | 329.15 | 329.17 |
| 2           | ---         | ---            | ---          | ---           | ---           | 311.40 | 323.54 | 329.12 | 324.33 | 329.12 | 329.15 | 329.17 |
| 3           | ---         | ---            | ---          | ---           | ---           | 311.96 | 323.85 | 329.07 | 326.65 | 329.12 | 329.15 | 329.17 |
| 4           | ---         | ---            | ---          | ---           | ---           | 312.56 | 324.14 | 329.06 | 328.29 | 329.12 | 329.15 | 329.17 |
| 5           | ---         | ---            | ---          | ---           | ---           | 313.12 | 324.29 | 329.07 | 329.10 | 329.12 | 329.15 | 329.17 |
| 6           | ---         | ---            | ---          | ---           | ---           | 313.54 | 324.51 | 329.07 | 329.10 | 329.12 | 329.15 | 329.18 |
| 7           | ---         | ---            | ---          | ---           | ---           | 314.13 | 324.80 | 329.08 | 329.10 | 329.12 | 329.15 | 329.18 |
| 8           | ---         | ---            | ---          | ---           | ---           | 314.80 | 325.06 | 323.38 | 329.10 | 329.12 | 329.16 | 329.18 |
| 9           | ---         | ---            | ---          | ---           | ---           | 315.25 | 325.36 | 324.53 | 329.10 | 329.12 | 329.16 | 329.18 |
| 10          | ---         | ---            | ---          | ---           | ---           | 315.61 | 325.67 | 325.07 | 329.10 | 329.12 | 329.16 | 329.18 |
| 11          | ---         | ---            | ---          | ---           | ---           | 315.98 | 325.96 | 325.32 | 329.10 | 329.14 | 329.16 | 329.18 |
| 12          | ---         | ---            | ---          | ---           | ---           | 316.45 | 326.23 | 327.19 | 329.11 | 329.13 | 329.15 | 329.18 |
| 13          | ---         | ---            | ---          | ---           | ---           | 317.02 | 326.40 | 328.74 | 329.11 | 329.13 | 329.16 | 329.18 |
| 14          | ---         | ---            | ---          | ---           | ---           | 317.49 | 326.60 | 329.08 | 329.11 | 329.13 | 329.16 | 329.18 |
| 15          | ---         | ---            | ---          | ---           | ---           | 317.91 | 326.81 | 329.08 | 329.11 | 329.13 | 329.16 | 329.18 |
| 16          | ---         | ---            | ---          | ---           | ---           | 318.30 | 326.93 | 329.08 | 329.11 | 329.13 | 329.15 | 329.18 |
| 17          | ---         | ---            | ---          | ---           | ---           | 318.71 | 327.04 | 329.08 | 329.10 | 329.13 | 329.16 | 329.18 |
| 18          | ---         | ---            | ---          | ---           | ---           | 319.15 | 327.11 | 329.09 | 329.11 | 329.13 | 324.30 | 329.18 |
| 19          | ---         | ---            | ---          | ---           | ---           | 319.52 | 327.32 | 329.08 | 329.11 | 329.13 | 329.16 | 329.18 |
| 20          | ---         | ---            | ---          | ---           | ---           | 319.22 | 327.60 | 329.08 | 329.11 | 329.14 | 321.29 | 329.18 |
| 21          | ---         | ---            | ---          | ---           | ---           | 318.91 | 327.87 | 329.08 | 329.12 | 329.14 | 327.02 | 329.18 |
| 22          | ---         | ---            | ---          | ---           | ---           | 319.74 | 327.03 | 329.08 | 329.12 | 329.14 | 309.51 | 329.18 |
| 23          | ---         | ---            | ---          | ---           | ---           | 320.39 | 327.09 | 329.08 | 329.11 | 329.14 | 318.41 | 329.18 |
| 24          | ---         | ---            | ---          | ---           | ---           | 320.93 | 327.65 | 329.09 | 329.11 | 329.14 | 324.83 | 329.18 |
| 25          | ---         | ---            | ---          | ---           | 307.11        | 321.41 | 328.12 | 329.09 | 329.11 | 329.14 | 329.31 | 329.18 |
| 26          | ---         | ---            | ---          | ---           | 307.81        | 321.83 | 328.50 | 329.09 | 329.12 | 329.14 | 329.16 | 329.18 |
| 27          | ---         | ---            | ---          | ---           | 309.00        | 322.11 | 328.74 | 328.28 | 329.12 | 324.66 | 329.17 | 329.18 |
| 28          | ---         | ---            | ---          | ---           | 309.98        | 322.36 | 328.94 | 283.86 | 329.11 | 329.14 | 329.17 | 329.18 |
| 29          | ---         | ---            | ---          | ---           | ---           | 322.51 | 329.00 | 300.94 | 329.12 | 329.14 | 322.89 | 329.18 |
| 30          | ---         | ---            | ---          | ---           | ---           | 322.67 | 329.07 | 314.41 | 329.11 | 329.15 | 326.94 | 329.18 |
| 31          | ---         | ---            | ---          | ---           | ---           | 322.92 | ---    | 319.78 | ---    | 329.15 | 329.17 | ---    |
| MEAN        | ---         | ---            | ---          | ---           | 308.48        | 317.70 | 326.48 | 325.26 | 328.67 | 328.99 | 327.29 | 329.18 |
| WTR YR 1997 | MEAN 325.87 | HUGHEST 280.21 | MAY 28, 1997 | LOWEST 329.31 | AUG. 25, 1997 |        |        |        |        |        |        |        |

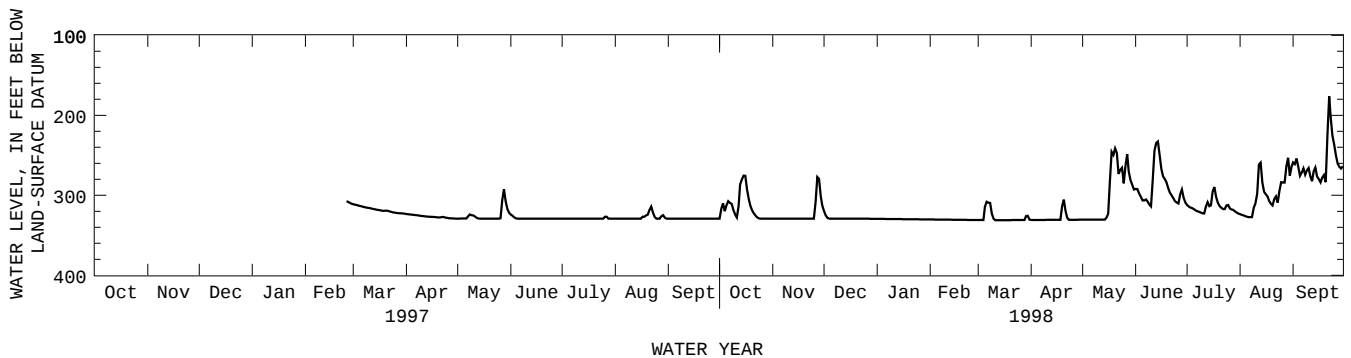
## GROUND-WATER LEVELS

## RIO CAMUY BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | 329.18 | 329.17 | 316.73 | 329.43 | 330.20 | 330.89 | 331.01 | 330.49 | 295.49 | 311.10 | 323.20 | 246.03 |
| 2    | 329.18 | 329.17 | 322.86 | 329.46 | 330.23 | 330.92 | 330.86 | 330.48 | 288.68 | 313.36 | 323.94 | 271.72 |
| 3    | 304.16 | 329.17 | 327.38 | 329.48 | 330.25 | 330.94 | 330.85 | 330.47 | 295.87 | 314.88 | 324.70 | 250.30 |
| 4    | 315.80 | 329.17 | 329.26 | 329.51 | 330.28 | 330.97 | 330.83 | 330.46 | 299.54 | 315.66 | 325.57 | 257.91 |
| 5    | 323.70 | 329.17 | 329.26 | 329.53 | 330.30 | 330.99 | 330.82 | 330.44 | 304.21 | 316.37 | 326.39 | 270.89 |
| 6    | 301.34 | 329.17 | 329.26 | 329.56 | 330.42 | 297.79 | 330.81 | 330.43 | 308.70 | 318.13 | 327.12 | 280.40 |
| 7    | 313.20 | 329.17 | 329.25 | 329.58 | 330.35 | 318.15 | 330.80 | 330.42 | 304.28 | 319.40 | 327.29 | 262.91 |
| 8    | 306.01 | 329.17 | 329.17 | 329.61 | 330.38 | 300.45 | 330.79 | 330.41 | 306.00 | 320.14 | 327.22 | 269.87 |
| 9    | 315.32 | 329.17 | 329.17 | 329.63 | 330.40 | 318.46 | 330.77 | 330.39 | 310.02 | 321.02 | 327.15 | 278.39 |
| 10   | 321.37 | 329.17 | 329.16 | 329.66 | 330.43 | 327.41 | 330.76 | 330.38 | 312.72 | 321.85 | 304.53 | 259.25 |
| 11   | 326.50 | 329.17 | 329.17 | 329.68 | 330.45 | 331.14 | 330.75 | 330.37 | 315.07 | 323.00 | 315.30 | 272.47 |
| 12   | 329.17 | 329.17 | 329.17 | 329.71 | 330.48 | 331.13 | 330.74 | 330.36 | 246.70 | 322.49 | 280.84 | 280.19 |
| 13   | 297.76 | 329.17 | 329.16 | 329.73 | 330.50 | 331.11 | 330.72 | 330.35 | 241.90 | 305.71 | 242.11 | 284.48 |
| 14   | 275.36 | 329.17 | 329.16 | 329.75 | 330.53 | 331.10 | 330.71 | 330.33 | 227.53 | 311.21 | 276.31 | 255.92 |
| 15   | 285.25 | 329.17 | 329.16 | 329.77 | 330.55 | 331.09 | 330.70 | 330.32 | 237.77 | 316.11 | 291.87 | 274.57 |
| 16   | 265.40 | 329.17 | 329.16 | 329.81 | 330.58 | 331.08 | 330.69 | 324.61 | 261.57 | 309.12 | 299.51 | 278.48 |
| 17   | 286.14 | 329.17 | 329.16 | 329.82 | 330.60 | 331.07 | 330.45 | 321.12 | 273.20 | 281.93 | 297.86 | 281.02 |
| 18   | 299.20 | 329.17 | 329.08 | 329.85 | 330.63 | 331.04 | 330.66 | 243.14 | 279.41 | 297.28 | 305.32 | 286.44 |
| 19   | 310.14 | 329.17 | 329.11 | 329.87 | 330.65 | 331.04 | 330.65 | 248.30 | 280.08 | 306.51 | 309.46 | 269.29 |
| 20   | 317.02 | 329.17 | 329.13 | 329.90 | 330.68 | 331.02 | 296.67 | 250.77 | 288.21 | 312.21 | 311.83 | 280.35 |
| 21   | 321.10 | 329.17 | 329.16 | 329.92 | 330.70 | 331.01 | 314.42 | 232.17 | 294.33 | 314.41 | 313.35 | 286.63 |
| 22   | 324.50 | 329.17 | 329.18 | 329.95 | 330.73 | 330.99 | 324.76 | 262.12 | 298.65 | 316.46 | 296.31 | 162.04 |
| 23   | 326.89 | 329.17 | 329.21 | 329.97 | 330.75 | 330.98 | 330.69 | 284.22 | 301.07 | 318.14 | 306.60 | 190.66 |
| 24   | 328.67 | 329.17 | 329.23 | 330.00 | 330.78 | 330.98 | 330.68 | 252.10 | 305.81 | 316.26 | 311.53 | 220.76 |
| 25   | 329.27 | 329.17 | 329.26 | 330.02 | 330.79 | 330.97 | 330.58 | 279.04 | 308.88 | 309.03 | 277.28 | 230.14 |
| 26   | 329.27 | 329.17 | 329.28 | 330.05 | 330.82 | 330.95 | 330.55 | 291.21 | 309.24 | 315.14 | 290.01 | 243.13 |
| 27   | 329.18 | 287.98 | 329.31 | 330.07 | 330.84 | 330.93 | 330.54 | 234.99 | 311.18 | 317.86 | 278.31 | 256.79 |
| 28   | 329.17 | 266.06 | 329.33 | 330.10 | 330.87 | 330.92 | 330.53 | 262.12 | 286.29 | 317.36 | 290.01 | 263.65 |
| 29   | 329.18 | 293.14 | 329.36 | 330.13 | ---    | 330.91 | 330.52 | 278.26 | 299.02 | 319.19 | 237.67 | 264.95 |
| 30   | 329.17 | 309.26 | 329.38 | 330.15 | ---    | 321.31 | 330.50 | 283.61 | 306.83 | 320.90 | 268.60 | 268.40 |
| 31   | 329.17 | ---    | 329.41 | 330.18 | ---    | 329.92 | ---    | 289.96 | ---    | 322.21 | 282.34 | ---    |
| MEAN | 314.73 | 323.83 | 328.55 | 329.80 | 330.54 | 327.67 | 328.83 | 299.80 | 289.94 | 314.34 | 300.63 | 259.93 |

WTR YR 1998 MEAN 312.36 HIGHEST 161.80 SEPT. 22, 1998 LOWEST 331.22 MAR. 11, 1998



## GROUND-WATER LEVELS

## RIO CAMUY BASIN

182431066463400. Local number, CA-4.

LOCATION.--Lat 18°24'31", long 66°46'34", Hydrologic Unit 21010005, 0.02 mi west of the intersection of Hwy 129 with Hwy 130, 1.68 mi southeast of the intersection of Hwy 130 with Hwy 490, and 3.00 mi east of Rio Camuy. Owner: PR Aqueduct and Sewer Authority, Name: Campo Alegre 4.

**AQUIFER. - - Aquada Limestone.**

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 220 ft (67.1 m).

**INSTRUMENTATION.**--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 606.8 ft (185 m), above mean sea level.

Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.25 ft (0.99 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Sept. 27, 1996, replaced by an Electronic Data Logger (EDL), installed on Jan. 14, 1997.

PERIOD OF RECORD.--September 27, 1996 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 183.9 ft (56.1 m), below land-surface datum, Oct. 3, 1996; lowest water level recorded, 212.6 ft (64.8 m), below land-surface datum, May 28, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

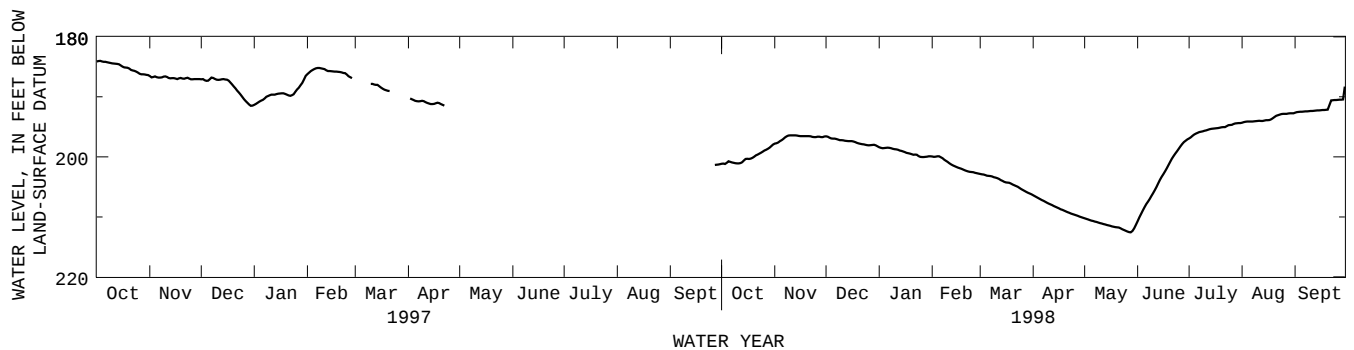
| DAY         | OCT         | NOV    | DEC            | JAN    | FEB          | MAR    | APR           | MAY | JUN            | JUL | AUG | SEP    |
|-------------|-------------|--------|----------------|--------|--------------|--------|---------------|-----|----------------|-----|-----|--------|
| 1           | 184.12      | 186.38 | 187.06         | 191.42 | 186.32       | ---    | ---           | --- | ---            | --- | --- | ---    |
| 2           | 184.09      | 186.65 | 187.06         | 191.25 | 186.09       | ---    | 190.26        | --- | ---            | --- | --- | ---    |
| 3           | 183.98      | 186.85 | 187.03         | 191.08 | 185.81       | ---    | 190.31        | --- | ---            | --- | --- | ---    |
| 4           | 184.04      | 186.53 | 187.45         | 190.89 | 185.61       | ---    | 190.47        | --- | ---            | --- | --- | ---    |
| 5           | 184.12      | 186.67 | 187.22         | 190.71 | 185.46       | ---    | 190.61        | --- | ---            | --- | --- | ---    |
| 6           | 184.17      | 186.77 | 187.37         | 190.51 | 185.30       | ---    | 190.70        | --- | ---            | --- | --- | ---    |
| 7           | 184.18      | 186.78 | 186.75         | 190.45 | 185.17       | ---    | 190.77        | --- | ---            | --- | --- | ---    |
| 8           | 184.29      | 186.80 | 186.80         | 190.07 | 185.17       | ---    | 190.74        | --- | ---            | --- | --- | ---    |
| 9           | 184.31      | 186.69 | 186.89         | 189.93 | 185.20       | ---    | 190.67        | --- | ---            | --- | --- | ---    |
| 10          | 184.41      | 186.55 | 187.13         | 189.79 | 185.27       | 187.83 | 190.65        | --- | ---            | --- | --- | ---    |
| 11          | 184.42      | 186.62 | 187.14         | 189.68 | 185.33       | 187.83 | 190.79        | --- | ---            | --- | --- | ---    |
| 12          | 184.45      | 186.77 | 187.17         | 189.61 | 185.45       | 187.84 | 191.00        | --- | ---            | --- | --- | ---    |
| 13          | 184.50      | 186.90 | 187.13         | 189.66 | 185.68       | 188.05 | 191.04        | --- | ---            | --- | --- | ---    |
| 14          | 184.50      | 186.92 | 187.01         | 189.58 | 185.70       | 187.93 | 191.18        | --- | ---            | --- | --- | ---    |
| 15          | 184.64      | 186.86 | 187.04         | 189.51 | 185.72       | 188.10 | 191.20        | --- | ---            | --- | --- | ---    |
| 16          | 184.87      | 186.90 | 187.14         | 189.46 | 185.75       | 188.34 | 191.20        | --- | ---            | --- | --- | ---    |
| 17          | 185.02      | 187.02 | 187.16         | 189.41 | 185.77       | 188.55 | 191.15        | --- | ---            | --- | --- | ---    |
| 18          | 185.13      | 187.07 | 187.43         | 189.40 | 185.79       | 188.75 | 191.00        | --- | ---            | --- | --- | ---    |
| 19          | 185.13      | 186.78 | 187.75         | 189.43 | 185.81       | 188.84 | 190.98        | --- | ---            | --- | --- | ---    |
| 20          | 185.17      | 186.91 | 188.09         | 189.60 | 185.84       | 188.97 | 191.13        | --- | ---            | --- | --- | ---    |
| 21          | 185.39      | 186.96 | 188.42         | 189.66 | 185.86       | 189.00 | 191.25        | --- | ---            | --- | --- | ---    |
| 22          | 185.59      | 186.98 | 188.76         | 189.88 | 186.00       | 189.02 | 191.43        | --- | ---            | --- | --- | ---    |
| 23          | 185.63      | 186.78 | 189.13         | 189.78 | 186.06       | ---    | 191.51        | --- | ---            | --- | --- | ---    |
| 24          | 185.70      | 186.87 | 189.46         | 189.69 | 186.06       | ---    | ---           | --- | ---            | --- | --- | ---    |
| 25          | 185.87      | 187.04 | 189.81         | 189.45 | 186.48       | ---    | ---           | --- | ---            | --- | --- | ---    |
| 26          | 186.05      | 187.08 | 190.21         | 188.86 | 186.63       | ---    | ---           | --- | ---            | --- | --- | ---    |
| 27          | 186.22      | 187.05 | 190.60         | 188.70 | 186.78       | ---    | ---           | --- | ---            | --- | --- | 201.34 |
| 28          | 186.23      | 187.03 | 190.84         | 188.28 | 186.96       | ---    | ---           | --- | ---            | --- | --- | 201.32 |
| 29          | 186.22      | 187.03 | 191.15         | 187.82 | ---          | ---    | ---           | --- | ---            | --- | --- | 201.28 |
| 30          | 186.30      | 187.03 | 191.45         | 187.52 | ---          | ---    | ---           | --- | ---            | --- | --- | 201.26 |
| 31          | 186.38      | ---    | 191.51         | 186.67 | ---          | ---    | ---           | --- | ---            | --- | --- | ---    |
| MEAN        | 185.00      | 186.84 | 188.23         | 189.60 | 185.82       | 188.39 | 190.91        | --- | ---            | --- | --- | 201.30 |
| WTR YR 1997 | MEAN 187.95 |        | HIGHEST 183.96 |        | OCT. 3, 1996 |        | LOWEST 201.38 |     | SEPT. 26, 1997 |     |     |        |

## GROUND-WATER LEVELS

## RIO CAMUY BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT         | NOV            | DEC            | JAN           | FEB          | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-------------|-------------|----------------|----------------|---------------|--------------|--------|--------|--------|--------|--------|--------|--------|
| 1           | 201.20      | 197.86         | 196.55         | 198.33        | 199.90       | 202.80 | 206.32 | 210.19 | 211.02 | 197.01 | 194.35 | 192.72 |
| 2           | 201.13      | 197.74         | 196.58         | 198.48        | 199.99       | 202.87 | 206.49 | 210.28 | 210.39 | 196.86 | 194.26 | 192.57 |
| 3           | 201.08      | 197.69         | 196.73         | 198.54        | 200.02       | 202.93 | 206.65 | 210.39 | 209.80 | 196.63 | 194.16 | 192.53 |
| 4           | 201.26      | 197.48         | 196.89         | 198.55        | 199.94       | 202.98 | 206.81 | 210.48 | 209.23 | 196.37 | 194.10 | 192.51 |
| 5           | 200.71      | 197.30         | 196.95         | 198.51        | 199.85       | 203.07 | 206.98 | 210.57 | 208.64 | 196.18 | 194.10 | 192.48 |
| 6           | 200.79      | 197.14         | 196.94         | 198.49        | 199.99       | 203.19 | 207.12 | 210.65 | 208.10 | 196.06 | 194.10 | 192.46 |
| 7           | 200.89      | 196.89         | 197.00         | 198.46        | 200.11       | 203.17 | 207.26 | 210.74 | 207.65 | 195.94 | 194.10 | 192.44 |
| 8           | 200.95      | 196.65         | 197.07         | 198.51        | 200.33       | 203.20 | 207.42 | 210.81 | 207.23 | 195.83 | 194.10 | 192.42 |
| 9           | 201.02      | 196.49         | 197.17         | 198.60        | 200.61       | 203.34 | 207.57 | 210.90 | 206.78 | 195.76 | 194.07 | 192.39 |
| 10          | 201.07      | 196.40         | 197.24         | 198.70        | 200.75       | 203.44 | 207.70 | 210.99 | 206.31 | 195.70 | 194.05 | 192.37 |
| 11          | 201.10      | 196.42         | 197.19         | 198.73        | 200.94       | 203.49 | 207.84 | 211.07 | 205.82 | 195.62 | 193.96 | 192.35 |
| 12          | 201.07      | 196.42         | 197.31         | 198.78        | 201.14       | 203.60 | 207.98 | 211.16 | 205.29 | 195.53 | 193.98 | 192.33 |
| 13          | 200.99      | 196.42         | 197.34         | 198.88        | 201.35       | 203.78 | 208.11 | 211.23 | 204.74 | 195.44 | 194.02 | 192.30 |
| 14          | 200.77      | 196.42         | 197.36         | 198.99        | 201.47       | 203.94 | 208.26 | 211.31 | 204.12 | 195.37 | 194.02 | 192.28 |
| 15          | 200.42      | 196.49         | 197.37         | 199.05        | 201.60       | 204.09 | 208.40 | 211.40 | 203.57 | 195.31 | 193.90 | 192.26 |
| 16          | 200.30      | 196.56         | 197.37         | 199.14        | 201.74       | 204.20 | 208.52 | 211.46 | 203.09 | 195.29 | 193.87 | 192.23 |
| 17          | 200.35      | 196.55         | 197.40         | 199.27        | 201.84       | 204.32 | 208.66 | 211.54 | 202.66 | 195.25 | 193.90 | 192.21 |
| 18          | 200.33      | 196.55         | 197.46         | 199.38        | 201.93       | 204.28 | 208.78 | 211.61 | 202.16 | 195.22 | 193.84 | 192.19 |
| 19          | 200.24      | 196.56         | 197.61         | 199.43        | 202.05       | 204.38 | 208.91 | 211.69 | 201.62 | 195.15 | 193.62 | 192.17 |
| 20          | 200.08      | 196.53         | 197.75         | 199.51        | 202.17       | 204.53 | 209.03 | 211.76 | 201.05 | 195.10 | 193.44 | 192.14 |
| 21          | 199.85      | 196.53         | 197.78         | 199.58        | 202.28       | 204.68 | 209.15 | 211.72 | 200.52 | 195.06 | 193.26 | 192.12 |
| 22          | 199.66      | 196.55         | 197.84         | 199.70        | 202.40       | 204.79 | 209.26 | 211.85 | 200.09 | 195.04 | 193.05 | 190.60 |
| 23          | 199.54      | 196.61         | 197.92         | 199.55        | 202.49       | 204.91 | 209.38 | 211.99 | 199.66 | 195.04 | 193.05 | 190.58 |
| 24          | 199.39      | 196.71         | 197.94         | 199.76        | 202.50       | 205.10 | 209.48 | 212.13 | 199.26 | 194.71 | 192.90 | 190.55 |
| 25          | 199.21      | 196.71         | 198.00         | 199.96        | 202.53       | 205.28 | 209.59 | 212.25 | 198.86 | 194.70 | 192.81 | 190.53 |
| 26          | 199.04      | 196.67         | 198.08         | 200.02        | 202.62       | 205.47 | 209.68 | 212.38 | 198.45 | 194.70 | 192.85 | 190.51 |
| 27          | 198.88      | 196.62         | 198.09         | 200.03        | 202.67       | 205.63 | 209.78 | 212.50 | 198.03 | 194.59 | 192.84 | 190.49 |
| 28          | 198.74      | 196.67         | 198.03         | 200.03        | 202.74       | 205.78 | 209.89 | 212.62 | 197.69 | 194.46 | 192.81 | 190.46 |
| 29          | 198.59      | 196.73         | 197.99         | 199.99        | ---          | 205.92 | 210.00 | 212.53 | 197.41 | 194.40 | 192.73 | 190.44 |
| 30          | 198.34      | 196.65         | 198.01         | 199.94        | ---          | 206.05 | 210.08 | 212.16 | 197.19 | 194.38 | 192.73 | 190.42 |
| 31          | 198.07      | ---            | 198.16         | 199.88        | ---          | 206.17 | ---    | 211.63 | ---    | 194.38 | 192.75 | ---    |
| MEAN        | 200.16      | 196.77         | 197.46         | 199.19        | 201.36       | 204.24 | 208.37 | 211.42 | 203.55 | 195.39 | 193.60 | 191.80 |
| WTR YR 1998 | MEAN 200.27 | HIGHEST 190.41 | SEPT. 30, 1998 | LOWEST 212.64 | MAY 28, 1998 |        |        |        |        |        |        |        |



## GROUND-WATER LEVELS

## RIO GRANDE DE ARECIBO BASIN

182756066454700. Local number, BARR-1

LOCATION.--Lat 18°27'56", long 66°45'47", Hydrologic Unit 21010002, 0.04 mi north of Hwy 653, 1.86 mi west of Hwy 129, and 1.55 mi west of the University of Puerto Rico, Arecibo Campus. Owner: Vaqueria Barreto, Name: Barreto #01.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m). Depth 300 ft (91.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 164 ft (50.0 m), above mean sea level, from topographic map.

Measuring point: Top of white PVC cap 3.37 ft (1.03 m), above land-surface datum.

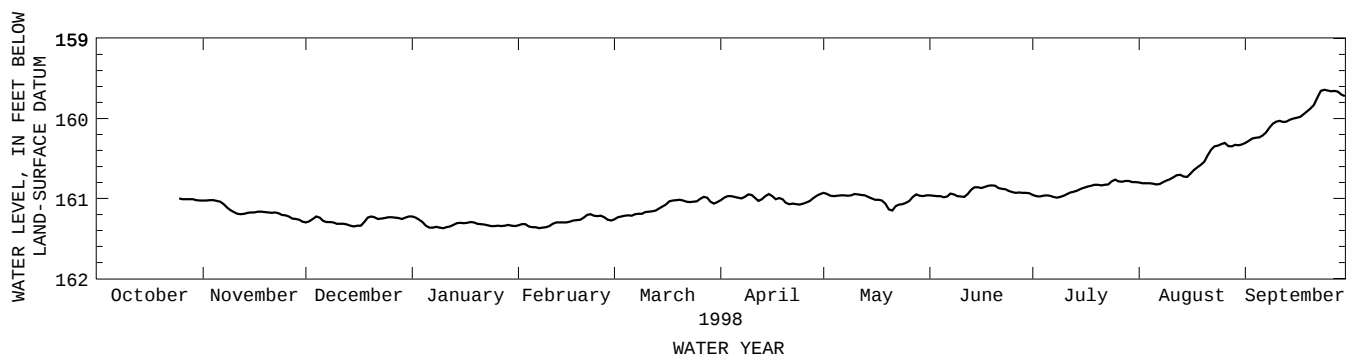
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on October 24, 1997. Water levels affected by marine tides.

PERIOD OF RECORD.--October 24, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 159.6 ft (48.7 m), below land-surface datum, Sept. 24-28, 1998; lowest water level recorded, 161.4 ft (49.2 m), below land-surface datum, Jan. 6, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT         | NOV            | DEC               | JAN           | FEB          | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-------------|-------------|----------------|-------------------|---------------|--------------|--------|--------|--------|--------|--------|--------|--------|
| 1           | ---         | 161.02         | 161.30            | 161.23        | 161.34       | 161.27 | 161.04 | 160.93 | 160.96 | 160.95 | 160.79 | 160.31 |
| 2           | ---         | 161.03         | 161.30            | 161.22        | 161.33       | 161.25 | 161.00 | 160.93 | 160.96 | 160.96 | 160.81 | 160.30 |
| 3           | ---         | 161.02         | 161.27            | 161.26        | 161.31       | 161.22 | 160.98 | 160.96 | 160.97 | 160.98 | 160.81 | 160.26 |
| 4           | ---         | 161.02         | 161.24            | 161.27        | 161.33       | 161.23 | 160.96 | 160.97 | 160.97 | 160.97 | 160.81 | 160.24 |
| 5           | ---         | 161.02         | 161.21            | 161.32        | 161.37       | 161.20 | 160.98 | 160.97 | 160.97 | 160.96 | 160.81 | 160.24 |
| 6           | ---         | 161.04         | 161.27            | 161.36        | 161.35       | 161.22 | 160.98 | 160.96 | 161.00 | 160.96 | 160.82 | 160.23 |
| 7           | ---         | 161.04         | 161.29            | 161.37        | 161.37       | 161.21 | 161.00 | 160.96 | 160.95 | 160.97 | 160.83 | 160.20 |
| 8           | ---         | 161.10         | 161.30            | 161.36        | 161.37       | 161.18 | 161.00 | 160.96 | 160.93 | 160.99 | 160.81 | 160.15 |
| 9           | ---         | 161.13         | 161.29            | 161.35        | 161.36       | 161.20 | 160.96 | 160.97 | 160.97 | 160.99 | 160.78 | 160.08 |
| 10          | ---         | 161.16         | 161.31            | 161.38        | 161.36       | 161.18 | 160.94 | 160.95 | 160.97 | 160.97 | 160.77 | 160.05 |
| 11          | ---         | 161.18         | 161.32            | 161.36        | 161.33       | 161.16 | 160.97 | 160.94 | 160.98 | 160.96 | 160.75 | 160.03 |
| 12          | ---         | 161.20         | 161.31            | 161.36        | 161.30       | 161.17 | 161.02 | 160.96 | 160.98 | 160.93 | 160.72 | 160.03 |
| 13          | ---         | 161.19         | 161.32            | 161.34        | 161.30       | 161.15 | 161.04 | 160.95 | 160.91 | 160.92 | 160.70 | 160.06 |
| 14          | ---         | 161.19         | 161.33            | 161.32        | 161.30       | 161.15 | 160.98 | 160.97 | 160.87 | 160.91 | 160.71 | 160.02 |
| 15          | ---         | 161.17         | 161.35            | 161.30        | 161.30       | 161.10 | 160.96 | 160.99 | 160.85 | 160.89 | 160.74 | 160.01 |
| 16          | ---         | 161.18         | 161.35            | 161.31        | 161.30       | 161.10 | 160.93 | 161.01 | 160.87 | 160.87 | 160.72 | 159.99 |
| 17          | ---         | 161.17         | 161.33            | 161.31        | 161.28       | 161.05 | 161.01 | 161.02 | 160.87 | 160.86 | 160.66 | 159.99 |
| 18          | ---         | 161.16         | 161.35            | 161.30        | 161.27       | 161.02 | 161.01 | 161.01 | 160.84 | 160.84 | 160.63 | 159.97 |
| 19          | ---         | 161.17         | 161.24            | 161.29        | 161.27       | 161.03 | 160.98 | 161.04 | 160.84 | 160.84 | 160.59 | 159.92 |
| 20          | ---         | 161.17         | 161.24            | 161.31        | 161.26       | 161.01 | 161.04 | 161.09 | 160.83 | 160.82 | 160.57 | 159.90 |
| 21          | ---         | 161.18         | 161.21            | 161.32        | 161.22       | 161.02 | 161.07 | 161.18 | 160.85 | 160.84 | 160.51 | 159.85 |
| 22          | ---         | 161.18         | 161.26            | 161.32        | 161.19       | 161.03 | 161.07 | 161.12 | 160.89 | 160.83 | 160.41 | 159.81 |
| 23          | ---         | 161.17         | 161.25            | 161.33        | 161.20       | 161.05 | 161.06 | 161.07 | 160.87 | 160.83 | 160.37 | 159.67 |
| 24          | ---         | 161.20         | 161.25            | 161.34        | 161.23       | 161.04 | 161.08 | 161.08 | 160.90 | 160.82 | 160.33 | 159.64 |
| 25          | 160.99      | 161.21         | 161.24            | 161.35        | 161.21       | 161.04 | 161.07 | 161.06 | 160.91 | 160.75 | 160.35 | 159.64 |
| 26          | 161.01      | 161.21         | 161.23            | 161.34        | 161.22       | 161.03 | 161.06 | 161.05 | 160.93 | 160.78 | 160.29 | 159.66 |
| 27          | 161.01      | 161.24         | 161.24            | 161.34        | 161.25       | 160.98 | 161.04 | 161.01 | 160.93 | 160.79 | 160.32 | 159.66 |
| 28          | 161.01      | 161.26         | 161.24            | 161.35        | 161.28       | 160.98 | 161.02 | 160.95 | 160.92 | 160.79 | 160.37 | 159.65 |
| 29          | 161.01      | 161.25         | 161.25            | 161.33        | ---          | 161.00 | 160.97 | 160.95 | 160.94 | 160.77 | 160.33 | 159.68 |
| 30          | 161.01      | 161.28         | 161.26            | 161.33        | ---          | 161.08 | 160.96 | 160.98 | 160.92 | 160.79 | 160.33 | 159.72 |
| 31          | 161.03      | ---            | 161.22            | 161.35        | ---          | 161.05 | ---    | 160.96 | ---    | 160.80 | 160.34 | ---    |
| MEAN        | 161.01      | 161.15         | 161.28            | 161.32        | 161.29       | 161.11 | 161.01 | 161.00 | 160.92 | 160.88 | 160.61 | 159.97 |
| WTR YR 1998 | MEAN 160.96 | HIGHEST 159.61 | SEPT. 24-28, 1998 | LOWEST 161.40 | JAN. 6, 1998 |        |        |        |        |        |        |        |



## GROUND-WATER LEVELS

## RIO GRANDE DE ARECIBO BASIN

182737066370900. Local number, 204.

LOCATION.--Lat 18°27'37", long 66°37'09", Hydrologic Unit 21010002, 5.26 mi west of Barceloneta plaza, 1.58 mi north of Hwy 2 km 63.7, and 3.67 mi southwest of Escuela Agustín Balseiro. Owner: Sucesión Marquez, Name: Gilberto Rivera well.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Abandoned unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is 48.0 ft (14.63 m), above mean sea level.

Measuring point: Air hole on pump base, 0.50 ft (0.15 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 7, 1997.

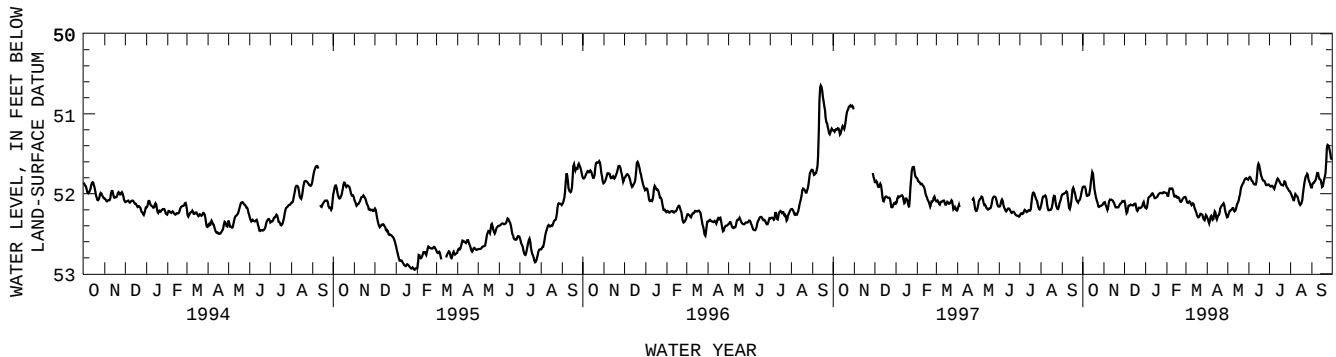
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 50.0 ft (15.2 m), below land-surface datum, May 14, 1986; lowest water level recorded, 53.1 ft (16.2 m), below land-surface datum, Jan. 29, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 51.93 | 52.12 | 52.09 | 52.18 | 51.99 | 52.04 | 52.29 | 52.31 | 51.82 | 51.89 | 51.98 | 51.93 |
| 2    | 51.90 | 52.10 | 52.09 | 52.18 | 52.01 | 52.07 | 52.31 | 52.27 | 51.79 | 51.90 | 52.00 | 51.91 |
| 3    | 51.92 | 52.11 | 52.15 | 52.19 | 52.04 | 52.11 | 52.32 | 52.25 | 51.79 | 51.91 | 52.02 | 51.85 |
| 4    | 51.90 | 52.15 | 52.23 | 52.15 | 52.01 | 52.11 | 52.38 | 52.22 | 51.80 | 51.91 | 52.04 | 51.88 |
| 5    | 51.92 | 52.16 | 52.26 | 52.07 | 51.94 | 52.12 | 52.36 | 52.21 | 51.83 | 51.89 | 52.06 | 51.85 |
| 6    | 51.95 | 52.18 | 52.21 | 52.04 | 51.93 | 52.09 | 52.30 | 52.21 | 51.84 | 51.91 | 52.10 | 51.84 |
| 7    | 52.02 | 52.22 | 52.16 | 52.04 | 51.94 | 52.10 | 52.27 | 52.19 | 51.84 | 51.91 | 52.06 | 51.83 |
| 8    | 52.03 | 52.14 | 52.14 | 52.03 | 51.94 | 52.11 | 52.28 | 52.20 | 51.87 | 51.94 | 52.01 | 51.80 |
| 9    | 52.02 | 52.10 | 52.15 | 52.02 | 51.93 | 52.14 | 52.31 | 52.16 | 51.88 | 51.94 | 52.00 | 51.74 |
| 10   | 52.02 | 52.07 | 52.14 | 52.01 | 51.94 | 52.14 | 52.34 | 52.20 | 51.89 | 51.89 | 52.03 | 51.74 |
| 11   | 52.01 | 52.07 | 52.13 | 51.99 | 51.98 | 52.12 | 52.29 | 52.22 | 51.88 | 51.87 | 52.03 | 51.74 |
| 12   | 51.96 | 52.07 | 52.15 | 52.00 | 52.03 | 52.12 | 52.24 | 52.22 | 51.89 | 51.84 | 52.04 | 51.81 |
| 13   | 51.89 | 52.08 | 52.13 | 52.01 | 52.04 | 52.14 | 52.20 | 52.20 | 51.81 | 51.81 | 52.08 | 51.82 |
| 14   | 51.81 | 52.08 | 52.16 | 52.05 | 52.03 | 52.18 | 52.27 | 52.18 | 51.69 | 51.81 | 52.12 | 51.82 |
| 15   | 51.75 | 52.09 | 52.13 | 52.06 | 52.02 | 52.20 | 52.32 | 52.13 | 51.63 | 51.83 | 52.14 | 51.84 |
| 16   | 51.71 | 52.12 | 52.13 | 52.05 | 52.04 | 52.22 | 52.32 | 52.12 | 51.62 | 51.84 | 52.14 | 51.91 |
| 17   | 51.80 | 52.12 | 52.12 | 52.05 | 52.06 | 52.25 | 52.28 | 52.10 | 51.66 | 51.86 | 52.12 | 51.92 |
| 18   | 51.90 | 52.17 | 52.13 | 52.04 | 52.04 | 52.28 | 52.26 | 52.06 | 51.72 | 51.88 | 52.11 | 51.89 |
| 19   | 51.97 | 52.17 | 52.19 | 52.03 | 52.05 | 52.29 | 52.27 | 52.02 | 51.76 | 51.89 | 52.04 | 51.84 |
| 20   | 52.01 | 52.17 | 52.22 | 52.01 | 52.07 | 52.30 | 52.21 | 51.99 | 51.79 | 51.89 | 51.98 | 51.80 |
| 21   | 52.05 | 52.17 | 52.21 | 52.00 | 52.10 | 52.28 | 52.17 | 51.91 | 51.81 | 51.89 | 51.89 | 51.78 |
| 22   | 52.09 | 52.17 | 52.18 | 52.00 | 52.10 | 52.26 | 52.16 | 51.91 | 51.84 | 51.90 | 51.84 | 51.70 |
| 23   | 52.10 | 52.17 | 52.17 | 51.98 | 52.10 | 52.24 | 52.14 | 51.88 | 51.83 | 51.85 | 51.81 | 51.47 |
| 24   | 52.15 | 52.14 | 52.18 | 52.00 | 52.07 | 52.26 | 52.14 | 51.87 | 51.84 | 51.84 | 51.76 | 51.39 |
| 25   | 52.17 | 52.13 | 52.18 | 51.98 | 52.06 | 52.25 | 52.12 | 51.85 | 51.85 | 51.86 | 51.79 | 51.39 |
| 26   | 52.16 | 52.12 | 52.17 | 52.01 | 52.05 | 52.28 | 52.12 | 51.82 | 51.89 | 51.90 | 51.71 | 51.40 |
| 27   | 52.15 | 52.12 | 52.16 | 51.98 | 52.04 | 52.31 | 52.17 | 51.82 | 51.89 | 51.92 | 51.81 | 51.43 |
| 28   | 52.15 | 52.09 | 52.16 | 51.98 | 52.04 | 52.33 | 52.22 | 51.80 | 51.89 | 51.93 | 51.83 | 51.47 |
| 29   | 52.15 | 52.09 | 52.09 | 51.98 | ---   | 52.33 | 52.26 | 51.81 | 51.89 | 51.94 | 51.85 | 51.52 |
| 30   | 52.14 | 52.10 | 52.12 | 51.99 | ---   | 52.27 | 52.28 | 51.81 | 51.88 | 51.97 | 51.88 | 51.58 |
| 31   | 52.13 | ---   | 52.15 | 51.99 | ---   | 52.26 | ---   | 51.83 | ---   | 51.96 | 51.91 | ---   |
| MEAN | 52.00 | 52.13 | 52.16 | 52.04 | 52.02 | 52.20 | 52.25 | 52.06 | 51.81 | 51.89 | 51.97 | 51.73 |

WTR YR 1998 MEAN 52.02 HIGHEST 51.38 SEPT. 24, 25, 1998 LOWEST 52.42 APR. 3, 4, 1998



GROUND-WATER LEVELS  
RIO GRANDE DE ARECIBO BASIN

182616066364100. Local number, EN-1.

LOCATION.--Lat 18°26'16", long 66°36'41", Hydrologic Unit 21010002, 3.00 west of the intersection of Hwy 140 with Hwy 2 (Cruce Davila), 0.32 mi southwest of Hwy 22, 0.15 mi north of Hwy 2, and 0.22 mi northeast of the intersection of Hwy 2 with Hwy 639. Owner: PR Aqueduct and Sewer Authority, Name: PRASA Encantada 1.

AQUIFER.--Tertiary Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 312 ft (95.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor 3.40 ft (1.04 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Aug. 23, 1996, replaced by an Electronic Data Logger (EDL), installed on January 13, 1997.

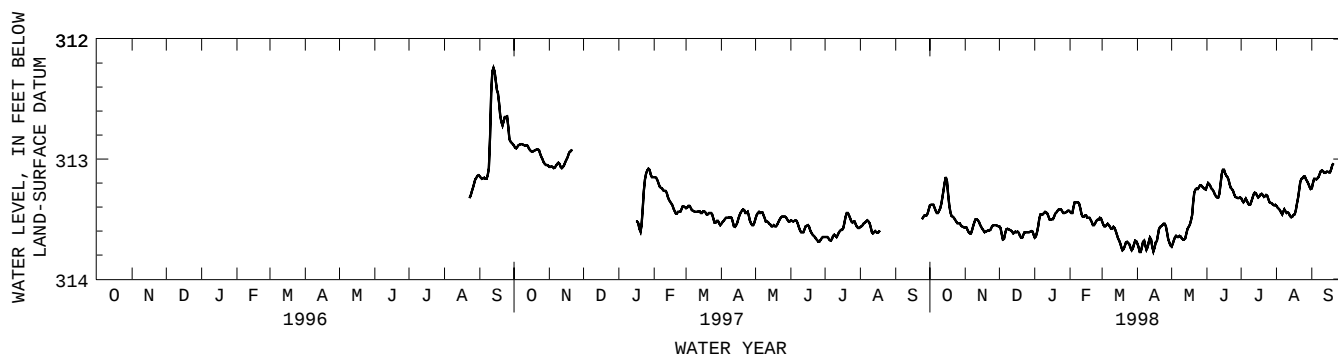
PERIOD OF RECORD.--August 23, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 312.23 ft (95.2 m), below land-surface datum, Sept. 13, 1996; lowest water level recorded, 313.84 ft (95.7 m), below land-surface datum, April 3, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | 313.40 | 313.57 | 313.56 | 313.65 | 313.44 | 313.51 | 313.70 | 313.74 | 313.25 | 313.32 | 313.38 | 313.26 |
| 2    | 313.37 | 313.57 | 313.56 | 313.66 | 313.44 | 313.53 | 313.71 | 313.72 | 313.20 | 313.33 | 313.40 | 313.23 |
| 3    | 313.39 | 313.57 | 313.59 | 313.63 | 313.46 | 313.56 | 313.76 | 313.69 | 313.20 | 313.36 | 313.41 | 313.17 |
| 4    | 313.37 | 313.61 | 313.66 | 313.59 | 313.44 | 313.56 | 313.79 | 313.66 | 313.22 | 313.36 | 313.42 | 313.16 |
| 5    | 313.39 | 313.61 | 313.68 | 313.53 | 313.36 | 313.56 | 313.76 | 313.64 | 313.23 | 313.33 | 313.43 | 313.17 |
| 6    | 313.42 | 313.63 | 313.65 | 313.46 | 313.36 | 313.54 | 313.71 | 313.64 | 313.26 | 313.33 | 313.46 | 313.17 |
| 7    | 313.44 | 313.61 | 313.59 | 313.46 | 313.36 | 313.54 | 313.67 | 313.66 | 313.25 | 313.36 | 313.46 | 313.15 |
| 8    | 313.46 | 313.57 | 313.58 | 313.46 | 313.36 | 313.56 | 313.69 | 313.64 | 313.29 | 313.37 | 313.42 | 313.15 |
| 9    | 313.44 | 313.54 | 313.58 | 313.46 | 313.36 | 313.57 | 313.75 | 313.64 | 313.30 | 313.39 | 313.42 | 313.10 |
| 10   | 313.42 | 313.51 | 313.59 | 313.44 | 313.39 | 313.59 | 313.76 | 313.65 | 313.32 | 313.37 | 313.45 | 313.10 |
| 11   | 313.40 | 313.49 | 313.59 | 313.44 | 313.44 | 313.57 | 313.71 | 313.67 | 313.32 | 313.34 | 313.45 | 313.09 |
| 12   | 313.34 | 313.51 | 313.60 | 313.45 | 313.48 | 313.56 | 313.67 | 313.67 | 313.32 | 313.31 | 313.44 | 313.11 |
| 13   | 313.28 | 313.51 | 313.61 | 313.46 | 313.48 | 313.59 | 313.64 | 313.67 | 313.26 | 313.28 | 313.47 | 313.12 |
| 14   | 313.22 | 313.54 | 313.63 | 313.50 | 313.48 | 313.61 | 313.70 | 313.65 | 313.15 | 313.28 | 313.48 | 313.11 |
| 15   | 313.17 | 313.55 | 313.60 | 313.51 | 313.46 | 313.65 | 313.76 | 313.59 | 313.10 | 313.29 | 313.49 | 313.10 |
| 16   | 313.13 | 313.58 | 313.61 | 313.50 | 313.48 | 313.67 | 313.78 | 313.57 | 313.08 | 313.32 | 313.47 | 313.11 |
| 17   | 313.24 | 313.58 | 313.61 | 313.50 | 313.50 | 313.69 | 313.70 | 313.56 | 313.10 | 313.32 | 313.46 | 313.11 |
| 18   | 313.35 | 313.61 | 313.60 | 313.50 | 313.48 | 313.72 | 313.69 | 313.53 | 313.14 | 313.30 | 313.46 | 313.11 |
| 19   | 313.42 | 313.61 | 313.63 | 313.46 | 313.50 | 313.76 | 313.68 | 313.49 | 313.14 | 313.29 | 313.39 | 313.06 |
| 20   | 313.47 | 313.60 | 313.65 | 313.45 | 313.51 | 313.76 | 313.60 | 313.44 | 313.16 | 313.29 | 313.35 | 313.04 |
| 21   | 313.48 | 313.60 | 313.66 | 313.44 | 313.54 | 313.74 | 313.57 | 313.29 | 313.19 | 313.31 | 313.29 | 313.03 |
| 22   | 313.48 | 313.59 | 313.65 | 313.42 | 313.56 | 313.71 | 313.56 | 313.27 | 313.23 | 313.32 | 313.21 | ---    |
| 23   | 313.50 | 313.60 | 313.61 | 313.42 | 313.54 | 313.68 | 313.56 | 313.24 | 313.25 | 313.30 | 313.17 | ---    |
| 24   | 313.51 | 313.58 | 313.61 | 313.42 | 313.53 | 313.70 | 313.54 | 313.25 | 313.25 | 313.30 | 313.16 | ---    |
| 25   | 313.53 | 313.56 | 313.61 | 313.42 | 313.50 | 313.70 | 313.54 | 313.25 | 313.28 | 313.31 | 313.16 | ---    |
| 26   | 313.54 | 313.55 | 313.61 | 313.45 | 313.51 | 313.72 | 313.54 | 313.22 | 313.31 | 313.36 | 313.13 | ---    |
| 27   | 313.53 | 313.55 | 313.61 | 313.45 | 313.50 | 313.76 | 313.58 | 313.22 | 313.32 | 313.36 | 313.16 | ---    |
| 28   | 313.54 | 313.55 | 313.61 | 313.45 | 313.48 | 313.76 | 313.64 | 313.22 | 313.32 | 313.37 | 313.18 | ---    |
| 29   | 313.56 | 313.55 | 313.60 | 313.44 | ---    | 313.73 | 313.69 | 313.24 | 313.33 | 313.37 | 313.19 | ---    |
| 30   | 313.56 | 313.56 | 313.60 | 313.44 | ---    | 313.69 | 313.70 | 313.24 | 313.32 | 313.39 | 313.22 | ---    |
| 31   | 313.57 | ---    | 313.61 | 313.42 | ---    | 313.67 | ---    | 313.26 | ---    | 313.38 | 313.24 | ---    |
| MEAN | 313.42 | 313.57 | 313.61 | 313.48 | 313.46 | 313.64 | 313.67 | 313.49 | 313.24 | 313.33 | 313.35 | 313.13 |

WTR YR 1998 MEAN 313.46 HIGHEST 312.95 SEPT. 21, 22, 1998 LOWEST 313.84 APR. 3, 1998



## GROUND-WATER LEVELS

## RIO GRANDE DE ARECIBO BASIN

182626066345100. Local number, TI-1.

LOCATION.--Lat 18°26'26", long 66°34'51", Hydrologic Unit 21010002, 1.45 mi south of Hwy 682, 1.15 mi northwest of the intersection of Hwy 140 with Hwy 2 (Cruce Dávila), 0.48 mi north of Hwy 2, and approximately 100 feet south of Hwy 22. Owner: PR Aqueduct and Sewer Authority, Name: Tiburones 1.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 12 in (0.30 m). Depth 320 ft (97.5 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval. Prior to December 19, 1996, pressure transducer with integrated electronic data logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 295 ft (89.9 m), above mean sea level, from topographic map.

Measuring point: Top of 4 in (0.10 m) PVC cap, above shelter floor, 3.40 ft (1.04 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), re-installed on October 27, 1997.

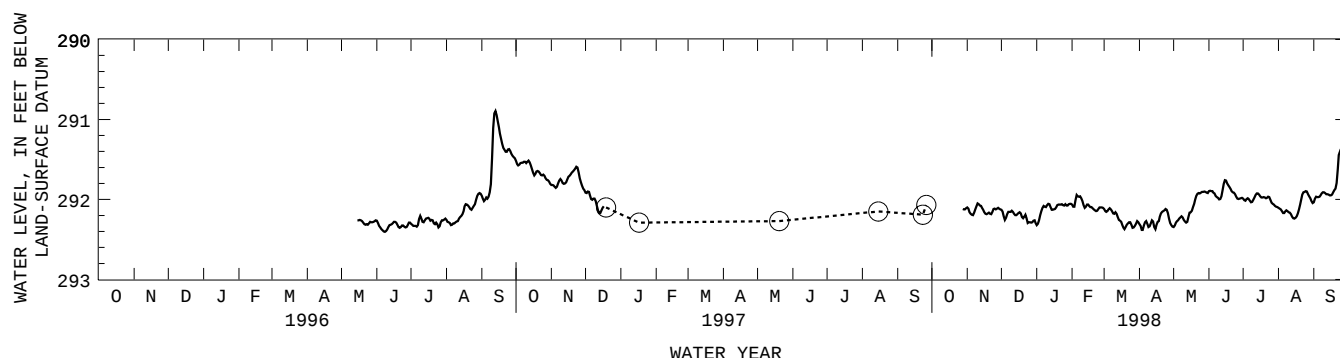
PERIOD OF RECORD.--May 14, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 290.88 ft (88.7 m), below land-surface datum, Sept. 13, 1996; lowest water level measured, 292.79 ft (89.2 m), below land-surface datum, Jan. 17, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | ---    | 292.11 | 292.13 | 292.32 | 292.06 | 292.11 | 292.31 | 292.35 | 291.92 | 291.98 | 292.10 | 292.05 |
| 2    | ---    | 292.09 | 292.13 | 292.32 | 292.07 | 292.13 | 292.31 | 292.34 | 291.87 | 292.00 | 292.11 | 292.02 |
| 3    | ---    | 292.14 | 292.17 | 292.29 | 292.11 | 292.16 | 292.35 | 292.31 | 291.91 | 292.02 | 292.12 | 291.96 |
| 4    | ---    | 292.18 | 292.25 | 292.23 | 292.07 | 292.15 | 292.41 | 292.27 | 291.88 | 292.01 | 292.13 | 291.97 |
| 5    | ---    | 292.18 | 292.26 | 292.16 | 291.95 | 292.14 | 292.35 | 292.27 | 291.91 | 291.98 | 292.16 | 291.97 |
| 6    | ---    | 292.20 | 292.20 | 292.13 | 291.94 | 292.11 | 292.30 | 292.25 | 291.92 | 291.99 | 292.18 | 291.97 |
| 7    | ---    | 292.19 | 292.17 | 292.08 | 291.98 | 292.11 | 292.27 | 292.23 | 291.93 | 292.00 | 292.16 | 291.96 |
| 8    | ---    | 292.14 | 292.14 | 292.08 | 291.95 | 292.14 | 292.27 | 292.22 | 291.98 | 292.03 | 292.14 | 291.94 |
| 9    | ---    | 292.11 | 292.17 | 292.10 | 291.97 | 292.15 | 292.34 | 292.20 | 291.96 | 292.04 | 292.13 | 291.91 |
| 10   | ---    | 292.06 | 292.14 | 292.09 | 292.00 | 292.20 | 292.35 | 292.25 | 292.00 | 292.02 | 292.16 | 291.91 |
| 11   | ---    | 292.04 | 292.14 | 292.05 | 292.04 | 292.16 | 292.32 | 292.26 | 292.00 | 291.99 | 292.16 | 291.91 |
| 12   | ---    | 292.08 | 292.17 | 292.06 | 292.10 | 292.16 | 292.28 | 292.29 | 291.99 | 291.96 | 292.17 | 291.93 |
| 13   | ---    | 292.07 | 292.19 | 292.06 | 292.11 | 292.20 | 292.24 | 292.29 | 291.93 | 291.93 | 292.20 | 291.94 |
| 14   | ---    | 292.09 | 292.20 | 292.13 | 292.07 | 292.24 | 292.31 | 292.27 | 291.84 | 291.92 | 292.23 | 291.93 |
| 15   | ---    | 292.12 | 292.19 | 292.13 | 292.06 | 292.27 | 292.38 | 292.17 | 291.77 | 291.93 | 292.24 | 291.95 |
| 16   | ---    | 292.14 | 292.18 | 292.13 | 292.07 | 292.26 | 292.36 | 292.16 | 291.75 | 291.95 | 292.24 | 291.95 |
| 17   | ---    | 292.18 | 292.16 | 292.12 | 292.09 | 292.30 | 292.27 | 292.16 | 291.78 | 291.97 | 292.22 | 291.95 |
| 18   | ---    | 292.18 | 292.16 | 292.12 | 292.10 | 292.34 | 292.29 | 292.12 | 291.82 | 291.98 | 292.20 | 291.93 |
| 19   | ---    | 292.19 | 292.19 | 292.08 | 292.09 | 292.37 | 292.25 | 292.07 | 291.83 | 291.97 | 292.15 | 291.89 |
| 20   | ---    | 292.16 | 292.25 | 292.06 | 292.13 | 292.37 | 292.18 | 292.04 | 291.86 | 291.97 | 292.10 | 291.88 |
| 21   | ---    | 292.17 | 292.22 | 292.07 | 292.12 | 292.32 | 292.17 | 291.97 | 291.88 | 291.98 | 292.03 | 291.85 |
| 22   | ---    | 292.19 | 292.21 | 292.06 | 292.15 | 292.31 | 292.14 | 291.94 | 291.91 | 291.99 | 291.96 | 291.74 |
| 23   | ---    | 292.18 | 292.17 | 292.07 | 292.14 | 292.29 | 292.15 | 291.92 | 291.91 | 291.97 | 291.92 | 291.50 |
| 24   | ---    | 292.13 | 292.30 | 292.05 | 292.14 | 292.28 | 292.12 | 291.92 | 291.92 | 291.96 | 291.90 | 291.39 |
| 25   | ---    | 292.11 | 292.29 | 292.09 | 292.10 | 292.29 | 292.12 | 291.93 | 291.95 | 291.98 | 291.91 | 291.42 |
| 26   | ---    | 292.12 | 292.28 | 292.06 | 292.10 | 292.34 | 292.14 | 291.90 | 291.98 | 292.03 | 291.88 | 291.46 |
| 27   | ---    | 292.13 | 292.29 | 292.06 | 292.10 | 292.37 | 292.20 | 291.91 | 292.00 | 292.05 | 291.92 | 291.50 |
| 28   | 292.13 | 292.10 | 292.29 | 292.09 | 292.10 | 292.33 | 292.28 | 291.90 | 291.99 | 292.06 | 291.95 | 291.52 |
| 29   | 292.11 | 292.11 | 292.28 | 292.06 | ---    | 292.33 | 292.31 | 291.90 | 291.99 | 292.07 | 291.97 | 291.57 |
| 30   | 292.14 | 292.12 | 292.25 | 292.06 | ---    | 292.28 | 292.33 | 291.91 | 291.98 | 292.09 | 292.00 | 291.62 |
| 31   | 292.11 | ---    | 292.27 | 292.05 | ---    | 292.26 | ---    | 291.92 | ---    | 292.09 | 292.04 | ---    |
| MEAN | 292.12 | 292.13 | 292.21 | 292.11 | 292.07 | 292.24 | 292.27 | 292.12 | 291.91 | 292.00 | 292.09 | 291.82 |

WTR YR 1998 MEAN 292.09 HIGHEST 291.37 SEPT. 24, 1998 LOWEST 292.46 APR. 5, 1998



## GROUND-WATER LEVELS

## RIO GRANDE DE ARECIBO BASIN

182603066333601. Local number, FA-2.

LOCATION.--Lat 18°26'03", long 66°33'36", Hydrologic Unit 21010002, 0.70 south of the intersection of Hwy 140 with Hwy 22, 0.35 mi east of the intersection of Hwy 140 with Hwy 2, and 1.35 mi northeast of the intersection of Hwy 140 with Hwy 666. Owner: PR Aqueduct and Sewer Authority, Name: Florida Afuera No. 2.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 16 in (0.41 m), cased 0-270 ft (0-82.3 m), screened 200-270 ft (61.0-82.3 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 213.3 ft (65.0 m), above mean sea level from topographic map.

Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 4.00 ft (1.22 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on August 23, 1996, replaced by an Electronic Data Logger (EDL), installed on January 17, 1997.

PERIOD OF RECORD.--August 23, 1996 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 199.01 ft (60.7 m), below land-surface datum, Sept. 11, 12, 1996; lowest water level recorded, 201.63 ft (61.5 m), below land-surface datum, Apr. 10, 11, 12, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT         | NOV            | DEC               | JAN | FEB | MAR | APR           | MAY             | JUN    | JUL    | AUG    | SEP    |
|-------------|-------------|----------------|-------------------|-----|-----|-----|---------------|-----------------|--------|--------|--------|--------|
| 1           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.15 | 201.41 | 201.31 | 201.37 |
| 2           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.15 | 201.41 | 201.31 | 201.37 |
| 3           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.17 | 201.41 | 201.31 | 201.37 |
| 4           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.17 | 201.41 | 201.31 | 201.37 |
| 5           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.18 | 201.41 | 201.34 | 201.37 |
| 6           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.20 | 201.41 | 201.34 | 201.36 |
| 7           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.18 | 201.41 | 201.34 | 201.36 |
| 8           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.20 | 201.43 | 201.34 | 201.27 |
| 9           | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.21 | 201.43 | 201.32 | 201.27 |
| 10          | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.26 | 201.41 | 201.29 | 201.27 |
| 11          | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.30 | 201.41 | 201.29 | 201.29 |
| 12          | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.30 | 201.41 | 201.31 | 201.29 |
| 13          | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.30 | 201.40 | 201.34 | 201.29 |
| 14          | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.30 | 201.32 | 201.32 | 201.30 |
| 15          | ---         | ---            | ---               | --- | --- | --- | ---           | ---             | 201.29 | 201.32 | 201.35 | 201.30 |
| 16          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.29 | 201.32 | 201.35 | 201.32 |
| 17          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.30 | 201.32 | 201.35 | 201.32 |
| 18          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.32 | 201.34 | 201.35 | 201.31 |
| 19          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.32 | 201.31 | 201.38 | 201.31 |
| 20          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.17          | 201.33 | 201.28 | 201.38 | 201.31 |
| 21          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.18          | 201.33 | 201.25 | 201.38 | 201.37 |
| 22          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.20          | 201.33 | 201.25 | 201.38 | 201.37 |
| 23          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.20          | 201.35 | 201.25 | 201.38 | ---    |
| 24          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.18          | 201.38 | 201.25 | 201.38 | ---    |
| 25          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.17          | 201.39 | 201.23 | 201.38 | ---    |
| 26          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.39 | 201.25 | 201.37 | ---    |
| 27          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.41 | 201.25 | 201.37 | ---    |
| 28          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.41 | 201.25 | 201.37 | ---    |
| 29          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.14          | 201.41 | 201.28 | 201.37 | ---    |
| 30          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | 201.41 | 201.29 | 201.37 | ---    |
| 31          | ---         | ---            | ---               | --- | --- | --- | ---           | 201.15          | ---    | 201.32 | 201.37 | ---    |
| MEAN        | ---         | ---            | ---               | --- | --- | --- | ---           | 201.16          | 201.29 | 201.34 | 201.35 | 201.33 |
| WTR YR 1997 | MEAN 201.20 | HIGHEST 199.29 | JAN. 23, 24, 1997 |     |     |     | LOWEST 201.44 | JULY 7, 8, 1997 |        |        |        |        |

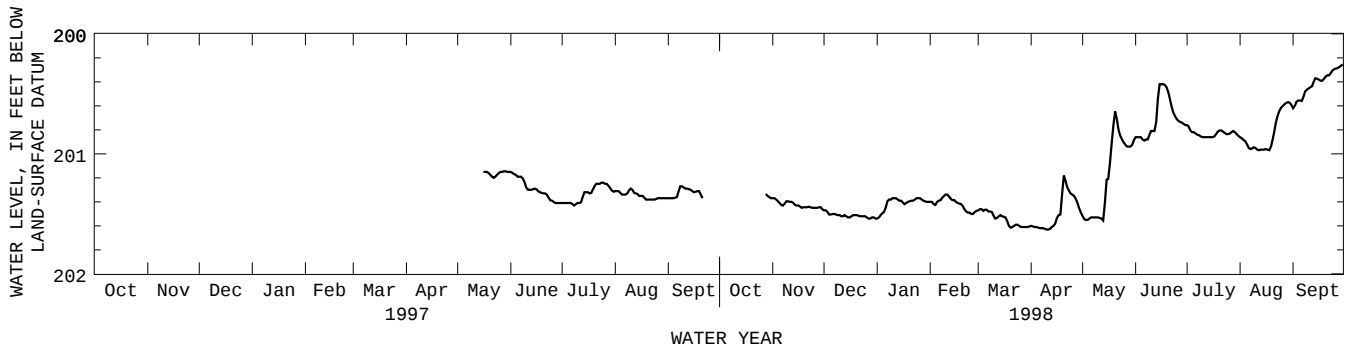
## GROUND-WATER LEVELS

## RIO GRANDE DE ARECIBO BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | ---    | 201.37 | 201.47 | 201.54 | 201.40 | 201.47 | 201.60 | 201.50 | 200.86 | 200.76 | 200.86 | 200.61 |
| 2    | ---    | 201.37 | 201.47 | 201.54 | 201.40 | 201.47 | 201.60 | 201.54 | 200.86 | 200.76 | 200.86 | 200.63 |
| 3    | ---    | 201.37 | 201.47 | 201.52 | 201.40 | 201.45 | 201.61 | 201.55 | 200.86 | 200.79 | 200.88 | 200.57 |
| 4    | ---    | 201.39 | 201.50 | 201.50 | 201.44 | 201.47 | 201.61 | 201.55 | 200.86 | 200.82 | 200.89 | 200.56 |
| 5    | ---    | 201.40 | 201.51 | 201.49 | 201.41 | 201.48 | 201.61 | 201.55 | 200.86 | 200.82 | 200.90 | 200.55 |
| 6    | ---    | 201.42 | 201.50 | 201.48 | 201.39 | 201.45 | 201.62 | 201.53 | 200.90 | 200.82 | 200.94 | 200.56 |
| 7    | ---    | 201.43 | 201.50 | 201.42 | 201.39 | 201.48 | 201.62 | 201.53 | 200.88 | 200.84 | 200.96 | 200.56 |
| 8    | ---    | 201.43 | 201.50 | 201.37 | 201.38 | 201.48 | 201.62 | 201.53 | 200.88 | 200.84 | 200.96 | 200.49 |
| 9    | ---    | 201.40 | 201.51 | 201.39 | 201.35 | 201.48 | 201.62 | 201.53 | 200.88 | 200.85 | 200.95 | 200.47 |
| 10   | ---    | 201.39 | 201.51 | 201.37 | 201.35 | 201.49 | 201.63 | 201.53 | 200.81 | 200.86 | 200.94 | 200.46 |
| 11   | ---    | 201.40 | 201.51 | 201.37 | 201.33 | 201.54 | 201.63 | 201.53 | 200.81 | 200.86 | 200.96 | 200.45 |
| 12   | ---    | 201.40 | 201.53 | 201.37 | 201.35 | 201.54 | 201.63 | 201.54 | 200.81 | 200.86 | 200.97 | 200.44 |
| 13   | ---    | 201.40 | 201.51 | 201.37 | 201.36 | 201.53 | 201.62 | 201.54 | 200.81 | 200.86 | 200.97 | 200.43 |
| 14   | ---    | 201.42 | 201.51 | 201.39 | 201.39 | 201.51 | 201.60 | 201.57 | 200.66 | 200.86 | 200.96 | 200.37 |
| 15   | ---    | 201.43 | 201.53 | 201.39 | 201.38 | 201.51 | 201.60 | 201.24 | 200.42 | 200.86 | 200.97 | 200.37 |
| 16   | ---    | 201.43 | 201.53 | 201.39 | 201.39 | 201.53 | 201.56 | 201.19 | 200.42 | 200.86 | 200.96 | 200.38 |
| 17   | ---    | 201.43 | 201.53 | 201.42 | 201.41 | 201.52 | 201.51 | 201.23 | 200.42 | 200.86 | 200.96 | 200.38 |
| 18   | ---    | 201.45 | 201.51 | 201.42 | 201.41 | 201.54 | 201.51 | 200.93 | 200.42 | 200.85 | 200.97 | 200.40 |
| 19   | ---    | 201.45 | 201.51 | 201.40 | 201.42 | 201.58 | 201.50 | 200.90 | 200.43 | 200.82 | 200.97 | 200.38 |
| 20   | ---    | 201.44 | 201.51 | 201.40 | 201.42 | 201.62 | 201.17 | 200.63 | 200.46 | 200.81 | 200.91 | 200.37 |
| 21   | ---    | 201.45 | 201.51 | 201.39 | 201.45 | 201.61 | 201.19 | 200.66 | 200.51 | 200.80 | 200.86 | 200.34 |
| 22   | ---    | 201.44 | 201.52 | 201.39 | 201.47 | 201.61 | 201.26 | 200.76 | 200.57 | 200.81 | 200.77 | 200.35 |
| 23   | ---    | 201.44 | 201.52 | 201.39 | 201.49 | 201.59 | 201.29 | 200.84 | 200.64 | 200.82 | 200.70 | 200.34 |
| 24   | ---    | 201.45 | 201.52 | 201.37 | 201.49 | 201.59 | 201.32 | 200.86 | 200.67 | 200.83 | 200.66 | 200.31 |
| 25   | ---    | 201.45 | 201.52 | 201.37 | 201.49 | 201.59 | 201.34 | 200.90 | 200.70 | 200.84 | 200.62 | 200.30 |
| 26   | ---    | 201.45 | 201.52 | 201.37 | 201.51 | 201.61 | 201.34 | 200.91 | 200.72 | 200.83 | 200.61 | 200.29 |
| 27   | ---    | 201.45 | 201.54 | 201.37 | 201.49 | 201.61 | 201.36 | 200.94 | 200.73 | 200.83 | 200.59 | 200.29 |
| 28   | 201.32 | 201.45 | 201.54 | 201.39 | 201.48 | 201.61 | 201.39 | 200.94 | 200.74 | 200.81 | 200.58 | 200.28 |
| 29   | 201.35 | 201.44 | 201.54 | 201.39 | ---    | 201.61 | 201.43 | 200.94 | 200.74 | 200.81 | 200.57 | 200.27 |
| 30   | 201.35 | 201.45 | 201.52 | 201.40 | ---    | 201.61 | 201.48 | 200.94 | 200.76 | 200.83 | 200.57 | 200.26 |
| 31   | 201.37 | ---    | 201.54 | 201.40 | ---    | 201.61 | ---    | 200.91 | ---    | 200.84 | 200.58 | ---    |
| MEAN | 201.35 | 201.42 | 201.51 | 201.41 | 201.42 | 201.54 | 201.50 | 201.20 | 200.70 | 200.83 | 200.83 | 200.42 |

WTR YR 1998 MEAN 201.16 HIGHEST 200.25 SEPT. 30, 1998 LOWEST 201.63 APR. 10, 11, 12, 1998



## GROUND-WATER LEVELS

## RIO GRANDE DE ARECIBO BASIN

182209066340600. Local number, FL-1.

LOCATION.--Lat 18°22'09", long 66°34'06", Hydrologic Unit 21010002, 0.20 north of the intersection of Hwy 140 with Hwy 642, 1.15 mi south of the intersection of Hwy 140 with Hwy 641, and approximately 100 ft west of Hwy 140. Owner: PR Aqueduct and Sewer Authority, Name: Florida 1.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 12 in (0.30 m), Depth 200 ft (61.0 m).

INSTRUMENTATION.--Pressure transducer with an electronic data logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 607 ft (185 m), above mean sea level from topographic map.

Measuring point: Shelter floor 4.00 ft (1.22 m), above land-surface datum.

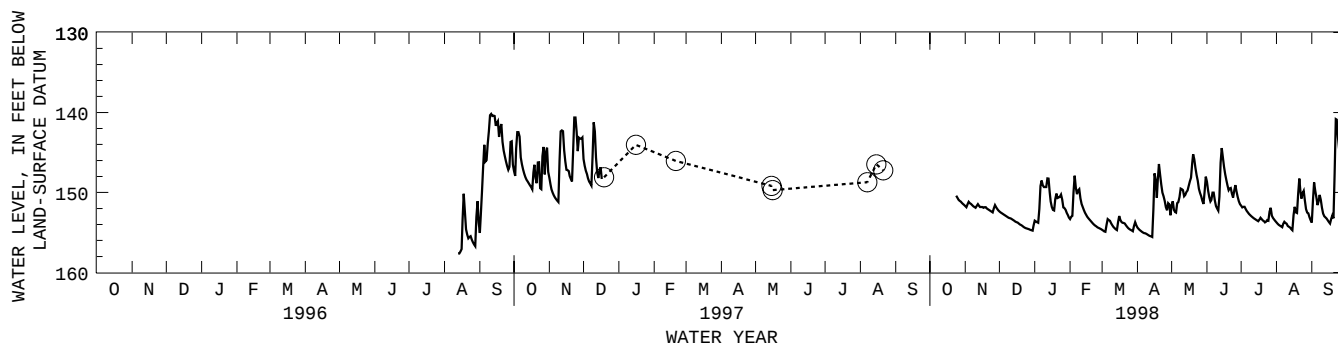
REMARKS.--Recording observation well.

PERIOD OF RECORD.--August 12, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 137.91 ft (42.0 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 157.63 ft (48.0 m), below land-surface datum, Aug. 14, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT         | NOV            | DEC            | JAN           | FEB               | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-------------|-------------|----------------|----------------|---------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| 1           | ---         | 151.59         | 152.33         | 153.45        | 153.25            | 154.60 | 154.27 | 152.96 | 147.98 | 151.55 | 153.66 | 153.64 |
| 2           | ---         | 151.78         | 152.43         | 153.57        | 153.40            | 154.72 | 154.48 | 150.16 | 149.30 | 151.76 | 153.83 | 153.86 |
| 3           | ---         | 151.88         | 152.53         | 153.66        | 152.70            | 154.82 | 154.62 | 152.02 | 150.24 | 151.97 | 153.98 | 148.21 |
| 4           | ---         | 151.08         | 152.62         | 153.76        | 153.13            | 154.89 | 154.75 | 152.34 | 150.88 | 151.63 | 154.10 | 149.29 |
| 5           | ---         | 151.28         | 152.72         | 153.81        | 146.84            | 154.94 | 154.85 | 152.54 | 151.34 | 151.97 | 154.21 | 150.25 |
| 6           | ---         | 151.38         | 152.82         | 150.29        | 148.96            | 153.15 | 154.95 | 152.48 | 150.50 | 152.19 | 154.28 | 151.00 |
| 7           | ---         | 151.47         | 152.92         | 148.07        | 149.83            | 153.53 | 155.07 | 150.20 | 149.54 | 152.39 | 154.37 | 152.13 |
| 8           | ---         | 151.67         | 153.02         | 148.95        | 150.59            | 153.37 | 155.10 | 152.18 | 150.49 | 152.58 | 153.49 | 150.12 |
| 9           | ---         | 151.77         | 153.11         | 149.27        | 148.93            | 153.73 | 155.12 | 148.96 | 151.52 | 152.76 | 153.86 | 150.47 |
| 10          | ---         | 151.87         | 153.21         | 149.37        | 150.23            | 153.99 | 155.22 | 150.08 | 151.88 | 152.91 | 153.76 | 151.38 |
| 11          | ---         | 151.97         | 153.21         | 149.29        | 151.23            | 154.21 | 155.31 | 149.10 | 152.15 | 153.03 | 154.07 | 152.42 |
| 12          | ---         | 151.36         | 153.31         | 149.36        | 151.63            | 154.40 | 155.41 | 150.30 | 152.39 | 153.16 | 154.31 | 152.86 |
| 13          | ---         | 151.56         | 153.41         | 147.11        | 152.02            | 154.53 | 155.46 | 150.64 | 148.64 | 153.26 | 154.29 | 153.06 |
| 14          | ---         | 151.76         | 153.51         | 149.40        | 152.37            | 154.65 | 155.54 | 149.99 | 143.93 | 153.36 | 154.49 | 153.15 |
| 15          | ---         | 151.86         | 153.60         | 150.60        | 152.69            | 154.76 | 155.57 | 149.90 | 144.98 | 153.46 | 154.64 | 153.36 |
| 16          | ---         | 151.76         | 153.70         | 151.63        | 152.92            | 152.67 | 148.60 | 149.61 | 146.27 | 153.53 | 154.78 | 153.58 |
| 17          | ---         | 151.86         | 153.71         | 152.01        | 153.11            | 153.21 | 146.65 | 148.74 | 147.32 | 153.66 | 150.89 | 153.78 |
| 18          | ---         | 151.95         | 153.83         | 152.36        | 153.30            | 153.63 | 150.25 | 148.45 | 148.09 | 153.12 | 152.71 | 153.98 |
| 19          | ---         | 151.75         | 153.94         | 152.13        | 153.47            | 153.73 | 151.08 | 147.85 | 148.80 | 153.21 | 152.26 | 152.64 |
| 20          | ---         | 151.95         | 154.04         | 149.55        | 153.64            | 153.86 | 145.73 | 144.93 | 149.44 | 153.44 | 152.84 | 153.10 |
| 21          | ---         | 152.05         | 154.12         | 150.70        | 153.80            | 153.74 | 147.14 | 145.50 | 149.95 | 153.53 | 147.56 | 153.37 |
| 22          | ---         | 152.15         | 154.24         | 150.69        | 153.96            | 154.00 | 148.45 | 146.17 | 149.07 | 153.66 | 148.96 | 141.97 |
| 23          | ---         | 152.24         | 154.35         | 150.54        | 154.08            | 154.21 | 149.57 | 147.67 | 149.83 | 153.81 | 150.36 | 139.67 |
| 24          | 150.30      | 152.34         | 154.43         | 150.51        | 154.19            | 154.38 | 150.46 | 147.98 | 150.43 | 153.48 | 151.16 | 142.13 |
| 25          | 150.50      | 152.44         | 154.48         | 149.98        | 154.30            | 154.52 | 150.50 | 149.09 | 150.86 | 153.40 | 149.06 | 144.00 |
| 26          | 150.80      | 152.54         | 154.53         | 151.77        | 154.40            | 154.62 | 151.60 | 150.00 | 148.67 | 153.62 | 150.54 | 145.04 |
| 27          | 150.99      | 151.44         | 154.58         | 151.96        | 154.46            | 154.70 | 152.06 | 150.12 | 149.49 | 151.17 | 151.46 | 145.40 |
| 28          | 151.09      | 151.73         | 154.63         | 151.95        | 154.55            | 154.79 | 152.39 | 150.83 | 150.25 | 152.67 | 152.70 | 145.92 |
| 29          | 151.19      | 151.93         | 154.69         | 152.42        | ---               | 154.88 | 150.27 | 151.25 | 150.83 | 153.11 | 152.34 | 146.54 |
| 30          | 151.39      | 152.13         | 154.73         | 152.69        | ---               | 153.49 | 152.75 | 151.60 | 151.38 | 153.26 | 152.89 | 147.20 |
| 31          | 151.49      | ---            | 154.79         | 153.02        | ---               | 153.92 | ---    | 148.08 | ---    | 153.48 | 153.31 | ---    |
| MEAN        | 150.97      | 151.82         | 153.66         | 151.09        | 152.43            | 154.15 | 152.44 | 149.73 | 149.55 | 152.91 | 152.75 | 149.78 |
| WTR YR 1998 | MEAN 151.83 | HIGHEST 137.91 | SEPT. 22, 1998 | LOWEST 155.61 | APR. 15, 16, 1998 |        |        |        |        |        |        |        |



## GROUND-WATER LEVELS

## RIO GRANDE DE MANATI BASIN

182757066325600. Local number, 206.

LOCATION.--Lat 18°27'57", long 66°32'56", Hydrologic Unit 21010002, 0.84 mi northwest of Barceloneta plaza, 0.64 mi west of Central Plazuela, and 1.96 mi southeast of Escuela Agustín Balseiro. Owner: PR Department of Agriculture, Name: Plazuela No. 2.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m), cased 16 in (0.41 m) 0-85.0 ft (0-25.9 m), open hole 85-101 ft (25.9-30.8 m). Depth 101 ft (30.8 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 7.00 ft (2.1 m), above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.30 ft (0.40 m), above land-surface datum.

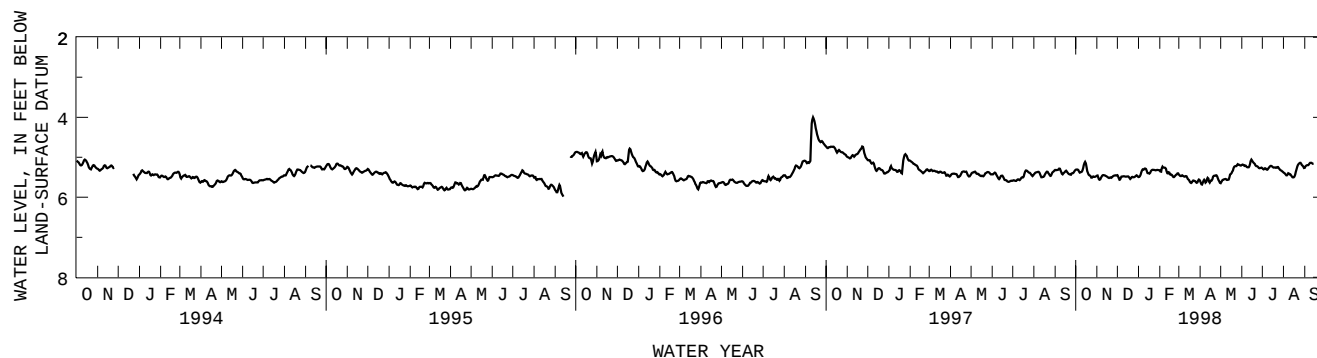
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 7, 1997.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.75 ft (1.14 m), below land-surface datum, Sept. 11, 1988; lowest water level recorded, 6.03 ft (1.84 m), below land-surface datum, Sept. 15, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT       | NOV                        | DEC                            | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|-------------|-----------|----------------------------|--------------------------------|------|------|------|------|------|------|------|------|------|
| 1           | 5.32      | 5.47                       | 5.44                           | 5.50 | 5.32 | 5.42 | 5.57 | 5.66 | 5.20 | 5.26 | 5.37 | 5.28 |
| 2           | 5.30      | 5.45                       | 5.45                           | 5.49 | 5.33 | 5.44 | 5.61 | 5.64 | 5.18 | 5.29 | 5.39 | 5.25 |
| 3           | 5.31      | 5.46                       | 5.49                           | 5.49 | 5.38 | 5.46 | 5.66 | 5.61 | 5.18 | 5.30 | 5.40 | 5.21 |
| 4           | 5.30      | 5.54                       | 5.55                           | 5.46 | 5.34 | 5.47 | 5.69 | 5.57 | 5.19 | 5.30 | 5.41 | 5.21 |
| 5           | 5.31      | 5.56                       | 5.57                           | 5.41 | 5.22 | 5.47 | 5.67 | 5.56 | 5.21 | 5.27 | 5.44 | 5.19 |
| 6           | 5.33      | 5.56                       | 5.54                           | 5.36 | 5.25 | 5.44 | 5.60 | 5.56 | 5.22 | 5.28 | 5.46 | 5.20 |
| 7           | 5.38      | 5.54                       | 5.49                           | 5.30 | 5.26 | 5.46 | 5.56 | 5.54 | 5.19 | 5.29 | 5.44 | 5.19 |
| 8           | 5.39      | 5.50                       | 5.48                           | 5.30 | 5.26 | 5.47 | 5.56 | 5.55 | 5.23 | 5.31 | 5.41 | 5.17 |
| 9           | 5.37      | 5.47                       | 5.48                           | 5.31 | 5.26 | 5.48 | 5.62 | 5.53 | 5.25 | 5.31 | 5.39 | 5.14 |
| 10          | 5.37      | 5.45                       | 5.48                           | 5.29 | 5.27 | 5.49 | 5.65 | 5.56 | 5.25 | 5.29 | 5.43 | 5.14 |
| 11          | 5.35      | 5.44                       | 5.47                           | 5.28 | 5.31 | 5.47 | 5.58 | 5.57 | 5.25 | 5.26 | 5.42 | 5.14 |
| 12          | 5.31      | 5.45                       | 5.48                           | 5.29 | 5.38 | 5.47 | 5.53 | 5.56 | 5.25 | 5.24 | 5.43 | 5.14 |
| 13          | 5.23      | 5.45                       | 5.48                           | 5.30 | 5.42 | 5.48 | 5.50 | 5.56 | 5.21 | 5.22 | 5.46 | 5.17 |
| 14          | 5.16      | 5.46                       | 5.49                           | 5.38 | 5.39 | 5.53 | 5.57 | 5.55 | 5.13 | 5.21 | 5.49 | 5.16 |
| 15          | 5.12      | 5.47                       | 5.48                           | 5.41 | 5.36 | 5.55 | 5.64 | 5.44 | 5.06 | 5.22 | 5.51 | 5.17 |
| 16          | 5.11      | 5.48                       | 5.48                           | 5.39 | 5.41 | 5.56 | 5.63 | 5.42 | 5.06 | 5.23 | 5.50 | ---  |
| 17          | 5.20      | 5.49                       | 5.48                           | 5.41 | 5.44 | 5.59 | 5.58 | 5.42 | 5.09 | 5.25 | 5.50 | ---  |
| 18          | 5.32      | 5.51                       | 5.48                           | 5.41 | 5.43 | 5.63 | 5.58 | 5.37 | 5.13 | 5.26 | 5.47 | ---  |
| 19          | 5.37      | 5.52                       | 5.51                           | 5.37 | 5.43 | 5.64 | 5.58 | 5.35 | 5.14 | 5.26 | 5.40 | ---  |
| 20          | 5.42      | 5.52                       | 5.54                           | 5.33 | 5.46 | 5.65 | 5.51 | 5.31 | 5.16 | 5.25 | 5.34 | ---  |
| 21          | 5.44      | 5.50                       | 5.54                           | 5.32 | 5.49 | 5.61 | 5.47 | 5.24 | 5.18 | 5.26 | 5.26 | ---  |
| 22          | 5.46      | 5.51                       | 5.51                           | 5.31 | 5.50 | 5.58 | 5.46 | 5.23 | 5.22 | 5.27 | 5.21 | ---  |
| 23          | 5.45      | 5.52                       | 5.48                           | 5.31 | 5.49 | 5.58 | 5.46 | 5.22 | 5.22 | 5.25 | 5.18 | ---  |
| 24          | 5.50      | 5.49                       | 5.50                           | 5.32 | 5.46 | 5.59 | 5.46 | 5.22 | 5.22 | 5.24 | 5.16 | ---  |
| 25          | 5.52      | 5.48                       | 5.50                           | 5.31 | 5.44 | 5.59 | 5.44 | 5.22 | 5.24 | 5.25 | 5.15 | ---  |
| 26          | 5.50      | 5.46                       | 5.50                           | 5.33 | 5.43 | 5.61 | 5.46 | 5.17 | 5.26 | 5.29 | 5.13 | ---  |
| 27          | 5.47      | 5.46                       | 5.49                           | 5.32 | 5.42 | 5.64 | 5.50 | 5.18 | 5.28 | 5.30 | 5.15 | ---  |
| 28          | 5.49      | 5.45                       | 5.48                           | 5.32 | 5.39 | 5.64 | 5.55 | 5.18 | 5.27 | 5.32 | 5.19 | ---  |
| 29          | 5.49      | 5.45                       | 5.45                           | 5.31 | ---  | 5.62 | 5.59 | 5.19 | 5.27 | 5.33 | 5.20 | ---  |
| 30          | 5.49      | 5.46                       | 5.45                           | 5.32 | ---  | 5.56 | 5.62 | 5.20 | 5.26 | 5.34 | 5.22 | ---  |
| 31          | 5.48      | ---                        | 5.47                           | 5.32 | ---  | 5.55 | ---  | 5.21 | ---  | 5.36 | 5.26 | ---  |
| MEAN        | 5.36      | 5.49                       | 5.49                           | 5.35 | 5.38 | 5.54 | 5.56 | 5.41 | 5.20 | 5.27 | 5.35 | 5.18 |
| WTR YR 1998 | MEAN 5.39 | HIGHEST 5.03 JUNE 16, 1998 | LOWEST 5.71 APR. 3, 4, 5, 1998 |      |      |      |      |      |      |      |      |      |



## GROUND-WATER LEVELS

## RIO GRANDE DE MANATI BASIN

182710066303700. Local number, 207.

LOCATION.--Lat 18°27'10", long 66°30'37", Hydrologic Unit 21010002, 1.92 mi east of Barceloneta plaza, 1.35 mi north of Central Monserrate, and 2.68 mi northeast of Escuela José Cordero. Owner: PR Aqueduct and Sewer Authority, Name: Cantito La Luisa.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-30.0 ft (0-9.14 m), cased 10 in (0.25 m) 0-126 ft (0-38.4 m), perforated 80-126 ft (24.4-38.4 m). Depth 126 ft (38.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.80 ft (0.85 m), above land-surface datum. Prior to Nov. 20, 1992, hole on side of casing, 2.00 ft (0.61 m), above land-surface datum.

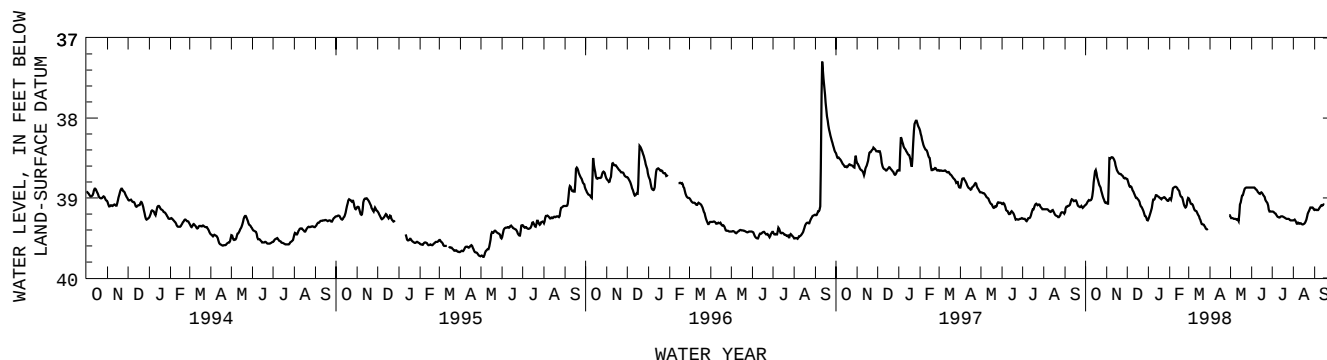
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 5, 1997.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.4 ft (11.1 m), below land-surface datum, May 15, 1986; lowest water level recorded, 89.8 ft (27.4 m), below land-surface datum, Oct. 5, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV                                  | DEC                                    | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|--------------------------------------|----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 39.09      | 39.05                                | 38.76                                  | 39.28 | 39.01 | 39.00 | ---   | 39.22 | 38.87 | 39.17 | 39.28 | 39.15 |
| 2           | 39.08      | 39.07                                | 38.77                                  | 39.25 | 39.00 | 39.01 | ---   | 39.25 | 38.87 | 39.17 | 39.28 | 39.15 |
| 3           | 39.08      | 39.07                                | 38.80                                  | 39.23 | 39.01 | 39.03 | ---   | 39.25 | 38.87 | 39.17 | 39.27 | 39.14 |
| 4           | 39.05      | 39.07                                | 38.84                                  | 39.20 | 39.03 | 39.06 | ---   | 39.25 | 38.87 | 39.18 | 39.27 | 39.15 |
| 5           | 39.05      | 38.50                                | 38.86                                  | 39.17 | 38.95 | 39.08 | ---   | 39.25 | 38.87 | 39.19 | 39.30 | 39.15 |
| 6           | 39.02      | 38.51                                | 38.86                                  | 39.15 | 38.89 | 39.07 | ---   | 39.26 | 38.87 | 39.19 | 39.31 | 39.15 |
| 7           | 39.03      | 38.51                                | 38.85                                  | 39.10 | 38.87 | 39.08 | ---   | 39.26 | 38.89 | 39.20 | 39.33 | 39.15 |
| 8           | 39.03      | 38.49                                | 38.87                                  | 39.02 | 38.87 | 39.10 | ---   | 39.26 | 38.89 | 39.22 | 39.31 | 39.13 |
| 9           | 39.03      | 38.49                                | 38.90                                  | 39.02 | 38.86 | 39.13 | ---   | 39.26 | 38.90 | 39.23 | 39.31 | 39.12 |
| 10          | 39.02      | 38.49                                | 38.91                                  | 39.02 | 38.86 | 39.15 | ---   | 39.27 | 38.92 | 39.24 | 39.32 | 39.11 |
| 11          | 39.00      | 38.50                                | 38.93                                  | 39.01 | 38.86 | 39.16 | ---   | 39.27 | 38.93 | 39.24 | 39.32 | 39.09 |
| 12          | 38.95      | 38.52                                | 38.95                                  | 38.97 | 38.87 | 39.16 | ---   | 39.26 | 38.94 | 39.25 | 39.31 | 39.09 |
| 13          | 38.85      | 38.53                                | 38.97                                  | 38.96 | 38.88 | 39.17 | ---   | 39.29 | 38.95 | 39.24 | 39.32 | 39.10 |
| 14          | 38.76      | 38.57                                | 39.00                                  | 38.97 | 38.90 | 39.19 | ---   | 39.29 | 38.95 | 39.23 | 39.33 | 39.08 |
| 15          | 38.70      | 38.61                                | 39.00                                  | 38.98 | 38.90 | 39.21 | ---   | 39.09 | 38.93 | 39.23 | 39.33 | 39.08 |
| 16          | 38.64      | 38.64                                | 39.00                                  | 38.98 | 38.93 | 39.22 | ---   | 39.07 | 38.93 | 39.23 | 39.33 | 39.09 |
| 17          | 38.66      | 38.66                                | 39.02                                  | 38.99 | 38.97 | 39.24 | ---   | 39.04 | 38.94 | 39.23 | 39.32 | ---   |
| 18          | 38.72      | 38.68                                | 39.02                                  | 39.00 | 38.98 | 39.27 | ---   | 38.97 | 38.96 | 39.24 | 39.32 | ---   |
| 19          | 38.76      | 38.69                                | 39.04                                  | 39.00 | 38.99 | 39.28 | ---   | 38.97 | 38.97 | 39.24 | 39.30 | ---   |
| 20          | 38.78      | 38.70                                | 39.06                                  | 39.02 | 38.99 | 39.32 | ---   | 38.96 | 38.98 | 39.25 | 39.29 | ---   |
| 21          | 38.82      | 38.70                                | 39.10                                  | 39.01 | 39.03 | 39.33 | ---   | 38.92 | 39.00 | 39.25 | 39.25 | ---   |
| 22          | 38.85      | 38.70                                | 39.11                                  | 39.00 | 39.07 | 39.33 | ---   | 38.89 | 39.04 | 39.26 | 39.21 | ---   |
| 23          | 38.85      | 38.71                                | 39.12                                  | 39.00 | 39.09 | 39.33 | ---   | 38.88 | 39.04 | 39.26 | 39.18 | ---   |
| 24          | 38.89      | 38.72                                | 39.14                                  | 38.99 | 39.12 | 39.34 | ---   | 38.87 | 39.06 | 39.26 | 39.17 | ---   |
| 25          | 38.92      | 38.72                                | 39.16                                  | 38.99 | 39.12 | 39.36 | ---   | 38.87 | 39.07 | 39.26 | 39.15 | ---   |
| 26          | 38.96      | 38.74                                | 39.18                                  | 39.00 | 39.11 | 39.37 | ---   | 38.87 | 39.12 | 39.26 | 39.12 | ---   |
| 27          | 38.99      | 38.76                                | 39.22                                  | 39.01 | 39.06 | 39.39 | ---   | 38.87 | 39.17 | 39.27 | 39.12 | ---   |
| 28          | 39.01      | 38.75                                | 39.23                                  | 39.02 | 39.00 | 39.39 | ---   | 38.87 | 39.17 | 39.28 | 39.12 | ---   |
| 29          | 39.03      | 38.75                                | 39.23                                  | 39.03 | ---   | 39.39 | 39.22 | 38.87 | 39.17 | 39.28 | 39.12 | ---   |
| 30          | 39.06      | 38.76                                | 39.27                                  | 39.04 | ---   | 39.38 | 39.21 | 38.87 | 39.17 | 39.28 | 39.12 | ---   |
| 31          | 39.06      | ---                                  | 39.28                                  | 39.03 | ---   | ---   | ---   | 38.87 | ---   | 39.28 | 39.14 | ---   |
| MEAN        | 38.93      | 38.69                                | 39.01                                  | 39.05 | 38.97 | 39.22 | 39.22 | 39.08 | 38.98 | 39.23 | 39.25 | 39.12 |
| WTR YR 1998 | MEAN 39.05 | HIGHEST 38.48 NOV. 5, 8, 9, 10, 1997 | LOWEST 39.39 MAR. 27, 28, 29, 30, 1998 |       |       |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO GRANDE DE MANATI BASIN

182549066304300. Local number, 166.

LOCATION.--Lat 18°25'49", long 66°30'43", Hydrologic Unit 21010002, 0.95 mi east of the Rio Grande de Manatí Hwy 2 bridge, 0.40 mi southwest of Central Monserrate, 1.07 mi east of the intersection of Hwy 666 with Hwy 2, 1.20 mi west of the intersection of Hwy 685 with Hwy 2, 0.01 mi north of Hwy 2. Owner: PR Aqueduct and Sewer Authority  
Name: Manatí 3.

AQUIFER.--Alluvial deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 0-100 ft (0-39.49 m), diameter 14 in (0.36 m), cased 0-140 ft (0-42.7 m), slotted 80-90 ft (24.7-27.4 m), and 130-140 ft (39.6-42.7 m). Depth 140 ft (42.7 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 29.50 ft (9.0 m), above mean-sea level, from topographic map.

Measuring point: A hole in the side of the 20 in (0.51 m) diameter well casing, 1.65 ft (0.50 m) above land-surface datum. Prior May 31, 1996, top of 14 in (0.36 m) casing, 0.80 ft (0.24 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 31, 1996. Formerly published as 182542066305200. From September 9, 1998, monthly measurements only.

PERIOD OF RECORD.--January 1982 to December 1984, discontinued, May 31, 1996 to current year.

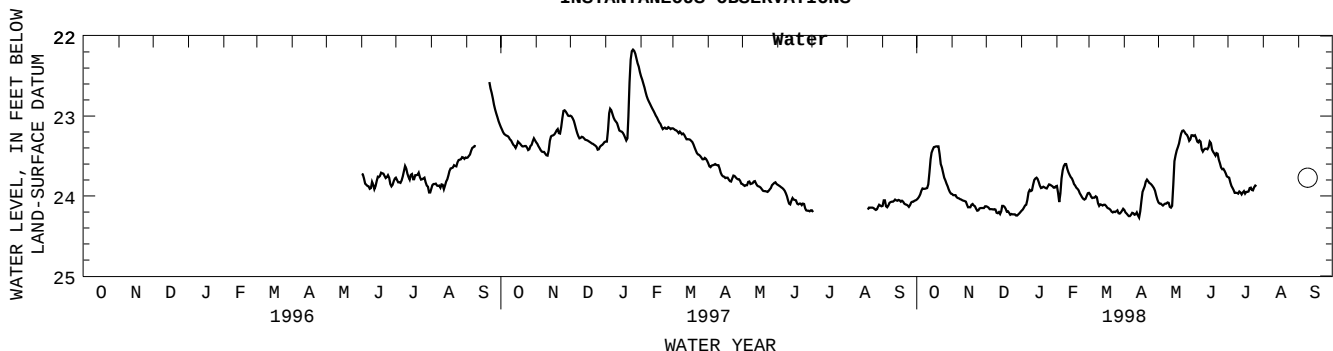
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.11 ft (6.74 m), below land-surface datum, Jan. 25, 1997; lowest water level measured, 26.36 ft (8.04 m), below land-surface datum, Feb. 3, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| 1    | 24.06 | 23.97 | 24.12 | 24.19 | 23.87 | 23.95 | 24.16 | 24.06 | 23.25 | 23.78 | --- | --- |
| 2    | 24.03 | 23.98 | 24.14 | 24.18 | 23.88 | 23.97 | 24.19 | 24.10 | 23.25 | 23.75 | --- | --- |
| 3    | 24.03 | 24.00 | 24.13 | 24.16 | 24.04 | 23.99 | 24.22 | 24.09 | 23.23 | 23.79 | --- | --- |
| 4    | 23.99 | 23.98 | 24.16 | 24.13 | 24.11 | 24.03 | 24.22 | 24.10 | 23.32 | 23.87 | --- | --- |
| 5    | 23.97 | 24.00 | 24.17 | 24.11 | 23.83 | 24.02 | 24.25 | 24.12 | 23.32 | 23.88 | --- | --- |
| 6    | 23.90 | 24.03 | 24.16 | 24.11 | 23.73 | 24.02 | 24.25 | 24.12 | 23.34 | 23.92 | --- | --- |
| 7    | 23.91 | 24.02 | 24.17 | 23.99 | 23.63 | 24.02 | 24.25 | 24.09 | 23.27 | 23.93 | --- | --- |
| 8    | 23.91 | 24.04 | 24.17 | 23.92 | 23.62 | 23.99 | 24.22 | 24.10 | 23.37 | 23.99 | --- | --- |
| 9    | 23.91 | 24.04 | 24.16 | 23.93 | 23.58 | 24.04 | 24.20 | 24.09 | 23.46 | 23.93 | --- | --- |
| 10   | 23.90 | 24.05 | 24.18 | 23.95 | 23.62 | 24.14 | 24.23 | 24.07 | 23.43 | 23.99 | --- | --- |
| 11   | 23.90 | 24.06 | 24.24 | 23.91 | 23.70 | 24.11 | 24.24 | 24.10 | 23.41 | 23.95 | --- | --- |
| 12   | 23.81 | 24.06 | 24.19 | 23.81 | 23.71 | 24.10 | 24.22 | 24.17 | 23.41 | 23.94 | --- | --- |
| 13   | 23.61 | 24.07 | 24.21 | 23.79 | 23.76 | 24.12 | 24.19 | 24.12 | 23.41 | 23.97 | --- | --- |
| 14   | 23.47 | 24.07 | 24.24 | 23.77 | 23.77 | 24.12 | 24.30 | 24.13 | 23.42 | 23.99 | --- | --- |
| 15   | 23.45 | 24.14 | 24.14 | 23.77 | 23.79 | 24.10 | 24.24 | 23.60 | 23.36 | 23.92 | --- | --- |
| 16   | 23.39 | 24.14 | 24.11 | 23.80 | 23.84 | 24.12 | 24.14 | 23.53 | 23.28 | 23.96 | --- | --- |
| 17   | 23.39 | 24.14 | 24.14 | 23.85 | 23.86 | 24.13 | 23.99 | 23.45 | 23.40 | 23.98 | --- | --- |
| 18   | 23.38 | 24.14 | 24.13 | 23.89 | 23.88 | 24.16 | 23.91 | 23.41 | 23.44 | 23.92 | --- | --- |
| 19   | 23.38 | 24.08 | 24.19 | 23.91 | 23.91 | 24.15 | 23.91 | 23.37 | 23.46 | 23.98 | --- | --- |
| 20   | 23.38 | 24.12 | 24.20 | 23.88 | 23.91 | 24.17 | 23.85 | 23.32 | 23.48 | 23.91 | --- | --- |
| 21   | 23.38 | 24.12 | 24.18 | 23.89 | 23.95 | 24.18 | 23.79 | 23.25 | 23.51 | 23.89 | --- | --- |
| 22   | 23.57 | 24.14 | 24.24 | 23.89 | 23.98 | 24.21 | 23.80 | 23.19 | 23.42 | 23.90 | --- | --- |
| 23   | 23.63 | 24.18 | 24.23 | 23.91 | 24.00 | 24.20 | 23.83 | 23.18 | 23.52 | 23.95 | --- | --- |
| 24   | 23.66 | 24.19 | 24.22 | 23.90 | 24.03 | 24.19 | 23.84 | 23.18 | 23.57 | 23.91 | --- | --- |
| 25   | 23.76 | 24.17 | 24.24 | 23.86 | 24.04 | 24.21 | 23.85 | 23.22 | 23.61 | 23.87 | --- | --- |
| 26   | 23.78 | 24.14 | 24.22 | 23.85 | 24.05 | 24.17 | 23.87 | 23.23 | 23.68 | 23.87 | --- | --- |
| 27   | 23.83 | 24.16 | 24.24 | 23.87 | 24.02 | 24.19 | 23.89 | 23.24 | 23.65 | 23.89 | --- | --- |
| 28   | 23.86 | 24.14 | 24.25 | 23.87 | 23.98 | 24.24 | 23.91 | 23.29 | 23.67 | ---   | --- | --- |
| 29   | 23.90 | 24.16 | 24.24 | 23.89 | ---   | 24.20 | 23.96 | 23.33 | 23.70 | ---   | --- | --- |
| 30   | 23.93 | 24.14 | 24.22 | 23.90 | ---   | 24.21 | 24.03 | 23.25 | 23.73 | ---   | --- | --- |
| 31   | 23.97 | ---   | 24.21 | 23.89 | ---   | 24.16 | ---   | 23.23 | ---   | ---   | --- | --- |
| MEAN | 23.74 | 24.09 | 24.19 | 23.93 | 23.86 | 24.12 | 24.07 | 23.67 | 23.45 | 23.91 | --- | --- |

WTR YR 1998 MEAN 23.90 HIGHEST 23.10 MAY 22, 1998 LOWEST 24.30 APR. 14, 1998

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS



## GROUND-WATER LEVELS

## RIO GRANDE DE MANATI BASIN

182506066280200. Local number, HI-2.

LOCATION.--Lat 18°25'06", long 66°28'02", Hydrologic Unit 21010002, 0.72 mi southwest of the intersection of Hwy 686 with Hwy 670, 0.73 mi southeast of intersection of Hwy 149 with Hwy 670, and 0.78 mi northeast of Escuela Sabana Seca. Owner: US Geological Survey, WRD, Name: USGS Hill 2.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), screened 360-410 ft (110-125 m). Depth 410 ft (125 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic data logger--60 minutes interval.

DATUM.--Elevation of land-surface datum is about 312 ft (95.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.76 ft (1.15 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 28, 1996.

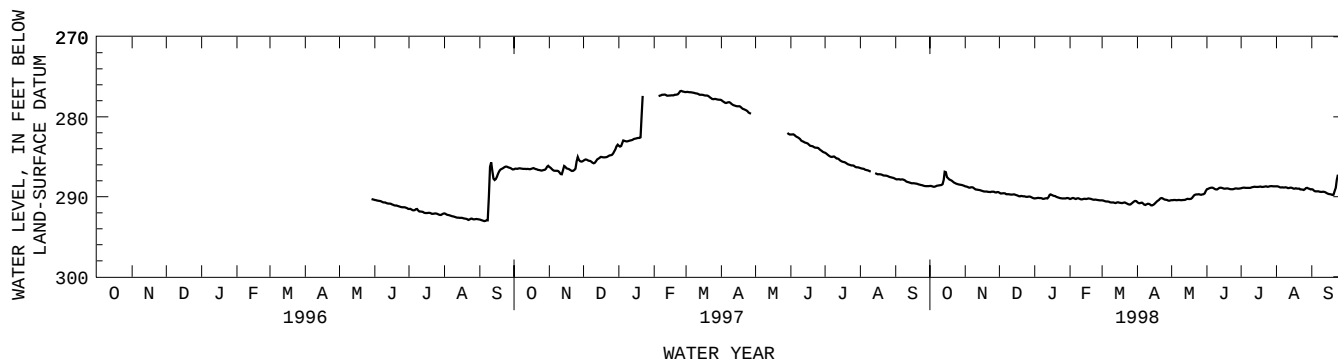
PERIOD OF RECORD.--May 28, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 267.96 ft (81.7 m), below land-surface datum, Jan. 24, 1997; lowest water level recorded, 293.09 ft (89.3 m), below land-surface datum, Sept. 5, 6, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | 288.65 | 288.66 | 289.45 | 290.21 | 290.27 | 290.44 | 290.61 | 290.41 | 289.07 | 288.96 | 288.70 | 289.07 |
| 2    | 288.65 | 288.72 | 289.54 | 290.19 | 290.28 | 290.47 | 290.76 | 290.42 | 289.06 | 288.92 | 288.67 | 289.04 |
| 3    | 288.65 | 288.74 | 289.61 | 290.16 | 290.19 | 290.49 | 290.82 | 290.41 | 288.96 | 288.87 | 288.71 | 289.18 |
| 4    | 288.73 | 288.81 | 289.57 | 290.14 | 290.12 | 290.54 | 290.79 | 290.39 | 288.90 | 288.85 | 288.80 | 289.32 |
| 5    | 288.75 | 288.86 | 289.56 | 290.15 | 290.19 | 290.60 | 290.72 | 290.43 | 288.88 | 288.87 | 288.83 | 289.31 |
| 6    | 288.73 | 288.85 | 289.54 | 290.19 | 290.29 | 290.59 | 290.74 | 290.44 | 288.85 | 288.90 | 288.83 | 289.32 |
| 7    | 288.65 | 288.80 | 289.64 | 290.15 | 290.25 | 290.58 | 290.91 | 290.41 | 288.88 | 288.87 | 288.82 | 289.30 |
| 8    | 288.59 | 288.82 | 289.70 | 290.24 | 290.17 | 290.67 | 291.04 | 290.39 | 289.00 | 288.89 | 288.86 | 289.35 |
| 9    | 288.59 | 288.91 | 289.68 | 290.26 | 290.20 | 290.71 | 291.00 | 290.43 | 289.07 | 288.89 | 288.83 | 289.38 |
| 10   | 288.57 | 289.05 | 289.69 | 290.25 | 290.27 | 290.73 | 290.90 | 290.44 | 289.08 | 288.87 | 288.82 | 289.42 |
| 11   | 288.55 | 289.09 | 289.71 | 290.19 | 290.32 | 290.67 | 290.88 | 290.39 | 289.07 | 288.82 | 288.88 | 289.38 |
| 12   | 288.49 | 289.13 | 289.74 | 290.20 | 290.32 | 290.74 | 290.87 | 290.40 | 288.92 | 288.78 | 288.93 | 289.37 |
| 13   | 288.37 | 289.14 | 289.72 | 290.23 | 290.27 | 290.79 | 291.05 | 290.41 | 288.87 | 288.75 | 288.89 | 289.40 |
| 14   | 287.38 | 289.15 | 289.70 | 289.83 | 290.25 | 290.77 | 291.08 | 290.36 | 288.86 | 288.75 | 288.86 | 289.47 |
| 15   | 286.34 | 289.21 | 289.73 | 289.66 | 290.27 | 290.67 | 291.04 | 290.24 | 288.90 | 288.78 | 288.88 | 289.59 |
| 16   | 287.48 | 289.26 | 289.78 | 289.73 | 290.30 | 290.70 | 290.96 | 290.25 | 288.98 | 288.76 | 288.95 | 289.62 |
| 17   | 287.62 | 289.30 | 289.84 | 289.82 | 290.21 | 290.75 | 290.78 | 290.29 | 289.00 | 288.77 | 289.00 | 289.67 |
| 18   | 287.76 | 289.35 | 289.87 | 289.87 | 290.21 | 290.78 | 290.67 | 290.28 | 288.95 | 288.70 | 288.96 | 289.69 |
| 19   | 287.88 | 289.35 | 289.95 | 289.90 | 290.24 | 290.80 | 290.52 | 290.23 | 288.97 | 288.75 | 288.93 | 289.74 |
| 20   | 287.92 | 289.32 | 289.93 | 289.96 | 290.29 | 290.78 | 290.47 | 290.04 | 288.97 | 288.78 | 289.03 | 289.79 |
| 21   | 288.03 | 289.39 | 289.88 | 290.05 | 290.31 | 290.68 | 290.33 | 289.88 | 289.00 | 288.77 | 288.92 | 289.70 |
| 22   | 288.16 | 289.39 | 289.94 | 290.08 | 290.39 | 290.74 | 290.15 | 289.74 | 289.06 | 288.72 | 289.04 | 288.89 |
| 23   | 288.27 | 289.41 | 289.95 | 290.16 | 290.36 | 290.83 | 290.16 | 289.71 | 289.06 | 288.71 | 289.10 | 288.82 |
| 24   | 288.33 | 289.40 | 289.96 | 290.16 | 290.36 | 290.90 | 290.23 | 289.72 | 289.07 | 288.69 | 289.07 | 286.97 |
| 25   | 288.37 | 289.36 | 290.01 | 290.20 | 290.39 | 290.97 | 290.34 | 289.69 | 289.04 | 288.79 | 289.13 | 287.53 |
| 26   | 288.44 | 289.37 | 290.02 | 290.20 | 290.42 | 291.00 | 290.38 | 289.69 | 288.99 | 288.71 | 289.16 | 287.94 |
| 27   | 288.47 | 289.38 | 289.97 | 290.20 | 290.44 | 290.90 | 290.39 | 289.76 | 288.95 | 288.66 | 288.97 | 288.04 |
| 28   | 288.50 | 289.48 | 289.97 | 290.21 | 290.46 | 290.76 | 290.43 | 289.73 | 288.97 | 288.68 | 288.84 | 288.19 |
| 29   | 288.53 | 289.45 | 290.02 | 290.19 | ---    | 290.65 | 290.51 | 289.69 | 289.01 | 288.68 | 288.93 | 288.44 |
| 30   | 288.54 | 289.40 | 290.09 | 290.15 | ---    | 290.54 | 290.50 | 289.69 | 288.98 | 288.71 | 288.97 | 288.63 |
| 31   | 288.61 | ---    | 290.18 | 290.16 | ---    | 290.50 | ---    | 289.47 | ---    | 288.69 | 289.07 | ---    |
| MEAN | 288.28 | 289.15 | 289.80 | 290.10 | 290.29 | 290.70 | 290.67 | 290.12 | 288.98 | 288.79 | 288.92 | 289.05 |

WTR YR 1998 MEAN 289.57 HIGHEST 285.27 SEPT. 22, 1998 LOWEST 291.10 APR. 14, 1988



## GROUND-WATER LEVELS

## RIO GRANDE DE MANATI BASIN

182308066260400. Local number, 210.

LOCATION.--Lat 18°23'08", long 66°26'04", Hydrologic Unit 21010002, 4.88 mi southeast of Manatí plaza, 5.24 mi southwest of Vega Baja plaza, and 2.25 mi west of Escuela Evaristo Camacho. Owner: Gelo Martínez, Name: Gelo Martínez well.

AQUIFER.--Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Electronic water level logger--60-minute punch.

DATUM.--Elevation of land-surface datum is about 574 ft (174.9 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.30 ft (1.01 m), above land-surface datum. Prior to January 14, 1993, hole on side of casing, 2.00 ft (0.61 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 17, 1997.

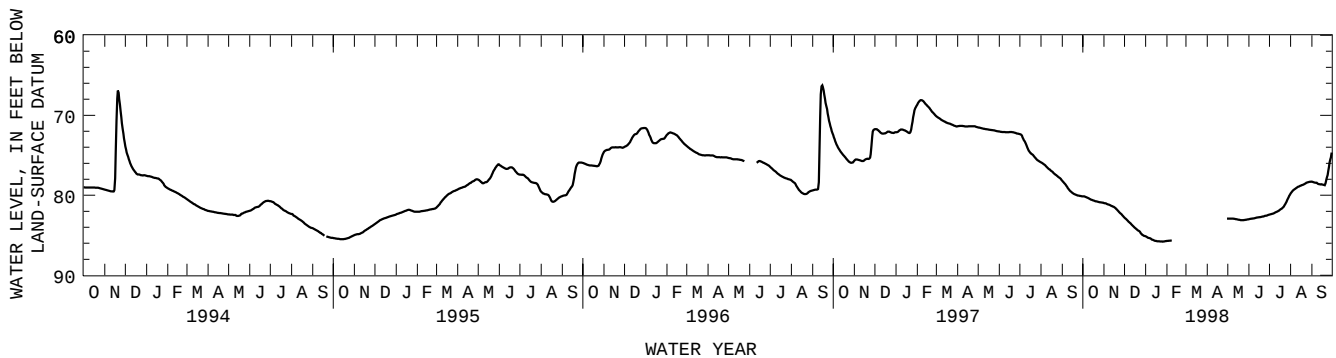
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 40.56 ft (12.4 m), below land-surface datum, May 22, 1986; lowest water level recorded, 85.50 ft (26.1 m), below land-surface datum, Oct. 14, 15, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| 1    | 80.14 | 80.95 | 82.75 | 85.12 | 85.72 | --- | ---   | 82.93 | 83.00 | 82.44 | 79.85 | 78.30 |
| 2    | 80.14 | 80.98 | 82.83 | 85.15 | 85.71 | --- | ---   | 82.93 | 82.98 | 82.41 | 79.72 | 78.31 |
| 3    | 80.13 | 81.00 | 82.90 | 85.19 | 85.71 | --- | ---   | 82.93 | 82.96 | 82.38 | 79.60 | 78.33 |
| 4    | 80.15 | 81.01 | 82.98 | 85.26 | 85.69 | --- | ---   | 82.93 | 82.95 | 82.37 | 79.51 | 78.38 |
| 5    | 80.19 | 81.06 | 83.08 | 85.31 | 85.69 | --- | ---   | 82.93 | 82.94 | 82.34 | 79.39 | 78.39 |
| 6    | 80.22 | 81.10 | 83.15 | 85.33 | 85.67 | --- | ---   | 82.93 | 82.92 | 82.31 | 79.32 | 78.42 |
| 7    | 80.26 | 81.12 | 83.26 | 85.37 | 85.67 | --- | ---   | 82.92 | 82.91 | 82.28 | 79.25 | 78.43 |
| 8    | 80.29 | 81.15 | 83.34 | 85.38 | 85.66 | --- | ---   | 82.92 | 82.89 | 82.25 | 79.20 | 78.43 |
| 9    | 80.33 | 81.18 | 83.42 | 85.40 | 85.62 | --- | ---   | 82.93 | 82.88 | 82.18 | 79.14 | 78.44 |
| 10   | 80.38 | 81.22 | 83.49 | 85.51 | ---   | --- | ---   | 82.93 | 82.87 | 82.15 | 79.08 | 78.55 |
| 11   | 80.43 | 81.27 | 83.57 | 85.54 | ---   | --- | ---   | 82.94 | 82.83 | 82.11 | 79.01 | 78.58 |
| 12   | 80.48 | 81.31 | 83.64 | 85.58 | ---   | --- | ---   | 82.95 | 82.80 | 82.07 | 78.97 | 78.62 |
| 13   | 80.52 | 81.34 | 83.77 | 85.61 | ---   | --- | ---   | 82.98 | 82.79 | 82.03 | 78.92 | 78.63 |
| 14   | 80.57 | 81.39 | 83.85 | 85.65 | ---   | --- | ---   | 82.99 | 82.77 | 81.98 | 78.90 | 78.64 |
| 15   | 80.58 | 81.42 | 83.93 | 85.69 | ---   | --- | ---   | 83.01 | 82.76 | 81.93 | 78.84 | 78.65 |
| 16   | 80.62 | 81.46 | 84.00 | 85.70 | ---   | --- | ---   | 83.04 | 82.74 | 81.88 | 78.80 | 78.62 |
| 17   | 80.65 | 81.50 | 84.08 | 85.73 | ---   | --- | ---   | 83.05 | 82.74 | 81.79 | 78.76 | 78.66 |
| 18   | 80.68 | 81.58 | 84.16 | 85.74 | ---   | --- | ---   | 83.07 | 82.73 | 81.76 | 78.73 | 78.68 |
| 19   | 80.71 | 81.67 | 84.24 | 85.75 | ---   | --- | ---   | 83.08 | 82.71 | 81.70 | 78.70 | 78.70 |
| 20   | 80.74 | 81.75 | 84.31 | 85.75 | ---   | --- | ---   | 83.10 | 82.69 | 81.62 | 78.67 | 78.73 |
| 21   | 80.76 | 81.84 | 84.37 | 85.76 | ---   | --- | ---   | 83.11 | 82.67 | 81.53 | 78.63 | 78.77 |
| 22   | 80.78 | 81.95 | 84.43 | 85.76 | ---   | --- | ---   | 83.11 | 82.66 | 81.50 | 78.58 | 78.25 |
| 23   | 80.80 | 82.04 | 84.49 | 85.77 | ---   | --- | ---   | 83.11 | 82.63 | 81.34 | 78.53 | 77.90 |
| 24   | 80.82 | 82.14 | 84.54 | 85.78 | ---   | --- | ---   | 83.11 | 82.61 | 81.17 | 78.46 | 77.67 |
| 25   | 80.84 | 82.22 | 84.73 | 85.78 | ---   | --- | ---   | 83.10 | 82.58 | 81.06 | 78.42 | 77.27 |
| 26   | 80.86 | 82.30 | 84.80 | 85.79 | ---   | --- | ---   | 83.10 | 82.56 | 80.89 | 78.39 | 76.72 |
| 27   | 80.88 | 82.36 | 84.90 | 85.79 | ---   | --- | ---   | 83.08 | 82.54 | 80.71 | 78.38 | 76.15 |
| 28   | 80.89 | 82.46 | 84.96 | 85.78 | ---   | --- | ---   | 83.07 | 82.51 | 80.51 | 78.35 | 75.68 |
| 29   | 80.90 | 82.55 | 85.03 | 85.77 | ---   | --- | ---   | 83.04 | 82.49 | 80.33 | 78.32 | 75.35 |
| 30   | 80.91 | 82.65 | 85.07 | 85.74 | ---   | --- | 82.93 | 83.03 | 82.46 | 80.14 | 78.31 | 75.16 |
| 31   | 80.93 | ---   | 85.09 | 85.73 | ---   | --- | ---   | 83.01 | ---   | 79.98 | 78.30 | ---   |
| MEAN | 80.57 | 81.60 | 83.97 | 85.59 | 85.68 | --- | 82.93 | 83.01 | 82.75 | 81.65 | 78.87 | 77.98 |

WTR YR 1998 MEAN 81.91 HIGHEST 75.10 SEPT. 30, 1998 LOWEST 85.79 JAN 26, 27, 1998



## GROUND-WATER LEVELS

## RIO GRANDE DE MANATI BASIN

182548066265700. Local number CS-7

LOCATION. Lat 18°25'48", long 66°26'57", Hydrologic Unit 21010002, 0.92 mi east of the intersection of Hwy 686 with Hwy 670, 0.79 mi south of Hwy 2, 0.27 mi east of the intersection of Hwy 672 with Hwy 670, and 0.01 mi south of Hwy 670. Owner: Puerto Rico Aqueduct and Sewer Authority, Name: Coto Sur No. 7.

AQUIFER.--Tertiary Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m).

INSTRUMENTATION.--Electronic water level, logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 270.0 ft (82.3 m), above mean sea level, from topographic map.

Measuring point: Top of 20 in (0.51 m) casing, 2.30 ft (0.70 m), above land-surface datum.

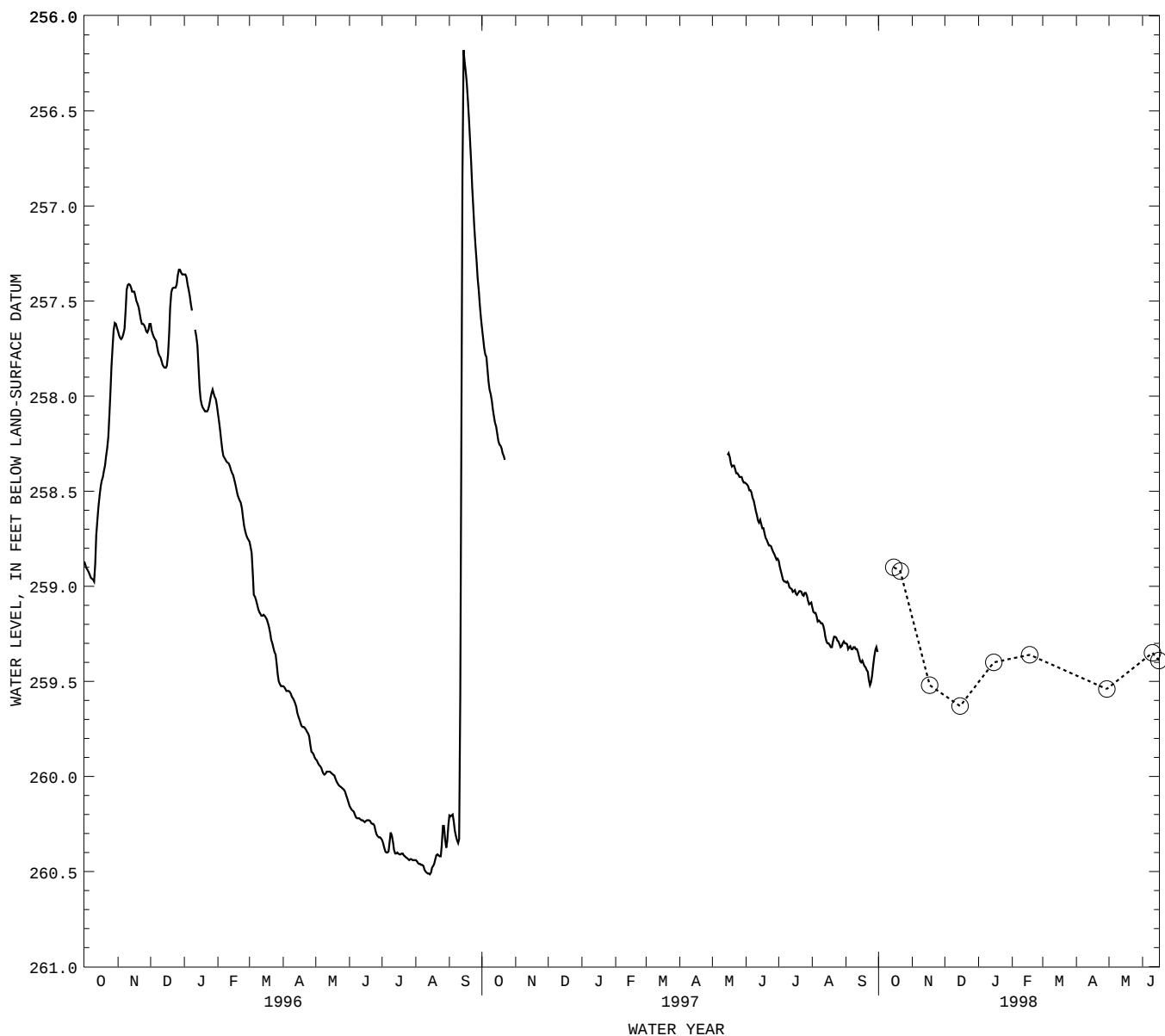
REMARKS.--Recording observation well. Automated Digital Recorded (ADR), installed on July 11, 1994, replaced by an Electronic Data Logger (EDL), installed on May 15, 1997. From Oct. 15, 1997, monthly measurements only.

PERIOD OF RECORD.--July 11, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 254.41 ft (77.54 m), below land-surface datum, Sept. 15, 1996; lowest water level recorded, 260.63 ft (79.44 m), below land-surface datum, Aug. 14, 15, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS

| Date    | Water level | Date    | Water level | Date    | Water level | Date    | Water level |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Oct. 15 | 258.90      | Dec. 15 | 259.63      | Feb. 17 | 259.36      | June 10 | 259.35      |
| Oct. 21 | 258.92      | Jan. 15 | 259.40      | Apr. 29 | 259.54      | June 16 | 259.39      |
| Nov. 17 | 259.52      |         |             |         |             |         |             |



## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182614066261500. Local number, PA-2.

LOCATION.--Lat 18°26'14", long 66°26'15", Hydrologic Unit 21010002, 1.80 mi east of the intersection of Hwy 686 with Hwy 670, 0.30 mi south of Hwy 2, 0.70 mi northeast of Escuela Ramirez de Arellano, and 0.32 mi north of Hwy 670.

Owner: US Geological Survey, WRD, Name: Palo Alto 2.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), screened 265-310 ft (80.8-94.5 m).

Depth 310 ft (94.5 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 245.5 ft (74.8 m), above mean sea level, from topographic survey.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.79 ft (1.16 m), above land-surface datum.

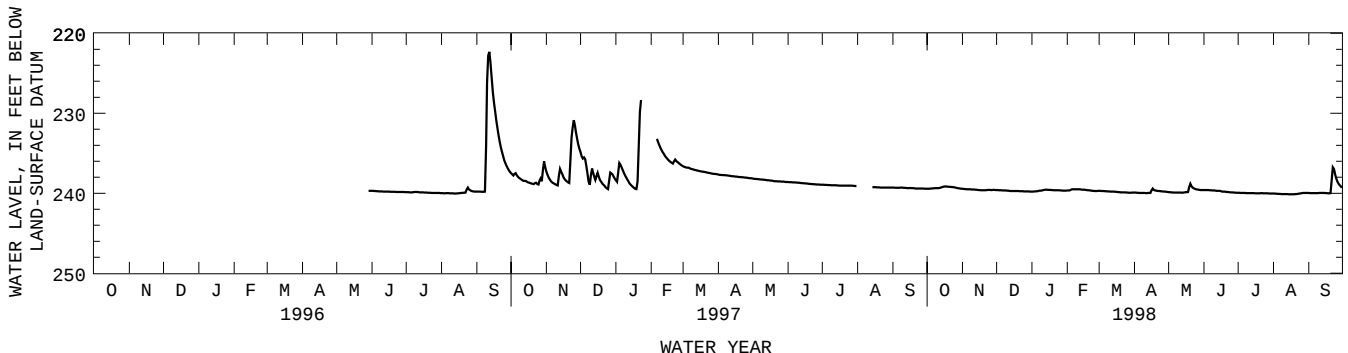
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 28, 1996.

PERIOD OF RECORD.--May 28, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 221.78 ft (67.6 m), below land-surface datum, Sept. 12, 1996; lowest water level recorded, 240.14 ft (73.2 m), below land-surface datum, Aug. 18, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT         | NOV            | DEC            | JAN           | FEB           | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|-------------|-------------|----------------|----------------|---------------|---------------|--------|--------|--------|--------|--------|--------|--------|
| 1           | 239.43      | 239.43         | 239.59         | 239.80        | 239.66        | 239.68 | 239.92 | 239.84 | 239.58 | 239.93 | 240.03 | 239.95 |
| 2           | 239.43      | 239.44         | 239.59         | 239.79        | 239.65        | 239.68 | 239.92 | 239.86 | 239.59 | 239.94 | 240.04 | 239.97 |
| 3           | 239.42      | 239.45         | 239.61         | 239.78        | 239.65        | 239.70 | 239.92 | 239.87 | 239.59 | 239.94 | 240.04 | 239.97 |
| 4           | 239.42      | 239.48         | 239.61         | 239.76        | 239.65        | 239.71 | 239.93 | 239.88 | 239.59 | 239.95 | 240.05 | 239.98 |
| 5           | 239.41      | 239.49         | 239.63         | 239.75        | 239.49        | 239.72 | 239.94 | 239.89 | 239.59 | 239.95 | 240.06 | 239.99 |
| 6           | 239.38      | 239.50         | 239.63         | 239.74        | 239.51        | 239.73 | 239.95 | 239.91 | 239.61 | 239.95 | 240.07 | 239.99 |
| 7           | 239.37      | 239.51         | 239.64         | 239.72        | 239.50        | 239.73 | 239.95 | 239.91 | 239.61 | 239.96 | 240.08 | 239.99 |
| 8           | 239.37      | 239.51         | 239.64         | 239.68        | 239.49        | 239.75 | 239.95 | 239.92 | 239.63 | 239.97 | 240.09 | 239.99 |
| 9           | 239.36      | 239.51         | 239.65         | 239.67        | 239.49        | 239.76 | 239.96 | 239.92 | 239.65 | 239.98 | 240.09 | 239.98 |
| 10          | 239.36      | 239.52         | 239.66         | 239.66        | 239.49        | 239.77 | 239.96 | 239.92 | 239.64 | 239.99 | 240.10 | 239.97 |
| 11          | 239.36      | 239.52         | 239.67         | 239.64        | 239.50        | 239.78 | 239.97 | 239.91 | 239.66 | 239.99 | 240.10 | 239.96 |
| 12          | 239.34      | 239.53         | 239.68         | 239.57        | 239.50        | 239.79 | 239.97 | 239.92 | 239.68 | 239.99 | 240.10 | 239.96 |
| 13          | 239.30      | 239.55         | 239.70         | 239.56        | 239.52        | 239.79 | 239.97 | 239.92 | 239.68 | 239.99 | 240.10 | 239.95 |
| 14          | 239.25      | 239.56         | 239.71         | 239.55        | 239.54        | 239.79 | 239.96 | 239.93 | 239.69 | 239.99 | 240.11 | 239.96 |
| 15          | 239.21      | 239.58         | 239.72         | 239.56        | 239.54        | 239.80 | 239.97 | 239.90 | 239.69 | 239.99 | 240.12 | 239.96 |
| 16          | 239.16      | 239.59         | 239.72         | 239.56        | 239.54        | 239.81 | 239.93 | 239.88 | 239.70 | 239.99 | 240.12 | 239.97 |
| 17          | 239.15      | 239.60         | 239.73         | 239.57        | 239.57        | 239.82 | 239.32 | 239.86 | 239.79 | 240.00 | 240.12 | 239.98 |
| 18          | 239.15      | 239.62         | 239.72         | 239.59        | 239.59        | 239.84 | 239.51 | 239.84 | 239.79 | 240.00 | 240.13 | 239.99 |
| 19          | 239.17      | 239.63         | 239.73         | 239.59        | 239.61        | 239.86 | 239.62 | 239.83 | 239.79 | 240.00 | 240.12 | 240.00 |
| 20          | 239.18      | 239.63         | 239.72         | 239.61        | 239.62        | 239.87 | 239.66 | 238.61 | 239.80 | 240.01 | 240.12 | 239.99 |
| 21          | 239.18      | 239.62         | 239.73         | 239.61        | 239.64        | 239.88 | 239.69 | 239.01 | 239.81 | 239.98 | 240.10 | 239.98 |
| 22          | 239.20      | 239.61         | 239.74         | 239.62        | 239.66        | 239.88 | 239.70 | 239.22 | 239.84 | 239.98 | 240.08 | 236.88 |
| 23          | 239.21      | 239.60         | 239.73         | 239.62        | 239.68        | 239.88 | 239.71 | 239.35 | 239.85 | 239.99 | 240.06 | 236.58 |
| 24          | 239.22      | 239.58         | 239.74         | 239.62        | 239.69        | 239.88 | 239.74 | 239.43 | 239.87 | 240.00 | 240.03 | 237.35 |
| 25          | 239.25      | 239.58         | 239.75         | 239.62        | 239.71        | 239.90 | 239.75 | 239.48 | 239.88 | 240.01 | 240.01 | 237.92 |
| 26          | 239.28      | 239.58         | 239.76         | 239.63        | 239.72        | 239.90 | 239.76 | 239.52 | 239.89 | 240.01 | 239.98 | 238.38 |
| 27          | 239.31      | 239.59         | 239.76         | 239.64        | 239.72        | 239.92 | 239.77 | 239.55 | 239.90 | 240.01 | 239.97 | 238.70 |
| 28          | 239.33      | 239.58         | 239.76         | 239.66        | 239.69        | 239.93 | 239.79 | 239.56 | 239.91 | 240.02 | 239.95 | 238.92 |
| 29          | 239.36      | 239.58         | 239.77         | 239.66        | ---           | 239.93 | 239.81 | 239.58 | 239.92 | 240.02 | 239.95 | 239.08 |
| 30          | 239.38      | 239.58         | 239.78         | 239.67        | ---           | 239.92 | 239.83 | 239.59 | 239.93 | 240.02 | 239.94 | 239.20 |
| 31          | 239.41      | ---            | 239.79         | 239.66        | ---           | 239.92 | ---    | 239.59 | ---    | 240.03 | 239.95 | ---    |
| MEAN        | 239.30      | 239.55         | 239.70         | 239.65        | 239.59        | 239.82 | 239.83 | 239.69 | 239.74 | 239.99 | 240.06 | 239.42 |
| WTR YR 1998 | MEAN 239.70 | HIGHEST 235.50 | SEPT. 22, 1998 | LOWEST 240.14 | AUG. 18, 1998 |        |        |        |        |        |        |        |



## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182712066251700. Local number, TO-3.

LOCATION.--Lat 18°27'12", long 66°25'17", Hydrologic Unit 21010002, 0.60 mi north of the intersection of Hwy 687 with Hwy 2, 0.55 mi southeast of the eastern shoreline of Laguna Tortuguero, 0.32 mi east of Laguna Rica, and 0.12 mi west of Hwy 687. Owner: US Geological Survey WRD, Name: USGS Tortuguero TW-3.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), screened 68-218 ft (20.7-66.4 m). Depth 218 ft (66.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 30.0 ft (9.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.40 ft (1.04 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 31, 1996.

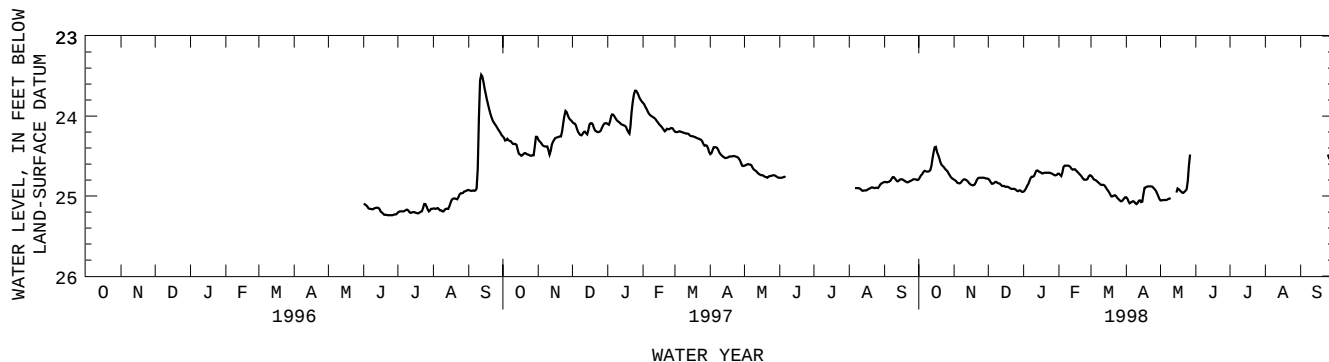
PERIOD OF RECORD.--May 31, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.48 ft (7.16 m), below land-surface datum, Sept. 12, 13, 1996; lowest water level recorded, 25.26 ft (7.70 m), below land-surface datum, June 21, 22, 23, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN | JUL | AUG | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-------|
| 1    | 24.80 | 24.79 | 24.78 | 24.95 | 24.71 | 24.74 | 25.01 | 25.05 | --- | --- | --- | ---   |
| 2    | 24.78 | 24.80 | 24.79 | 24.94 | 24.73 | 24.75 | 25.02 | 25.06 | --- | --- | --- | ---   |
| 3    | 24.75 | 24.81 | 24.81 | 24.92 | 24.74 | 24.77 | 25.05 | 25.05 | --- | --- | --- | ---   |
| 4    | 24.73 | 24.83 | 24.84 | 24.89 | 24.76 | 24.79 | 25.09 | 25.05 | --- | --- | --- | ---   |
| 5    | 24.72 | 24.84 | 24.85 | 24.86 | 24.65 | 24.80 | 25.09 | 25.05 | --- | --- | --- | ---   |
| 6    | 24.68 | 24.84 | 24.84 | 24.84 | 24.62 | 24.80 | 25.07 | 25.05 | --- | --- | --- | ---   |
| 7    | 24.69 | 24.84 | 24.83 | 24.79 | 24.62 | 24.82 | 25.07 | 25.05 | --- | --- | --- | ---   |
| 8    | 24.69 | 24.82 | 24.82 | 24.76 | 24.62 | 24.83 | 25.06 | 25.04 | --- | --- | --- | ---   |
| 9    | 24.70 | 24.80 | 24.83 | 24.76 | 24.62 | 24.84 | 25.08 | 25.03 | --- | --- | --- | ---   |
| 10   | 24.69 | 24.79 | 24.84 | 24.76 | 24.62 | 24.86 | 25.10 | 25.03 | --- | --- | --- | ---   |
| 11   | 24.69 | 24.79 | 24.84 | 24.74 | 24.63 | 24.86 | 25.10 | 25.04 | --- | --- | --- | ---   |
| 12   | 24.66 | 24.80 | 24.85 | 24.69 | 24.65 | 24.86 | 25.07 | ---   | --- | --- | --- | ---   |
| 13   | 24.58 | 24.81 | 24.87 | 24.68 | 24.67 | 24.86 | 25.05 | ---   | --- | --- | --- | ---   |
| 14   | 24.47 | 24.83 | 24.88 | 24.68 | 24.67 | 24.88 | 25.06 | ---   | --- | --- | --- | ---   |
| 15   | 24.44 | 24.84 | 24.87 | 24.70 | 24.66 | 24.90 | 25.09 | 25.01 | --- | --- | --- | ---   |
| 16   | 24.34 | 24.86 | 24.88 | 24.70 | 24.67 | 24.93 | 25.05 | 24.90 | --- | --- | --- | ---   |
| 17   | 24.43 | 24.86 | 24.89 | 24.71 | 24.69 | 24.94 | 24.90 | 24.91 | --- | --- | --- | ---   |
| 18   | 24.47 | 24.87 | 24.88 | 24.72 | 24.70 | 24.97 | 24.89 | 24.92 | --- | --- | --- | ---   |
| 19   | 24.50 | 24.86 | 24.89 | 24.71 | 24.72 | 25.00 | 24.89 | 24.94 | --- | --- | --- | ---   |
| 20   | 24.56 | 24.85 | 24.89 | 24.71 | 24.73 | 25.01 | 24.88 | 24.95 | --- | --- | --- | ---   |
| 21   | 24.60 | 24.81 | 24.91 | 24.71 | 24.75 | 25.00 | 24.88 | 24.96 | --- | --- | --- | ---   |
| 22   | 24.62 | 24.78 | 24.91 | 24.71 | 24.77 | 24.99 | 24.88 | 24.96 | --- | --- | --- | ---   |
| 23   | 24.63 | 24.77 | 24.91 | 24.71 | 24.79 | 24.99 | 24.88 | 24.94 | --- | --- | --- | ---   |
| 24   | 24.65 | 24.77 | 24.91 | 24.71 | 24.80 | 25.01 | 24.88 | 24.93 | --- | --- | --- | ---   |
| 25   | 24.67 | 24.77 | 24.91 | 24.71 | 24.79 | 25.03 | 24.89 | 24.90 | --- | --- | --- | 24.45 |
| 26   | 24.68 | 24.77 | 24.93 | 24.72 | 24.80 | 25.04 | 24.91 | 24.73 | --- | --- | --- | 24.51 |
| 27   | 24.70 | 24.77 | 24.94 | 24.72 | 24.77 | 25.06 | 24.92 | 24.50 | --- | --- | --- | 24.54 |
| 28   | 24.73 | 24.77 | 24.94 | 24.74 | 24.74 | 25.07 | 24.95 | 24.46 | --- | --- | --- | 24.55 |
| 29   | 24.75 | 24.78 | 24.92 | 24.74 | ---   | 25.06 | 24.98 | ---   | --- | --- | --- | 24.59 |
| 30   | 24.77 | 24.78 | 24.94 | 24.74 | ---   | 25.04 | 25.02 | ---   | --- | --- | --- | 24.62 |
| 31   | 24.78 | ---   | 24.95 | 24.73 | ---   | 25.02 | ---   | ---   | --- | --- | --- | ---   |
| MEAN | 24.64 | 24.81 | 24.88 | 24.76 | 24.70 | 24.92 | 24.99 | 24.94 | --- | --- | --- | 24.54 |

WTR YR 1998 MEAN 24.82 HIGHEST 24.34 OCT. 16, 17, 1997 LOWEST 25.11 APR. 10-11, 15-16, 1998



## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182615066235300. Local number, 211.

LOCATION.--Lat 18°26'15", long 66°23'53", Hydrologic Unit 21010002, 4.46 mi southeast of Manatí plaza, 5.48 mi southwest of Vega Baja plaza, and 1.22 mi east of Hwy 155 km 58.3. Owner: PR Aqueduct and Sewer Authority, Name: Rosario No. 2.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 14 in (0.36 m) 0-200 ft (0-61.0 m), diameter 12 in (0.30 m) 200-250 ft (61.0-76.2 m), cased 12 in (0.30 m) 0-250 ft (0-76.2 m), perforated 210-250 ft (64.0-76.2 m), diameter 10 in (0.25 m) 250-270 ft (76.2-82.3 m), open hole; concrete sealed 0-200 ft (0-61.0 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 215 ft (65.5 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.10 ft (0.94 m), above land-surface datum. Prior to April 11, 1994, hole on side of casing, 1.15 ft (0.35 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 5, 1997.

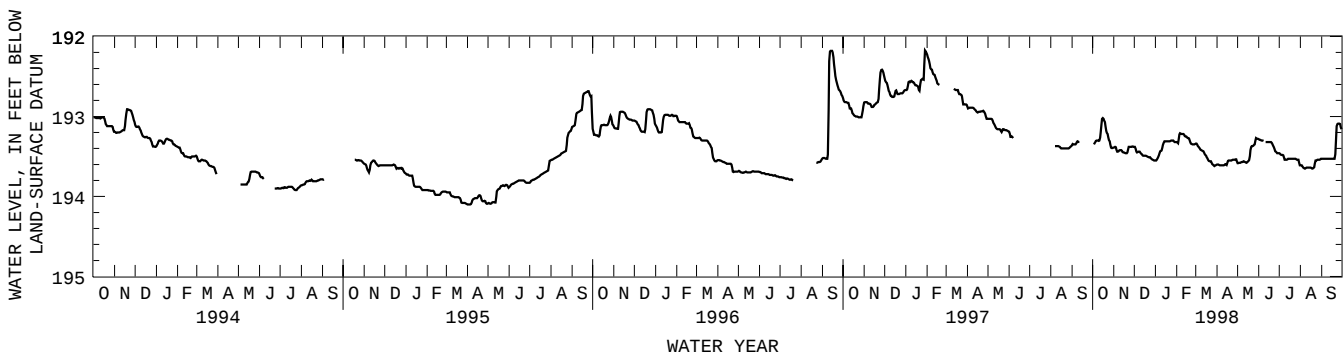
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 191.29 ft (58.3 m), below land-surface datum, May 16, 1986; lowest water level recorded, 194.1 ft (59.2 m), below land-surface datum, Mar. 31, Apr. 1 to 7, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | ---    | 193.39 | 193.38 | 193.55 | 193.32 | 193.34 | 193.60 | 193.58 | 193.28 | 193.46 | 193.61 | 193.53 |
| 2    | ---    | 193.39 | 193.38 | 193.55 | 193.32 | 193.34 | 193.60 | 193.59 | 193.29 | 193.46 | 193.61 | 193.53 |
| 3    | 193.36 | 193.38 | 193.38 | 193.55 | 193.33 | 193.34 | 193.60 | 193.58 | 193.29 | 193.47 | 193.61 | 193.53 |
| 4    | 193.34 | 193.38 | 193.43 | 193.53 | 193.34 | 193.36 | 193.60 | 193.58 | 193.29 | 193.48 | 193.61 | 193.53 |
| 5    | 193.33 | 193.39 | 193.45 | 193.52 | 193.24 | 193.38 | 193.61 | 193.58 | 193.30 | 193.48 | 193.64 | 193.53 |
| 6    | 193.31 | 193.44 | 193.45 | 193.50 | 193.21 | 193.38 | 193.61 | 193.58 | 193.30 | 193.48 | 193.64 | 193.53 |
| 7    | 193.30 | 193.44 | 193.44 | 193.47 | 193.21 | 193.40 | 193.61 | 193.57 | 193.30 | 193.48 | 193.65 | 193.53 |
| 8    | 193.30 | 193.44 | 193.44 | 193.44 | 193.22 | 193.41 | 193.61 | 193.57 | 193.30 | 193.49 | 193.65 | 193.53 |
| 9    | 193.30 | 193.43 | 193.44 | 193.43 | 193.22 | 193.42 | 193.61 | 193.57 | 193.31 | 193.54 | 193.65 | 193.53 |
| 10   | 193.30 | 193.42 | 193.44 | 193.43 | 193.22 | 193.42 | 193.61 | 193.56 | ---    | 193.54 | 193.64 | 193.53 |
| 11   | 193.31 | 193.42 | 193.47 | 193.42 | 193.22 | 193.43 | 193.61 | 193.56 | 193.32 | 193.54 | 193.64 | 193.53 |
| 12   | 193.29 | 193.42 | 193.46 | 193.36 | 193.22 | 193.43 | 193.61 | 193.57 | 193.32 | 193.54 | 193.64 | 193.53 |
| 13   | 193.24 | 193.42 | 193.48 | 193.35 | 193.24 | 193.44 | 193.60 | 193.57 | 193.32 | 193.54 | 193.64 | 193.53 |
| 14   | 193.16 | 193.44 | 193.49 | 193.31 | 193.25 | 193.46 | 193.59 | 193.58 | 193.32 | 193.53 | 193.64 | 193.53 |
| 15   | 193.04 | 193.45 | 193.49 | 193.31 | 193.25 | 193.48 | 193.60 | 193.58 | 193.32 | 193.53 | 193.64 | 193.53 |
| 16   | 193.02 | 193.45 | 193.49 | 193.31 | 193.25 | 193.48 | 193.61 | 193.57 | 193.32 | 193.53 | 193.64 | 193.53 |
| 17   | 193.02 | 193.45 | 193.49 | 193.31 | 193.27 | 193.50 | 193.56 | 193.56 | 193.32 | 193.53 | 193.64 | 193.53 |
| 18   | 193.04 | 193.46 | 193.49 | 193.31 | 193.27 | 193.52 | 193.55 | 193.55 | 193.32 | 193.53 | 193.65 | 193.53 |
| 19   | 193.06 | 193.46 | 193.49 | 193.31 | 193.27 | 193.53 | 193.55 | 193.54 | 193.32 | 193.53 | 193.65 | 193.53 |
| 20   | 193.08 | 193.46 | 193.50 | 193.31 | 193.28 | 193.55 | 193.55 | 193.45 | 193.32 | 193.53 | 193.65 | 193.53 |
| 21   | 193.16 | 193.46 | 193.50 | 193.31 | 193.31 | 193.56 | 193.55 | 193.39 | 193.34 | 193.53 | 193.64 | 193.53 |
| 22   | 193.20 | 193.44 | 193.51 | 193.31 | 193.34 | 193.56 | 193.55 | 193.37 | 193.35 | 193.53 | 193.63 | 193.41 |
| 23   | 193.21 | 193.38 | 193.51 | 193.31 | 193.34 | 193.56 | 193.55 | 193.37 | 193.38 | 193.53 | 193.55 | 193.14 |
| 24   | 193.23 | 193.38 | 193.51 | 193.30 | 193.35 | 193.56 | 193.54 | 193.37 | 193.38 | 193.53 | 193.55 | 193.10 |
| 25   | 193.28 | 193.38 | 193.51 | 193.30 | 193.35 | 193.59 | 193.54 | 193.36 | 193.43 | 193.53 | 193.55 | 193.09 |
| 26   | 193.31 | 193.38 | 193.53 | 193.30 | 193.35 | 193.60 | 193.54 | 193.35 | 193.44 | 193.53 | 193.54 | 193.09 |
| 27   | 193.31 | 193.38 | 193.53 | 193.30 | 193.35 | 193.60 | 193.54 | 193.35 | 193.44 | 193.54 | 193.54 | 193.09 |
| 28   | 193.39 | 193.38 | 193.54 | 193.30 | 193.35 | 193.62 | 193.54 | 193.27 | 193.46 | 193.54 | 193.54 | 193.09 |
| 29   | 193.39 | 193.37 | 193.54 | 193.32 | ---    | 193.62 | 193.53 | 193.27 | 193.46 | 193.54 | 193.54 | 193.10 |
| 30   | 193.40 | 193.38 | 193.55 | 193.32 | ---    | 193.61 | 193.54 | 193.28 | 193.46 | 193.54 | 193.54 | 193.16 |
| 31   | 193.39 | ---    | 193.55 | 193.32 | ---    | 193.61 | ---    | 193.28 | ---    | 193.61 | 193.53 | ---    |
| MEAN | 193.24 | 193.42 | 193.48 | 193.38 | 193.28 | 193.49 | 193.58 | 193.48 | 193.34 | 193.52 | 193.61 | 193.41 |

WTR YR 1998 MEAN 193.44 HIGHEST 193.02 OCT. 16, 17, 18, 1997 LOWEST 193.65 AUG. 6-21, 1998



## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182647066201700. Local number, 70.

LOCATION.--Lat 18°26'47", long 66°20'17", Hydrologic Unit 21010002, 1.52 mi north of Vega Alta plaza, 4.78 mi southwest of Dorado plaza, and 2.01 mi northwest of Escuela Industrial para Mujeres. Owner: PR Aqueduct and Sewer Authority, Name: Sabana Hoyos.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in (0.20 m), cased 0-90.0 ft (0-27.4 m), perforated. Depth 90.0 ft (27.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 49.0 ft (14.9 m), above mean sea level, from topographic map.

Measuring point: Top of casing wooden cover, 1.30 ft (0.40 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998.

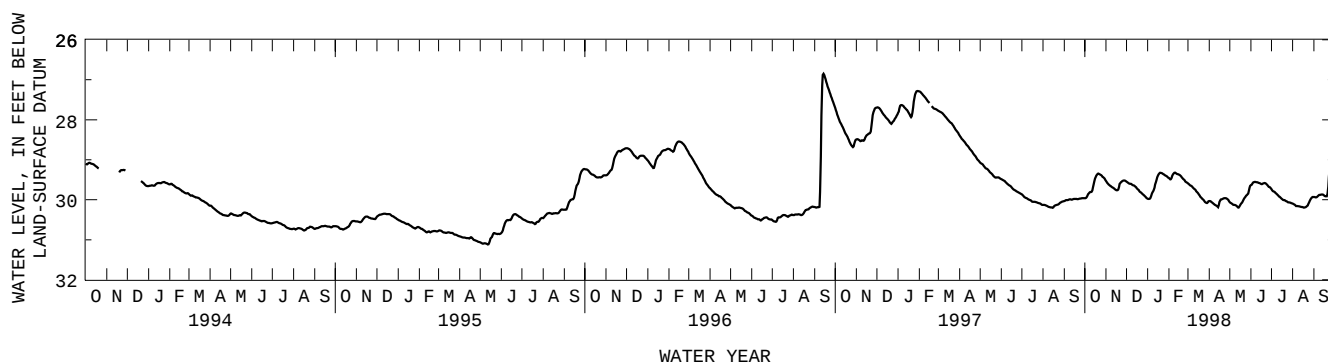
PERIOD OF RECORD.--February 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.33 ft (6.50 m), below land-surface datum, Oct. 26, 1976; lowest water level recorded, 31.12 ft (9.48 m), below land-surface datum, May 12, 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 29.96 | 29.52 | 29.54 | 29.97 | 29.45 | 29.58 | 30.03 | 30.05 | 29.64 | 29.72 | 30.09 | 29.93 |
| 2    | 29.96 | 29.54 | 29.55 | 29.98 | 29.46 | 29.60 | 30.03 | 30.07 | 29.63 | 29.75 | 30.10 | 29.93 |
| 3    | 29.96 | 29.57 | 29.56 | 29.98 | 29.48 | 29.61 | 30.03 | 30.08 | 29.62 | 29.77 | 30.11 | 29.93 |
| 4    | 29.94 | 29.59 | 29.58 | 29.98 | 29.50 | 29.63 | 30.04 | 30.09 | 29.58 | 29.79 | 30.12 | 29.94 |
| 5    | 29.92 | 29.61 | 29.59 | 29.97 | 29.47 | 29.65 | 30.06 | 30.10 | 29.56 | 29.79 | 30.13 | 29.94 |
| 6    | 29.87 | 29.63 | 29.60 | 29.95 | 29.43 | 29.65 | 30.07 | 30.12 | 29.56 | 29.80 | 30.15 | 29.93 |
| 7    | 29.85 | 29.64 | 29.60 | 29.87 | 29.38 | 29.66 | 30.09 | 30.13 | 29.55 | 29.82 | 30.16 | 29.91 |
| 8    | 29.83 | 29.66 | 29.60 | 29.83 | 29.35 | 29.68 | 30.10 | 30.13 | 29.55 | 29.84 | 30.15 | 29.90 |
| 9    | 29.81 | 29.66 | 29.61 | 29.80 | 29.33 | 29.70 | 30.12 | 30.13 | 29.56 | 29.85 | 30.16 | 29.88 |
| 10   | 29.80 | 29.68 | 29.63 | 29.77 | 29.32 | 29.72 | 30.13 | 30.14 | 29.56 | 29.87 | 30.16 | 29.88 |
| 11   | 29.81 | 29.69 | 29.64 | 29.74 | 29.32 | 29.73 | 30.14 | 30.14 | 29.56 | 29.89 | 30.16 | 29.88 |
| 12   | 29.79 | 29.70 | 29.64 | 29.65 | 29.34 | 29.75 | 30.14 | 30.16 | 29.57 | 29.91 | 30.17 | 29.87 |
| 13   | 29.75 | 29.71 | 29.65 | 29.59 | 29.35 | 29.77 | 30.16 | 30.18 | 29.58 | 29.92 | 30.17 | 29.87 |
| 14   | 29.64 | 29.73 | 29.67 | 29.53 | 29.36 | 29.80 | 30.18 | 30.20 | 29.58 | 29.93 | 30.18 | 29.87 |
| 15   | 29.59 | 29.74 | 29.67 | 29.46 | 29.36 | 29.81 | 30.19 | 30.19 | 29.59 | 29.95 | 30.18 | 29.87 |
| 16   | 29.50 | 29.76 | 29.70 | 29.41 | 29.37 | 29.83 | 30.07 | 30.16 | 29.60 | 29.97 | 30.18 | 29.89 |
| 17   | 29.44 | 29.76 | 29.72 | 29.38 | 29.38 | 29.86 | 30.04 | 30.12 | 29.61 | 29.98 | 30.19 | 29.90 |
| 18   | 29.41 | 29.77 | 29.74 | 29.35 | 29.39 | 29.88 | 30.00 | 30.10 | 29.61 | 30.00 | 30.20 | 29.91 |
| 19   | 29.38 | 29.75 | 29.75 | 29.33 | 29.41 | 29.91 | 29.99 | 30.08 | 29.59 | 30.01 | 30.19 | 29.91 |
| 20   | 29.36 | 29.74 | 29.77 | 29.32 | 29.43 | 29.93 | 29.99 | 30.06 | 29.59 | 30.01 | 30.19 | 29.91 |
| 21   | 29.34 | 29.62 | 29.80 | 29.33 | 29.45 | 29.95 | 29.98 | 30.02 | 29.58 | 30.01 | 30.18 | 29.91 |
| 22   | 29.35 | 29.59 | 29.81 | 29.33 | 29.47 | 29.97 | 29.97 | 29.99 | 29.58 | 30.03 | 30.16 | 29.79 |
| 23   | 29.36 | 29.57 | 29.82 | 29.34 | 29.49 | 29.99 | 29.96 | 29.96 | 29.59 | 30.03 | 30.15 | 29.55 |
| 24   | 29.37 | 29.55 | 29.84 | 29.36 | 29.50 | 30.00 | 29.96 | 29.93 | 29.60 | 30.04 | 30.13 | 29.31 |
| 25   | 29.38 | 29.54 | 29.86 | 29.36 | 29.53 | 30.02 | 29.96 | 29.91 | 29.63 | 30.05 | 30.08 | 29.12 |
| 26   | 29.39 | 29.53 | 29.87 | 29.38 | 29.55 | 30.05 | 29.96 | 29.89 | 29.64 | 30.07 | 30.05 | 28.97 |
| 27   | 29.42 | 29.52 | 29.89 | 29.39 | 29.56 | 30.06 | 29.97 | 29.88 | 29.67 | 30.06 | 30.01 | 28.85 |
| 28   | 29.43 | 29.52 | 29.90 | 29.40 | 29.57 | 30.08 | 29.98 | 29.85 | 29.68 | 30.07 | 29.98 | 28.77 |
| 29   | 29.44 | 29.52 | 29.92 | 29.41 | ---   | 30.08 | 30.00 | 29.84 | 29.68 | 30.07 | 29.96 | 28.71 |
| 30   | 29.46 | 29.53 | 29.94 | 29.42 | ---   | 30.08 | 30.02 | 29.72 | 29.70 | 30.08 | 29.93 | 28.67 |
| 31   | 29.48 | ---   | 29.96 | 29.44 | ---   | 30.04 | ---   | 29.67 | ---   | 30.09 | 29.93 | ---   |
| MEAN | 29.61 | 29.63 | 29.72 | 29.58 | 29.43 | 29.84 | 30.05 | 30.04 | 29.60 | 29.94 | 30.12 | 29.66 |

WTR YR 1998 MEAN 29.77 HIGHEST 28.66 SEPT. 30, 1998 LOWRST 30.20 APR. 15, 16, MAY 14, 15, 1998



## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182515066194000. Local number, 212.

LOCATION.--Lat 18°25'15", long 66° 19'40", Hydrologic Unit 21010002, 5.15 mi southwest of Dorado plaza, 0.49 mi north of Vega Alta plaza, and 1.04 mi northwest of Escuela Industrial para Mujeres. Owner: US Geological Survey, WRD, Name: Ponderosa TW-1.

AQUIFER.--Aguada Limestone-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-136 ft (0-41.1 m), perforated 121-131 ft (36.9-39.9 m); bentonite packed 0.5-121 ft (0.15-36.9 m). Depth 136 ft (39.9 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 98.0 ft (29.9 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 2.55 ft (0.78 m), above land-surface datum. Prior to November 3, 1989, hole on top of shelter floor casing, 3.00 ft (0.91 m), above land-surface datum.

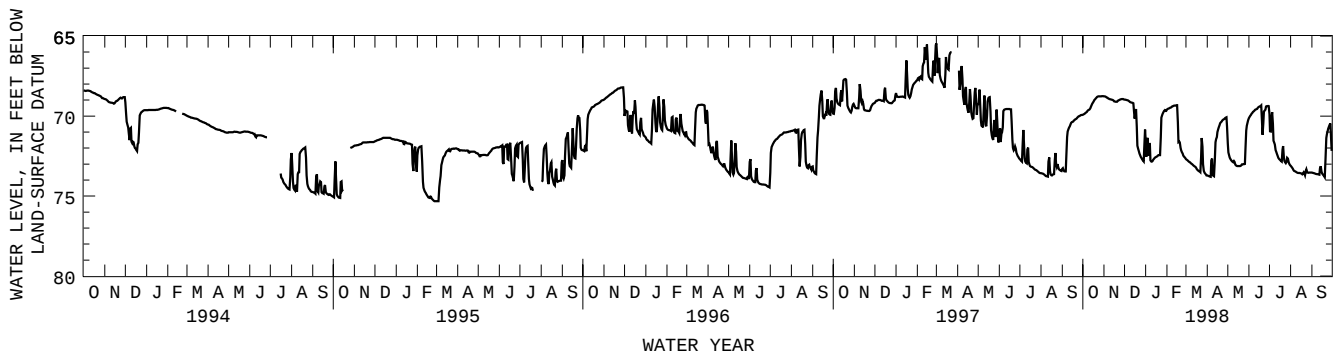
REMARKS.--Recording observation well. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 63.05 ft (19.2 m), below land-surface datum, July 15, 1987; lowest water level recorded, 75.33 ft (22.9 m), below land-surface datum, Feb. 27, Mar. 4, 5, 6, 1995

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV                      | DEC             | JAN                         | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|--------------------------|-----------------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 69.93      | 68.76                    | 68.98           | 70.61                       | 69.60 | 72.67 | 73.71 | 71.24 | 70.18 | 69.38 | 73.09 | 73.53 |
| 2           | 69.91      | 68.77                    | 68.96           | 72.34                       | 69.59 | 72.71 | 73.72 | 72.17 | 70.07 | 70.36 | 73.12 | 73.53 |
| 3           | 69.88      | 68.77                    | 68.98           | 72.72                       | 69.54 | 72.74 | 73.74 | 72.38 | 70.00 | 71.54 | 73.19 | 73.55 |
| 4           | 69.86      | 68.78                    | 68.99           | 70.47                       | 69.53 | 72.77 | 73.75 | 72.54 | 69.95 | 70.38 | 73.23 | 73.56 |
| 5           | 69.83      | 68.83                    | 69.00           | 72.26                       | 69.51 | 72.84 | 73.78 | 72.66 | 69.88 | 69.77 | 73.33 | 73.58 |
| 6           | 69.77      | 68.84                    | 69.01           | 72.71                       | 69.49 | 72.86 | 73.79 | 72.72 | 69.82 | 69.74 | 73.41 | 73.59 |
| 7           | 69.77      | 68.86                    | 69.02           | 70.77                       | 69.46 | 72.88 | 73.81 | 72.78 | 69.77 | 71.23 | 73.44 | 73.61 |
| 8           | 69.70      | 68.91                    | 69.06           | 72.71                       | 69.46 | 72.92 | 71.73 | 72.84 | 69.72 | 71.84 | 73.45 | 73.63 |
| 9           | 69.66      | 68.92                    | 69.09           | 72.82                       | 69.40 | 72.97 | 73.59 | 72.87 | 69.69 | 71.51 | 73.48 | 73.62 |
| 10          | 69.61      | 68.95                    | 69.14           | 72.85                       | 69.39 | 72.98 | 73.71 | 72.90 | 69.63 | 72.05 | 73.50 | 73.63 |
| 11          | 69.60      | 68.95                    | 69.15           | 72.85                       | 69.37 | 73.02 | 73.76 | 72.72 | 69.59 | 72.21 | 73.53 | 73.64 |
| 12          | 69.56      | 68.97                    | 69.16           | 72.78                       | 69.35 | 73.08 | 73.77 | 73.00 | 69.57 | 72.31 | 73.55 | 73.66 |
| 13          | 69.46      | 68.98                    | 69.17           | 72.71                       | 69.34 | 73.12 | 71.89 | 73.05 | 69.57 | 72.43 | 73.56 | 73.68 |
| 14          | 69.36      | 68.99                    | 69.18           | 72.66                       | 69.35 | 73.14 | 71.39 | 73.11 | 69.53 | 72.56 | 73.56 | 72.88 |
| 15          | 69.26      | 69.01                    | 69.22           | 72.59                       | 69.33 | 73.17 | 71.50 | 73.12 | 69.45 | 72.66 | 73.56 | 73.40 |
| 16          | 69.19      | 69.06                    | 70.35           | 72.57                       | 69.32 | 73.21 | 71.12 | 73.12 | 69.42 | 72.70 | 73.57 | 73.54 |
| 17          | 69.12      | 69.09                    | 69.98           | 72.55                       | 69.31 | 73.31 | 70.89 | 73.12 | 69.40 | 72.74 | 73.59 | 73.63 |
| 18          | 69.02      | 69.10                    | 69.55           | 72.52                       | 71.49 | 73.35 | 70.76 | 73.12 | 69.38 | 72.78 | 73.59 | 73.67 |
| 19          | 68.96      | 69.10                    | 69.57           | 72.51                       | 71.77 | 73.39 | 70.65 | 73.12 | 69.35 | 72.84 | 73.70 | 73.73 |
| 20          | 68.93      | 69.11                    | 71.76           | 72.43                       | 71.40 | 73.44 | 70.48 | 73.12 | 69.32 | 72.86 | 73.51 | 73.80 |
| 21          | 68.88      | 69.11                    | 71.95           | 72.44                       | 71.89 | 73.45 | 70.42 | 73.10 | 71.33 | 71.35 | 73.52 | 73.84 |
| 22          | 68.82      | 69.03                    | 72.14           | 72.44                       | 72.07 | 73.49 | 70.35 | 73.02 | 71.00 | 72.40 | 73.69 | 71.49 |
| 23          | 68.78      | 69.01                    | 72.29           | 72.45                       | 72.21 | 73.53 | 70.32 | 73.02 | 69.89 | 72.77 | 73.71 | 71.25 |
| 24          | 68.77      | 69.00                    | 72.40           | 70.21                       | 72.30 | 71.61 | 70.25 | 73.01 | 69.54 | 72.86 | 73.13 | 71.03 |
| 25          | 68.77      | 68.97                    | 72.54           | 69.99                       | 72.39 | 71.14 | 70.22 | 73.01 | 69.78 | 72.92 | 73.52 | 70.84 |
| 26          | 68.77      | 68.95                    | 72.59           | 69.89                       | 72.53 | 72.69 | 70.19 | 73.00 | 69.42 | 72.97 | 73.53 | 70.73 |
| 27          | 68.77      | 68.94                    | 72.68           | 69.80                       | 72.55 | 73.33 | 70.17 | 72.98 | 69.38 | 72.76 | 73.54 | 70.58 |
| 28          | 68.77      | 68.94                    | 72.73           | 69.71                       | 72.59 | 73.52 | 70.11 | 71.08 | 69.38 | 72.46 | 73.54 | 70.53 |
| 29          | 68.76      | 68.94                    | 72.82           | 69.65                       | ---   | 73.58 | 70.08 | 70.73 | 69.37 | 72.85 | 73.53 | 70.40 |
| 30          | 68.76      | 68.94                    | 72.86           | 69.62                       | ---   | 73.60 | 70.07 | 70.47 | 69.37 | 72.92 | 73.53 | 71.93 |
| 31          | 68.76      | ---                      | 71.07           | 69.75                       | ---   | 73.71 | ---   | 70.32 | ---   | 73.03 | 73.53 | ---   |
| MEAN        | 69.26      | 68.95                    | 70.43           | 71.69                       | 70.48 | 73.04 | 71.79 | 72.56 | 69.72 | 72.04 | 73.48 | 72.80 |
| WTR YR 1998 | MEAN 71.37 | HIGHEST 68.76 OCT. 29-1, | NOV. 1, 2, 1997 | LOWEST 73.84 SEPT. 21, 1998 |       |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182330066185700. Local number, 213.

LOCATION.--Lat 18°23'30", long 66°18'57", Hydrologic Unit 21010002, 1.82 mi southeast of Vega Alta plaza, 4.23 mi west of Toa Alta plaza, and 1.27 mi northwest off the intersection of Hwy 820 with Hwy 823. Owner: PR Aqueduct and Sewer Authority, Name: Pampano No. 2.

AQUIFER.--Rio Indio Limestone-Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-130 ft (0-39.6 m), diameter 14 in (0.36 m), cased 12 in (0.30 m) 0-220 ft (0-67.1 m); open hole 220-330 ft (67.6-101 m). Depth 330 ft (101 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 394 ft (120 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 9.32 ft (2.84 m), above land-surface datum. Prior April 27, 1993, hole on side of casing, 2.95 ft (0.90 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998.

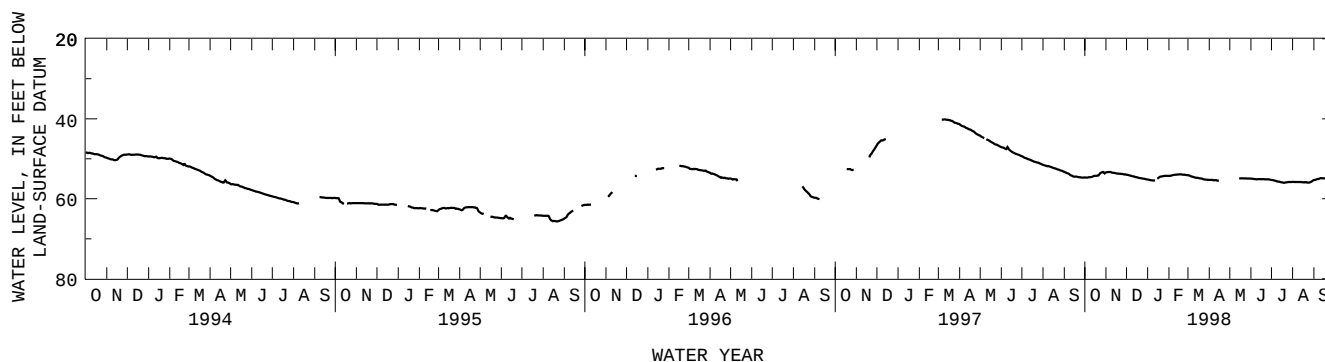
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.40 ft (10.5 m), below land-surface datum, Dec. 6, 1985; lowest water level recorded, 65.68 ft (20.0 m), below land-surface datum, Aug. 20, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 54.68 | 53.45 | 53.95 | 55.20 | 54.29 | 54.10 | 55.28 | ---   | 54.92 | 55.28 | 55.79 | 55.40 |
| 2    | 54.68 | 53.37 | 54.00 | 55.20 | 54.30 | 54.11 | 55.30 | ---   | 54.97 | 55.31 | 55.77 | 55.27 |
| 3    | 54.69 | 53.35 | 54.04 | 55.22 | 54.26 | 54.13 | 55.30 | ---   | 54.97 | 55.33 | 55.79 | 55.28 |
| 4    | 54.73 | 53.33 | 54.05 | 55.24 | 54.25 | 54.18 | 55.29 | ---   | 54.99 | 55.34 | 55.82 | 55.25 |
| 5    | 54.72 | 53.34 | 54.10 | 55.32 | 54.23 | 54.36 | 55.25 | ---   | 55.04 | 55.42 | 55.82 | 55.17 |
| 6    | 54.71 | 53.33 | 54.12 | 55.37 | 54.17 | 54.39 | 55.27 | ---   | 55.05 | 55.44 | 55.82 | 55.12 |
| 7    | 54.65 | 53.30 | 54.19 | 55.36 | 54.09 | 54.41 | 55.33 | ---   | 55.09 | 55.48 | 55.82 | 55.07 |
| 8    | 54.61 | 53.30 | 54.23 | 55.39 | 54.05 | 54.50 | 55.41 | ---   | 55.10 | 55.53 | 55.84 | 55.04 |
| 9    | 54.61 | 53.36 | 54.30 | 55.41 | 54.04 | 54.56 | 55.38 | ---   | 55.11 | 55.62 | 55.82 | 55.00 |
| 10   | 54.57 | 53.47 | 54.34 | 55.43 | 54.00 | 54.60 | 55.34 | ---   | 55.12 | 55.66 | 55.80 | 54.96 |
| 11   | 54.56 | 53.48 | 54.38 | 55.41 | 53.99 | 54.61 | 55.35 | ---   | 55.12 | 55.68 | 55.81 | 54.87 |
| 12   | 54.54 | 53.50 | 54.42 | 55.41 | 53.98 | 54.71 | 55.35 | ---   | 55.10 | 55.70 | 55.83 | 54.84 |
| 13   | 54.47 | 53.53 | 54.45 | 55.40 | 53.95 | 54.76 | 55.45 | ---   | 55.10 | 55.72 | 55.83 | 54.83 |
| 14   | 54.34 | 53.55 | 54.53 | ---   | 53.92 | 54.76 | 55.47 | ---   | 55.08 | 55.77 | 55.83 | 54.86 |
| 15   | 54.28 | 53.60 | 54.58 | 54.99 | 53.92 | 54.77 | 55.48 | 54.85 | 55.08 | 55.82 | 55.84 | 54.90 |
| 16   | 54.31 | 53.64 | 54.59 | 54.90 | 53.92 | 54.78 | 55.45 | 54.86 | 55.10 | 55.87 | 55.87 | 54.89 |
| 17   | 54.28 | 53.67 | 54.62 | 54.82 | 53.87 | 54.85 | ---   | 54.89 | 55.12 | 55.91 | 55.89 | 54.88 |
| 18   | 54.27 | 53.69 | 54.67 | 54.67 | 53.88 | 54.87 | ---   | 54.90 | 55.11 | 55.93 | 55.88 | 54.88 |
| 19   | 54.25 | 53.69 | 54.78 | 54.56 | 53.89 | 54.91 | ---   | 54.91 | 55.11 | 55.98 | 55.88 | 54.89 |
| 20   | 54.16 | 53.70 | 54.79 | 54.48 | 53.92 | 54.93 | ---   | 54.91 | 55.10 | 55.98 | 55.90 | 54.91 |
| 21   | 54.18 | 53.74 | 54.79 | 54.45 | 53.94 | 54.92 | ---   | 54.89 | 55.11 | 55.98 | 55.86 | 54.84 |
| 22   | 54.17 | 53.75 | 54.86 | 54.42 | 53.98 | 54.97 | ---   | 54.89 | 55.13 | 55.92 | 55.90 | ---   |
| 23   | 53.80 | 53.78 | 54.88 | 54.40 | 53.98 | 55.01 | ---   | 54.92 | 55.13 | 55.89 | 55.96 | ---   |
| 24   | 53.64 | 53.80 | 54.91 | 54.34 | 53.98 | 55.12 | ---   | 54.93 | 55.14 | 55.88 | 55.94 | ---   |
| 25   | 53.50 | 53.80 | 54.95 | 54.33 | 54.00 | 55.17 | ---   | 54.91 | 55.14 | 55.87 | 55.95 | ---   |
| 26   | 53.45 | 53.82 | 54.98 | 54.30 | 54.02 | 55.21 | ---   | 54.91 | 55.13 | 55.84 | 55.92 | ---   |
| 27   | 53.33 | 53.85 | 54.98 | 54.29 | 54.05 | 55.19 | ---   | 54.94 | 55.14 | 55.79 | 55.89 | ---   |
| 28   | 53.29 | 53.92 | 55.00 | 54.29 | 54.10 | 55.24 | ---   | 54.94 | 55.17 | 55.79 | 55.82 | ---   |
| 29   | 53.29 | 53.92 | 55.04 | 54.27 | ---   | 55.24 | ---   | 54.92 | 55.23 | 55.78 | 55.69 | ---   |
| 30   | 53.76 | 53.90 | 55.12 | 54.25 | ---   | 55.25 | ---   | 54.93 | 55.26 | 55.80 | 55.61 | ---   |
| 31   | 53.50 | ---   | 55.17 | 54.25 | ---   | 55.28 | ---   | 54.94 | ---   | 55.80 | 55.44 | ---   |
| MEAN | 54.19 | 53.60 | 54.57 | 54.85 | 54.03 | 54.77 | 55.36 | 54.91 | 55.10 | 55.71 | 55.83 | 55.01 |

WTR YR 1998 MEAN 54.80 HIGHEST 51.64 SEPT. 22, 1998 LOWEST 55.98 JULY 19, 20, 21, 1998



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182804066173500. Local number, DA-1.

LOCATION.--Lat 18°28'04", long 66°17'35", Hydrologic Unit 21010005, 2.04 mi west of Dorado plaza, 1.15 mi north of Hwy 696, and 0.03 mi south of Hwy 693. Owner: Dorado Airport, Name: Dorado Airport Well.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 98.0 ft (29.9 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 62.2 ft (18.9 m), above mean sea level, from topographic survey.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.88 ft (1.18 m), above land-surface datum.

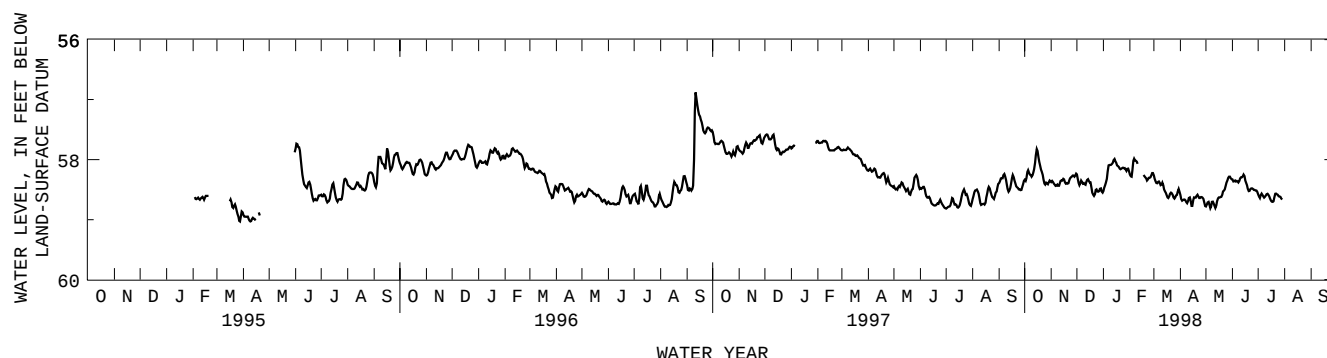
REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on November 21, 1997. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--February 2, 1995 to July 31, 1998, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 56.7 ft (17.3 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 59.2 ft (18.0 m), below land-surface datum Apr. 16, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV                         | DEC                        | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP |
|-------------|------------|-----------------------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| 1           | 58.33      | 58.38                       | 58.22                      | 58.54 | 58.23 | 58.24 | 58.56 | 58.80 | 58.32 | 58.57 | --- | --- |
| 2           | 58.34      | 58.37                       | 58.27                      | 58.51 | 58.27 | 58.29 | 58.62 | 58.76 | 58.34 | 58.59 | --- | --- |
| 3           | 58.37      | 58.34                       | 58.36                      | 58.43 | 58.29 | 58.35 | 58.69 | 58.73 | 58.39 | 58.63 | --- | --- |
| 4           | 58.25      | 58.40                       | 58.42                      | 58.42 | 58.28 | 58.38 | 58.68 | 58.70 | 58.33 | 58.65 | --- | --- |
| 5           | 58.16      | 58.40                       | 58.43                      | 58.35 | 58.08 | 58.40 | 58.67 | 58.71 | 58.37 | 58.54 | --- | --- |
| 6           | 58.19      | 58.43                       | 58.35                      | 58.29 | 57.96 | 58.39 | 58.66 | 58.79 | 58.36 | 58.59 | --- | --- |
| 7           | 58.25      | 58.45                       | 58.35                      | 58.12 | 58.01 | 58.35 | 58.67 | 58.83 | 58.35 | 58.58 | --- | --- |
| 8           | 58.25      | 58.42                       | 58.40                      | 58.07 | 58.02 | 58.38 | 58.69 | 58.73 | 58.38 | 58.65 | --- | --- |
| 9           | 58.27      | 58.41                       | 58.40                      | 58.11 | 58.02 | 58.40 | 58.73 | 58.68 | 58.38 | 58.62 | --- | --- |
| 10          | 58.30      | 58.46                       | 58.38                      | 58.07 | 58.05 | 58.45 | 58.72 | 58.72 | 58.33 | 58.62 | --- | --- |
| 11          | 58.22      | 58.41                       | 58.44                      | 58.10 | 58.09 | 58.38 | 58.66 | 58.74 | 58.30 | 58.58 | --- | --- |
| 12          | 58.21      | 58.38                       | 58.40                      | 58.04 | ---   | 58.39 | 58.62 | 58.81 | 58.29 | 58.57 | --- | --- |
| 13          | 58.11      | 58.33                       | 58.34                      | 58.06 | ---   | 58.47 | 58.64 | 58.80 | 58.30 | 58.57 | --- | --- |
| 14          | 58.00      | 58.36                       | 58.34                      | 57.96 | ---   | 58.52 | 58.72 | 58.73 | 58.26 | 58.60 | --- | --- |
| 15          | 57.86      | 58.34                       | 58.31                      | 58.02 | ---   | 58.54 | 58.82 | 58.66 | 58.24 | 58.63 | --- | --- |
| 16          | 57.79      | 58.30                       | 58.40                      | 58.03 | ---   | 58.57 | 58.72 | 58.63 | 58.31 | 58.67 | --- | --- |
| 17          | 57.92      | 58.36                       | 58.36                      | 58.08 | 58.25 | 58.61 | 58.63 | 58.63 | 58.39 | 58.70 | --- | --- |
| 18          | 58.01      | 58.40                       | 58.40                      | 58.11 | 58.26 | 58.65 | 58.63 | 58.63 | 58.40 | 58.70 | --- | --- |
| 19          | 58.07      | 58.40                       | 58.54                      | 58.11 | 58.30 | 58.63 | 58.64 | 58.62 | 58.46 | 58.71 | --- | --- |
| 20          | 58.15      | 58.38                       | 58.56                      | 58.13 | 58.29 | 58.59 | 58.63 | 58.62 | 58.51 | 58.68 | --- | --- |
| 21          | 58.18      | 58.42                       | 58.61                      | 58.17 | 58.34 | 58.55 | 58.58 | 58.55 | 58.54 | 58.59 | --- | --- |
| 22          | 58.22      | 58.37                       | 58.60                      | 58.15 | 58.36 | 58.55 | 58.59 | 58.51 | 58.50 | 58.55 | --- | --- |
| 23          | 58.29      | 58.33                       | 58.55                      | 58.15 | 58.30 | 58.57 | 58.63 | 58.52 | 58.48 | 58.58 | --- | --- |
| 24          | 58.37      | 58.30                       | 58.46                      | 58.13 | 58.31 | 58.61 | 58.65 | 58.47 | 58.48 | 58.58 | --- | --- |
| 25          | 58.43      | 58.29                       | 58.53                      | 58.14 | 58.30 | 58.65 | 58.63 | 58.40 | 58.48 | 58.59 | --- | --- |
| 26          | 58.40      | 58.28                       | 58.53                      | 58.15 | 58.29 | 58.65 | 58.62 | 58.37 | 58.50 | 58.63 | --- | --- |
| 27          | 58.37      | 58.25                       | 58.54                      | 58.13 | 58.24 | 58.61 | 58.63 | 58.32 | 58.51 | 58.60 | --- | --- |
| 28          | 58.42      | 58.28                       | 58.51                      | 58.20 | 58.21 | 58.59 | 58.64 | 58.29 | 58.50 | 58.64 | --- | --- |
| 29          | 58.40      | 58.29                       | 58.46                      | 58.18 | ---   | 58.59 | 58.67 | 58.28 | 58.53 | 58.65 | --- | --- |
| 30          | 58.36      | 58.25                       | 58.50                      | 58.13 | ---   | 58.48 | 58.75 | 58.29 | 58.50 | 58.68 | --- | --- |
| 31          | 58.34      | ---                         | 58.56                      | 58.17 | ---   | 58.50 | ---   | 58.33 | ---   | ---   | --- | --- |
| MEAN        | 58.22      | 58.36                       | 58.44                      | 58.17 | 58.21 | 58.49 | 58.66 | 58.60 | 58.40 | 58.62 | --- | --- |
| WTR YR 1998 | MEAN 58.42 | HIGHEST 57.78 OCT. 16, 1997 | LOWEST 58.90 APR. 30, 1998 |       |       |       |       |       |       |       |     |     |



GROUND-WATER LEVELS  
RIO DE LA PLATA BASIN

182526066165001. Local number, SR-2.

LOCATION.--Lat 18°25'26", long 66°16'50", Hydrologic Unit 21010005, 1.03 mi north of Hwy 2, 0.93 mi west of the intersection of Hwy 659 with Hwy 693, and 0.03 mi north of Hwy 659. Owner: US Geological Survey, WRD, Name: Santa Rosa USGS No. 2.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-140 ft (0-42.7 m), screened 120-130 ft (36.6-39.6 m). Depth 140 ft (42.7 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 91.8 ft (28.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.31 ft (1.01 m), above land-surface datum.

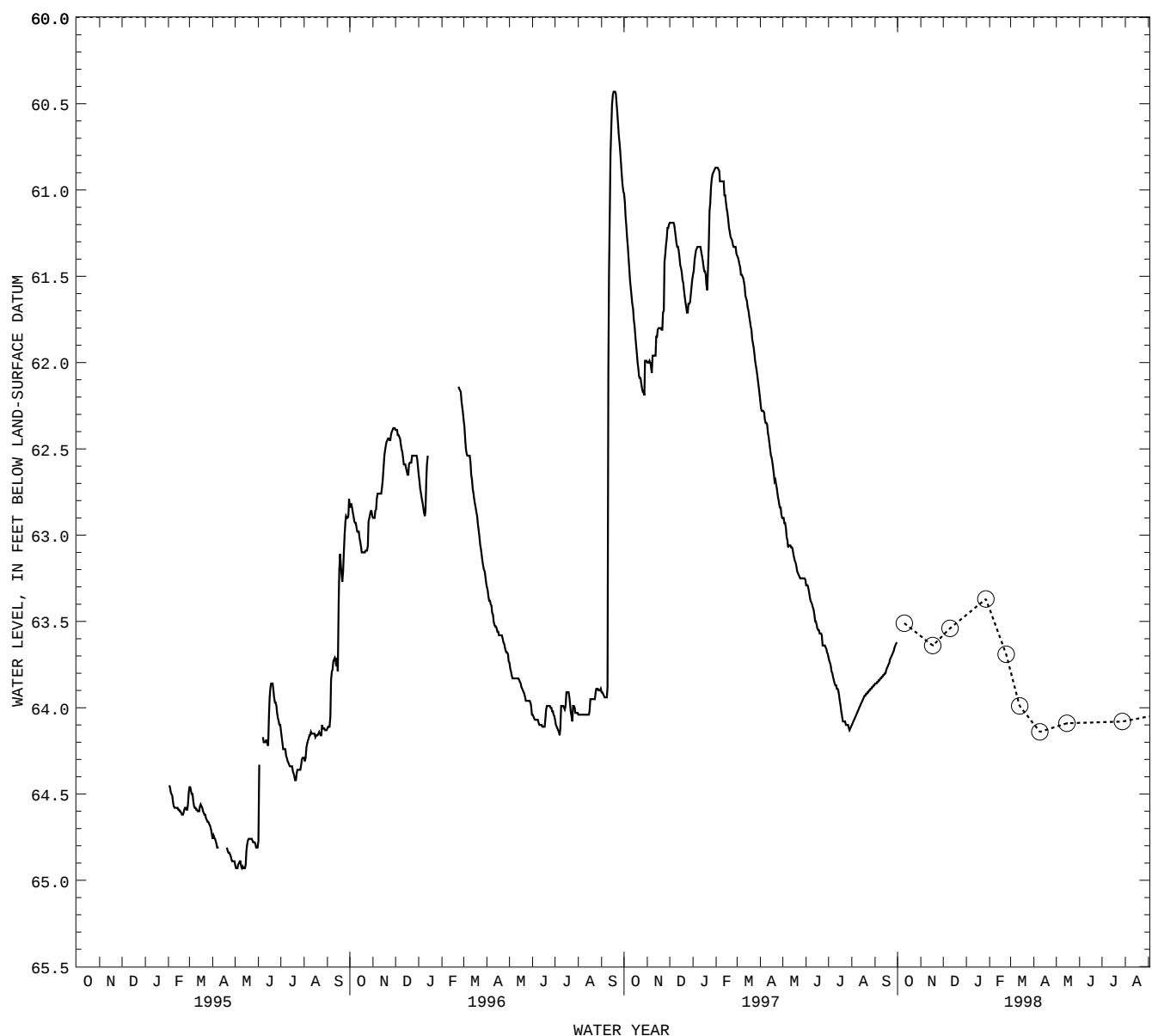
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed in February 6, 1997.

PERIOD OF RECORD.--February 2, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.4 ft (18.4 m), below land-surface datum, Sept. 20, 1995; lowest water level recorded, 64.9 ft (19.8 m), below land-surface datum, May 2-5, 10-15, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS

| Date    | Water level | Date    | Water level | Date   | Water level | Date    | Water level |
|---------|-------------|---------|-------------|--------|-------------|---------|-------------|
| Oct. 10 | 63.51       | Jan. 27 | 63.37       | Apr. 9 | 64.14       | July 28 | 64.08       |
| Nov. 17 | 63.64       | Feb. 23 | 63.69       | May 15 | 64.09       | Sept. 2 | 64.05       |
| Dec. 10 | 63.54       | Mar. 13 | 63.99       |        |             |         |             |



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182548066164401. Local number, MA-2

LOCATION.--Lat 18°25'48", long 66°16'44", Hydrologic Unit 2101005, 1.47 mi north of Hwy 2, 0.60 mi south of Hwy 695, 0.04 mi south of the intersection of Hwy 694 with 659, and 0.02 mi east of Hwy 659. Owner: US Geological Survey  
 WRD, Name: Maguayo USGS No. 2

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-110 ft (0-33.5 m), screened 95-105 ft (29.0-32.0 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 39.4 ft (12.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.80 ft (1.16 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997.

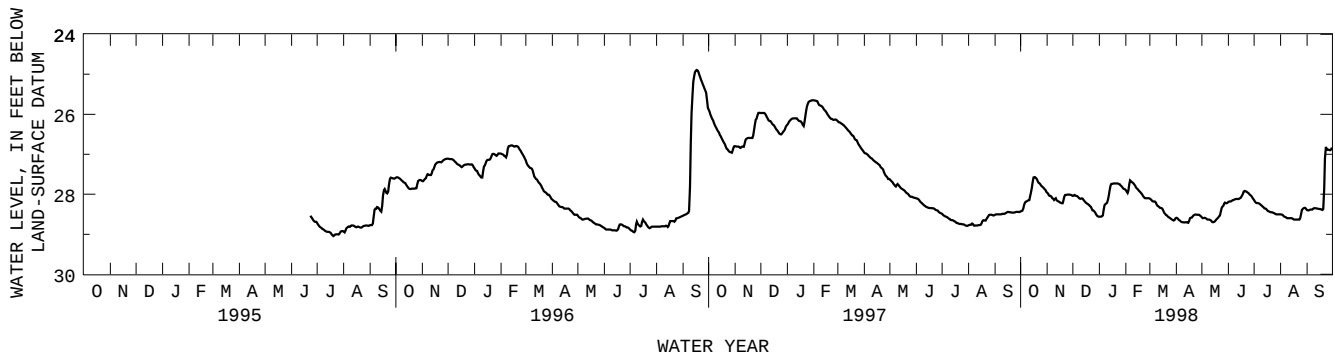
PERIOD OF RECORD.--June 22, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 24.89 ft (7.59 m), below land-surface datum, Sept. 18, 19, 1996; lowest water level recorded, 29.05 ft (8.85 m), below land-surface datum, July 20, 21, 22, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
 INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 28.43 | 27.96 | 28.04 | 28.56 | 27.89 | 28.10 | 28.59 | 28.56 | 28.20 | 28.13 | 28.50 | 28.39 |
| 2    | 28.42 | 27.96 | 28.04 | 28.56 | 27.91 | 28.12 | 28.59 | 28.60 | 28.18 | 28.16 | 28.50 | 28.40 |
| 3    | 28.42 | 28.01 | 28.02 | 28.56 | 27.97 | 28.13 | 28.60 | 28.60 | 28.18 | 28.20 | 28.51 | 28.40 |
| 4    | 28.40 | 28.04 | 28.02 | 28.56 | 27.97 | 28.16 | 28.64 | 28.59 | 28.18 | 28.22 | 28.51 | 28.40 |
| 5    | 28.31 | 28.04 | 28.04 | 28.54 | 27.85 | 28.18 | 28.64 | 28.59 | 28.17 | 28.22 | 28.55 | 28.38 |
| 6    | 28.22 | 28.04 | 28.04 | 28.52 | 27.64 | 28.18 | 28.67 | 28.60 | 28.15 | 28.22 | 28.56 | 28.38 |
| 7    | 28.19 | 28.09 | 28.05 | 28.28 | 27.67 | 28.18 | 28.68 | 28.62 | 28.14 | 28.23 | 28.57 | 28.38 |
| 8    | 28.18 | 28.11 | 28.08 | 28.26 | 27.68 | 28.18 | 28.70 | 28.63 | 28.14 | 28.24 | 28.58 | 28.38 |
| 9    | 28.17 | 28.12 | 28.10 | 28.24 | 27.71 | 28.23 | 28.70 | 28.63 | 28.13 | 28.26 | 28.60 | 28.35 |
| 10   | 28.15 | 28.16 | 28.12 | 28.22 | 27.71 | 28.28 | 28.70 | 28.63 | 28.12 | 28.27 | 28.60 | 28.35 |
| 11   | 28.15 | 28.07 | 28.11 | 28.21 | 27.75 | 28.30 | 28.71 | 28.64 | 28.12 | 28.30 | 28.60 | 28.35 |
| 12   | 28.14 | 28.13 | 28.10 | 28.06 | 27.78 | 28.30 | 28.70 | 28.65 | 28.12 | 28.31 | 28.60 | 28.35 |
| 13   | 27.98 | 28.16 | 28.11 | 28.01 | 27.80 | 28.34 | 28.70 | 28.68 | 28.12 | 28.34 | 28.60 | 28.36 |
| 14   | 27.92 | 28.17 | 28.14 | 27.82 | 27.86 | 28.34 | 28.70 | 28.71 | 28.12 | 28.36 | 28.60 | 28.36 |
| 15   | 27.78 | 28.18 | 28.17 | 27.75 | 27.86 | 28.35 | 28.72 | 28.69 | 28.09 | 28.36 | 28.60 | 28.37 |
| 16   | 27.59 | 28.20 | 28.19 | 27.74 | 27.89 | 28.35 | 28.71 | 28.69 | 28.10 | 28.37 | 28.62 | 28.37 |
| 17   | 27.57 | 28.21 | 28.22 | 27.74 | 27.92 | 28.39 | 28.61 | 28.67 | 28.03 | 28.41 | 28.63 | 28.37 |
| 18   | 27.57 | 28.22 | 28.23 | 27.73 | 27.93 | 28.45 | 28.59 | 28.63 | 28.02 | 28.42 | 28.63 | 28.38 |
| 19   | 27.58 | 28.23 | 28.25 | 27.73 | 27.97 | 28.48 | 28.59 | 28.62 | 27.95 | 28.43 | 28.63 | 28.39 |
| 20   | 27.62 | 28.22 | 28.26 | 27.73 | 27.98 | 28.51 | 28.58 | 28.60 | 27.91 | 28.44 | 28.63 | 28.39 |
| 21   | 27.63 | 28.08 | 28.28 | 27.73 | 28.03 | 28.52 | 28.54 | 28.57 | 27.92 | 28.45 | 28.63 | 28.35 |
| 22   | 27.71 | 28.02 | 28.31 | 27.73 | 28.05 | 28.54 | 28.52 | 28.54 | 27.93 | 28.45 | 28.63 | 27.39 |
| 23   | 27.72 | 28.02 | 28.32 | 27.73 | 28.09 | 28.57 | 28.51 | 28.52 | 27.93 | 28.45 | 28.63 | 26.81 |
| 24   | 27.73 | 28.02 | 28.40 | 27.74 | 28.10 | 28.58 | 28.50 | 28.37 | 27.97 | 28.47 | 28.63 | 26.83 |
| 25   | 27.78 | 28.01 | 28.40 | 27.75 | 28.10 | 28.59 | 28.51 | 28.32 | 27.96 | 28.47 | 28.57 | 26.89 |
| 26   | 27.79 | 28.01 | 28.41 | 27.76 | 28.10 | 28.62 | 28.51 | 28.30 | 28.01 | 28.49 | 28.41 | 26.89 |
| 27   | 27.82 | 28.01 | 28.44 | 27.80 | 28.10 | 28.62 | 28.51 | 28.27 | 28.02 | 28.50 | 28.37 | 26.88 |
| 28   | 27.83 | 28.01 | 28.47 | 27.80 | 28.10 | 28.64 | 28.51 | 28.20 | 28.03 | 28.50 | 28.36 | 26.91 |
| 29   | 27.87 | 28.02 | 28.52 | 27.85 | ---   | 28.65 | 28.52 | 28.22 | 28.07 | 28.50 | 28.34 | 26.89 |
| 30   | 27.88 | 28.02 | 28.54 | 27.87 | ---   | 28.66 | 28.55 | 28.23 | 28.10 | 28.50 | 28.34 | 26.87 |
| 31   | 27.92 | ---   | 28.56 | 27.87 | ---   | 28.62 | ---   | 28.22 | ---   | 28.50 | 28.35 | ---   |
| MEAN | 27.95 | 28.08 | 28.23 | 28.01 | 27.91 | 28.39 | 28.61 | 28.53 | 28.07 | 28.36 | 28.54 | 27.94 |

WTR YR 1998 MEAN 28.22 HIGHEST 26.80 SEPT. 23, 1998 LOWEST 28.76 APR. 15, 16, 1998



## RIO DE LA PLATA BASIN

LOCATION.--Lat 18 26'20", long 66°16'34", Hydrologic Unit 2101005, 1.85 mi south of Dorado plaza, 0.70 mi southwest of Laboratorio Dorado, 0.65 mi northwest of the intersection of Hwy 695 with Hwy 693, and 0.09 mi north of Hwy 695.

Owner: US Geological Survey, WRD, Name: Higuillar No. 1.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-490 ft (0-149.4 m), screened 470-480 ft (143.3-146.3 m). Depth 490 ft (149.4 m)

DATUM.--Elevation of land-surface datum is about 49.2 ft (15.0 m), above mean sea level, from topographic map.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 16, 1996, replaced by an Electronic Data Logger (EDL), installed on February 23, 1998. Well screened below freshwater/saltwater interface at approximately 305 ft (93.0 m), below land-surface datum. From May 15, 1998, bi-monthly measurements only.

PERIOD OF RECORD.--May 16, 1996 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.04 ft (11.0 m), below land-surface datum, Sept. 15, 16, 1996; lowest water level recorded, 39.89 ft (12.2 m), below land-surface datum, June 2, 3, 4, 9, 1996.

### INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT  | NOV   | DEC     | JAN   | FEB                | MAR | APR | MAY    | JUN   | JUL                   | AUG   | SEP   |
|-------------|------|-------|---------|-------|--------------------|-----|-----|--------|-------|-----------------------|-------|-------|
| 1           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.88 | 39.83                 | 39.61 | 39.31 |
| 2           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.88 | 39.81                 | 39.61 | 39.31 |
| 3           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.88 | 39.81                 | 39.60 | 39.33 |
| 4           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.87 | 39.79                 | 39.59 | 39.32 |
| 5           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.85 | 39.81                 | 39.57 | 39.22 |
| 6           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.79 | 39.80                 | 39.57 | 39.22 |
| 7           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.80 | 39.77                 | 39.56 | 39.23 |
| 8           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.83 | 39.62                 | 39.55 | 39.24 |
| 9           | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.84 | 39.45                 | 39.57 | 39.16 |
| 10          | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.84 | 39.53                 | 39.57 | 37.72 |
| 11          | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.84 | 39.56                 | 39.56 | 36.39 |
| 12          | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.87 | 39.63                 | 39.58 | 36.37 |
| 13          | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.87 | 39.67                 | 39.57 | 36.28 |
| 14          | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.86 | 39.68                 | 39.62 | 36.18 |
| 15          | ---  | ---   | ---     | ---   | ---                | --- | --- | ---    | 39.85 | 39.57                 | 39.57 | 36.12 |
| 16          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.70  | 39.85 | 39.39                 | 39.46 | 36.07 |
| 17          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.70  | 39.78 | 39.46                 | 39.33 | 36.08 |
| 18          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.68  | 39.69 | 39.51                 | 39.34 | 36.11 |
| 19          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.67  | 39.61 | 39.52                 | 39.37 | 36.12 |
| 20          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.68  | 39.57 | 39.55                 | 39.37 | 36.20 |
| 21          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.70  | 39.60 | 39.59                 | 39.37 | 36.30 |
| 22          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.70  | 39.64 | 39.62                 | 39.38 | 36.36 |
| 23          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.75  | 39.66 | 39.64                 | 39.43 | 36.46 |
| 24          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.75  | 39.68 | 39.66                 | 39.27 | 36.50 |
| 25          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.76  | 39.66 | 39.65                 | 39.30 | 36.58 |
| 26          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.75  | 39.68 | 39.59                 | 39.35 | 36.62 |
| 27          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.75  | 39.72 | 39.62                 | 39.37 | 36.68 |
| 28          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.75  | 39.72 | 39.64                 | 39.35 | 36.70 |
| 29          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.77  | 39.76 | 39.64                 | 39.31 | 36.77 |
| 30          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.79  | 39.78 | 39.64                 | 39.30 | 36.82 |
| 31          | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.87  | ---   | 39.63                 | 39.31 | ---   |
| MEAN        | ---  | ---   | ---     | ---   | ---                | --- | --- | 39.74  | 39.77 | 39.63                 | 39.46 | 37.29 |
| WTR YR 1996 | MEAN | 39.13 | HIGHEST | 36.04 | SEPT. 15, 16, 1996 |     |     | LOWEST | 39.89 | JUNE 2, 3, 4, 9, 1996 |       |       |

| DAY         | OCT        | NOV   | DEC                             | JAN   | FEB   | MAR   | APR                        | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|-------|---------------------------------|-------|-------|-------|----------------------------|-------|-------|-------|-------|-------|
| 1           | 36.84      | 37.52 | 36.75                           | 36.96 | 36.40 | 36.79 | 37.41                      | 37.89 | 38.25 | 38.62 | 38.79 | 38.49 |
| 2           | 36.89      | 37.55 | 36.77                           | 36.95 | 36.42 | 36.80 | 37.46                      | 37.95 | 38.26 | 38.64 | 38.78 | 38.47 |
| 3           | 36.94      | 37.56 | 36.76                           | 36.90 | 36.43 | 36.81 | 37.40                      | 38.00 | 38.27 | 38.67 | 38.78 | 38.45 |
| 4           | 37.02      | 37.57 | 36.81                           | 36.86 | 36.49 | 36.82 | 37.41                      | 37.97 | 38.28 | 38.68 | 38.77 | 38.43 |
| 5           | 37.06      | 37.58 | 36.84                           | 36.85 | 36.51 | 36.83 | 37.45                      | 38.03 | 38.29 | 38.70 | 38.78 | 38.44 |
| 6           | 37.09      | 37.60 | 36.84                           | 36.87 | 36.53 | 36.84 | 37.49                      | 38.05 | 38.33 | 38.68 | 38.74 | 38.43 |
| 7           | 37.14      | 37.61 | 36.88                           | 36.88 | 36.55 | 36.89 | 37.54                      | 38.08 | 38.35 | 38.68 | 38.78 | 38.41 |
| 8           | 37.21      | 37.56 | 36.95                           | 36.90 | 36.55 | 36.92 | 37.54                      | 38.10 | 38.35 | 38.69 | 38.77 | 38.39 |
| 9           | 37.29      | 37.53 | 37.01                           | 36.89 | 36.57 | 36.93 | 37.50                      | 38.10 | 38.39 | 38.67 | 38.79 | 38.41 |
| 10          | 37.31      | 37.53 | 37.05                           | 36.88 | 36.55 | 36.95 | 37.56                      | 38.00 | 38.40 | 38.69 | 38.80 | 38.39 |
| 11          | 37.32      | 37.54 | 37.06                           | 36.89 | 36.54 | 36.95 | 37.57                      | 38.04 | 38.36 | 38.70 | 38.76 | 38.42 |
| 12          | 37.35      | 37.54 | 37.01                           | 36.89 | 36.58 | 36.96 | 37.58                      | 38.06 | 38.40 | 38.71 | 38.77 | 38.43 |
| 13          | 37.35      | 37.36 | 37.01                           | 36.91 | 36.58 | 36.97 | 37.61                      | 38.11 | 38.43 | 38.68 | 38.75 | 38.43 |
| 14          | 37.40      | 37.24 | 37.04                           | 36.93 | 36.61 | 36.98 | 37.62                      | 38.12 | 38.44 | 38.72 | 38.77 | 38.42 |
| 15          | 37.44      | 37.19 | 37.07                           | 36.96 | 36.61 | 36.99 | 37.67                      | 38.14 | 38.44 | 38.76 | 38.80 | 38.42 |
| 16          | 37.48      | 37.23 | 37.05                           | 36.97 | 36.68 | 37.00 | 37.67                      | 38.15 | 38.47 | 38.77 | 38.82 | 38.42 |
| 17          | 37.51      | 37.26 | 37.07                           | 36.98 | 36.70 | 37.05 | 37.66                      | 38.18 | 38.49 | 38.79 | 38.78 | 38.40 |
| 18          | 37.55      | 37.27 | 37.12                           | 37.03 | 36.75 | 37.09 | 37.70                      | 38.18 | 38.53 | 38.82 | 38.70 | 38.41 |
| 19          | 37.59      | 37.24 | 37.15                           | 37.09 | 36.77 | 37.09 | 37.77                      | 38.21 | 38.55 | 38.83 | 38.68 | 38.41 |
| 20          | 37.63      | 37.27 | 37.19                           | 37.12 | 36.80 | 37.09 | 37.78                      | 38.24 | 38.52 | 38.83 | 38.68 | 38.40 |
| 21          | 37.65      | 37.30 | 37.23                           | 37.11 | 36.81 | 37.15 | 37.82                      | 38.25 | 38.54 | 38.81 | 38.67 | 38.41 |
| 22          | 37.71      | 37.30 | 37.26                           | 36.82 | 36.81 | 37.16 | 37.83                      | 38.27 | 38.55 | 38.79 | 38.67 | 38.40 |
| 23          | 37.73      | 37.16 | 37.29                           | 36.63 | 36.82 | 37.19 | 37.84                      | 38.30 | 38.55 | 38.81 | 38.54 | 38.38 |
| 24          | 37.79      | 37.09 | 37.30                           | 36.50 | 36.81 | 37.22 | 37.87                      | 38.29 | 38.52 | 38.81 | 38.52 | 38.37 |
| 25          | 37.79      | 36.90 | 37.28                           | 36.40 | 36.77 | 37.28 | 37.90                      | 38.18 | 38.52 | 38.77 | 38.46 | 38.35 |
| 26          | 37.79      | 36.87 | 37.28                           | 36.38 | 36.79 | 37.30 | 37.92                      | 38.14 | 38.53 | 38.75 | 38.46 | 38.37 |
| 27          | 37.73      | 36.87 | 37.16                           | 36.39 | 36.79 | 37.30 | 37.91                      | 38.10 | 38.54 | 38.77 | 38.47 | 38.38 |
| 28          | 37.75      | 36.82 | 37.13                           | 36.38 | 36.79 | 37.31 | 37.91                      | 38.12 | 38.56 | 38.83 | 38.48 | 38.39 |
| 29          | 37.73      | 36.82 | 37.11                           | 36.40 | ---   | 37.34 | 37.91                      | 38.16 | 38.59 | 38.85 | 38.50 | 38.39 |
| 30          | 37.60      | 36.81 | 37.03                           | 36.40 | ---   | 37.34 | 37.93                      | 38.19 | 38.61 | 38.83 | 38.54 | 38.41 |
| 31          | 37.52      | ---   | 37.00                           | 36.39 | ---   | 37.38 | ---                        | 38.23 | ---   | 38.82 | 38.52 | ---   |
| MEAN        | 37.43      | 37.29 | 37.05                           | 36.79 | 36.64 | 37.06 | 37.67                      | 38.12 | 38.44 | 38.75 | 38.68 | 38.41 |
| WTR YR 1997 | MEAN 37.70 |       | HIGHEST 36.33 JAN. 25, 26, 1997 |       |       |       | LOWEST 38.86 JULY 29, 1997 |       |       |       |       |       |

## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN--Continued

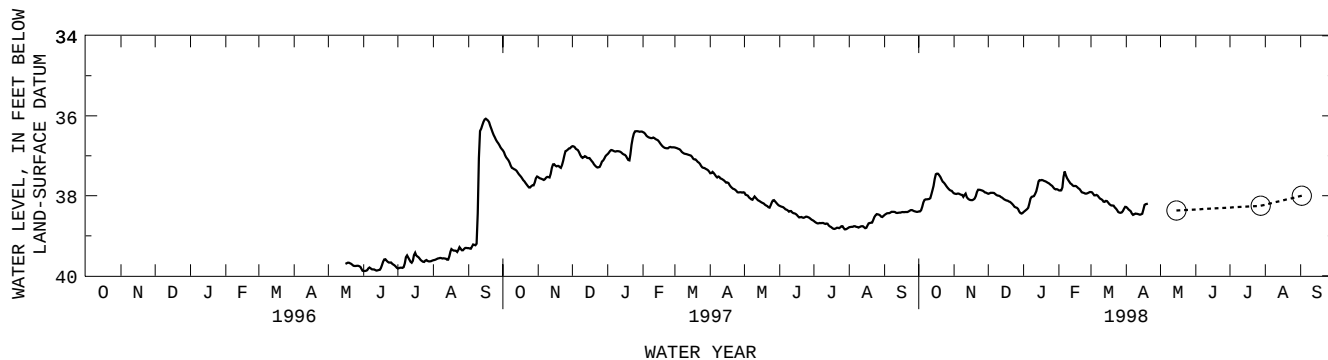
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|
| 1    | 38.39 | 37.94 | 37.95 | 38.42 | 37.86 | 37.90 | 38.26 | --- | --- | --- | --- | --- |
| 2    | 38.39 | 37.94 | 37.95 | 38.39 | 37.87 | 37.91 | 38.30 | --- | --- | --- | --- | --- |
| 3    | 38.39 | 37.96 | 37.93 | 38.37 | 37.87 | 37.92 | 38.32 | --- | --- | --- | --- | --- |
| 4    | 38.34 | 37.95 | 37.92 | 38.35 | 37.86 | 37.98 | 38.37 | --- | --- | --- | --- | --- |
| 5    | 38.21 | 37.94 | 37.93 | 38.32 | 37.72 | 38.00 | 38.36 | --- | --- | --- | --- | --- |
| 6    | 38.12 | 37.95 | 37.92 | 38.28 | 37.34 | 37.98 | 38.41 | --- | --- | --- | --- | --- |
| 7    | 38.09 | 37.97 | 37.94 | 38.11 | 37.45 | 37.98 | 38.48 | --- | --- | --- | --- | --- |
| 8    | 38.09 | 37.98 | 37.97 | 38.03 | 37.52 | 38.02 | 38.48 | --- | --- | --- | --- | --- |
| 9    | 38.09 | 37.98 | 37.99 | 38.02 | 37.59 | 38.05 | 38.45 | --- | --- | --- | --- | --- |
| 10   | 38.08 | 38.07 | 38.00 | 38.02 | 37.62 | 38.09 | 38.44 | --- | --- | --- | --- | --- |
| 11   | 38.08 | 37.89 | 38.00 | 38.00 | 37.68 | 38.08 | 38.46 | --- | --- | --- | --- | --- |
| 12   | 38.04 | 38.00 | 38.02 | 37.91 | 37.70 | 38.13 | 38.45 | --- | --- | --- | --- | --- |
| 13   | 37.88 | 38.06 | 38.04 | 37.87 | 37.72 | 38.16 | 38.48 | --- | --- | --- | --- | --- |
| 14   | 37.82 | 38.08 | 38.05 | 37.68 | 37.77 | 38.14 | 38.47 | --- | --- | --- | --- | --- |
| 15   | 37.69 | 38.10 | 38.09 | 37.60 | 37.75 | 38.12 | 38.46 | --- | --- | --- | --- | --- |
| 16   | 37.47 | 38.11 | 38.09 | 37.62 | 37.76 | 38.15 | 38.44 | --- | --- | --- | --- | --- |
| 17   | 37.45 | 38.11 | 38.12 | 37.61 | 37.76 | 38.18 | 38.25 | --- | --- | --- | --- | --- |
| 18   | 37.44 | 38.11 | 38.12 | 37.60 | 37.80 | 38.23 | 38.21 | --- | --- | --- | --- | --- |
| 19   | 37.46 | 38.08 | 38.13 | 37.63 | 37.82 | 38.23 | 38.21 | --- | --- | --- | --- | --- |
| 20   | 37.52 | 38.06 | 38.15 | 37.63 | 37.84 | 38.26 | 38.20 | --- | --- | --- | --- | --- |
| 21   | 37.55 | 37.96 | 38.15 | 37.65 | 37.90 | 38.23 | 38.19 | --- | --- | --- | --- | --- |
| 22   | 37.64 | 37.85 | 38.20 | 37.66 | 37.92 | 38.27 | ---   | --- | --- | --- | --- | --- |
| 23   | 37.66 | 37.85 | 38.21 | 37.68 | 37.92 | 38.31 | ---   | --- | --- | --- | --- | --- |
| 24   | 37.68 | 37.85 | 38.27 | 37.69 | 37.94 | 38.33 | ---   | --- | --- | --- | --- | --- |
| 25   | 37.74 | 37.86 | 38.28 | 37.73 | 37.95 | 38.39 | ---   | --- | --- | --- | --- | --- |
| 26   | 37.77 | 37.87 | 38.30 | 37.74 | 37.94 | 38.42 | ---   | --- | --- | --- | --- | --- |
| 27   | 37.81 | 37.88 | 38.30 | 37.77 | 37.93 | 38.42 | ---   | --- | --- | --- | --- | --- |
| 28   | 37.84 | 37.91 | 38.36 | 37.81 | 37.91 | 38.43 | ---   | --- | --- | --- | --- | --- |
| 29   | 37.87 | 37.92 | 38.42 | 37.84 | ---   | 38.40 | ---   | --- | --- | --- | --- | --- |
| 30   | 37.87 | 37.92 | 38.44 | 37.84 | ---   | 38.36 | ---   | --- | --- | --- | --- | --- |
| 31   | 37.89 | ---   | 38.45 | 37.83 | ---   | 38.29 | ---   | --- | --- | --- | --- | --- |
| MEAN | 37.88 | 37.97 | 38.12 | 37.89 | 37.78 | 38.17 | 38.37 | --- | --- | --- | --- | --- |

WTR YR 1998 MEAN 38.01 HIGHEST 37.30 FEB. 6, 1998 LOWEST 38.50 APR. 7, 1998

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS

| Date   | Water level | Date    | Water level | Date    | Water level |
|--------|-------------|---------|-------------|---------|-------------|
| May 15 | 38.37       | July 28 | 38.25       | Sept. 2 | 38.00       |



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182620066163403. Local number, HG-4.

LOCATION.--Lat 18°26'20", long 66°16'34", Hydrologic Unit 2101005, 1.85 mi south of Dorado plaza, 0.70 mi southwest of Laboratorio Dorado, 0.65 mi northwest of the intersection of Hwy 695 with Hwy 693, and 0.09 mi north of Hwy 695.

Owner: US Geological Survey, WRD, Name: Higuillar No. 4.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-100 ft (0-30.5 m), screened 80-90.0 ft (24.4-27.4 m). Depth 100 ft (30.5 m)

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 49.2 ft (15.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.60 ft (1.10 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997.

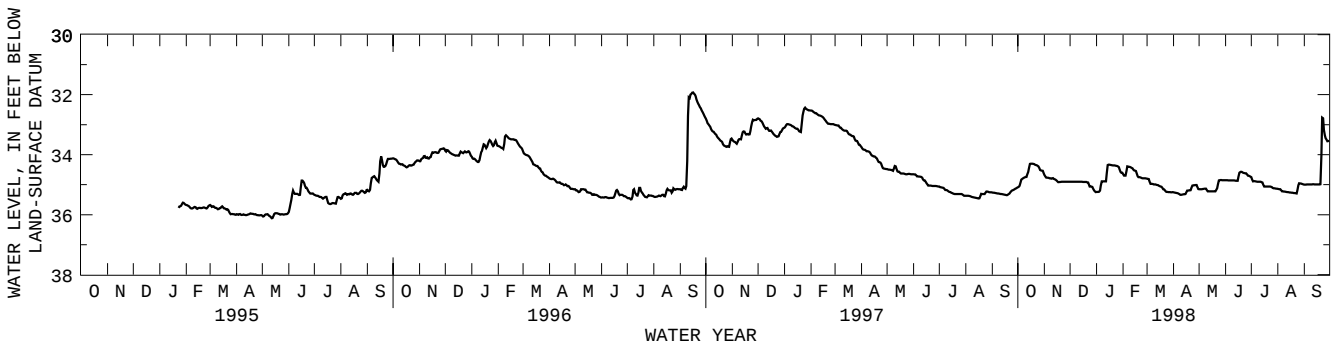
PERIOD OF RECORD.--January 23, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 31.84 ft (9.70 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 36.15 ft (11.0 m), below land-surface datum, May 1, 11, 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 35.09 | 34.67 | 34.90 | 35.24 | 34.60 | 34.80 | 35.25 | 35.15 | 34.85 | 34.74 | 35.14 | 35.00 |
| 2    | 35.08 | 34.68 | 34.90 | 35.24 | 34.69 | 34.80 | 35.26 | 35.16 | 34.85 | 34.76 | 35.14 | 35.00 |
| 3    | 35.06 | 34.76 | 34.90 | 35.24 | 34.70 | 34.81 | 35.26 | 35.15 | 34.85 | 34.89 | 35.15 | 35.00 |
| 4    | 35.01 | 34.76 | 34.90 | 35.24 | 34.70 | 34.82 | 35.27 | 35.15 | 34.85 | 34.89 | 35.15 | 35.00 |
| 5    | 34.85 | 34.77 | 34.90 | 35.23 | 34.69 | 34.97 | 35.28 | 35.15 | 34.86 | 34.88 | 35.16 | 34.99 |
| 6    | 34.81 | 34.77 | 34.90 | 35.17 | 34.39 | 34.97 | 35.28 | 35.14 | 34.86 | 34.89 | 35.22 | 34.99 |
| 7    | 34.80 | 34.78 | 34.90 | 34.89 | 34.39 | 34.97 | 35.29 | 35.14 | 34.86 | 34.89 | 35.22 | 34.99 |
| 8    | 34.78 | 34.79 | 34.90 | 34.89 | 34.40 | 34.97 | 35.31 | 35.14 | 34.86 | 34.90 | 35.23 | 34.99 |
| 9    | 34.76 | 34.79 | 34.90 | 34.89 | 34.41 | 34.99 | 35.33 | 35.13 | 34.86 | 34.90 | 35.23 | 34.99 |
| 10   | 34.75 | 34.81 | 34.90 | 34.89 | 34.41 | 34.99 | 35.34 | 35.13 | 34.86 | 34.90 | 35.23 | 34.99 |
| 11   | 34.74 | 34.77 | 34.90 | 34.89 | 34.43 | 34.99 | 35.33 | 35.22 | 34.86 | 34.90 | 35.24 | 34.99 |
| 12   | 34.75 | 34.79 | 34.90 | 34.89 | 34.45 | 35.00 | 35.33 | 35.22 | 34.86 | 34.90 | 35.24 | 34.98 |
| 13   | 34.57 | 34.82 | 34.90 | 34.89 | 34.46 | 35.01 | 35.32 | 35.23 | 34.87 | 34.91 | 35.25 | 34.99 |
| 14   | 34.58 | 34.82 | 34.90 | 34.36 | 34.52 | 35.01 | 35.32 | 35.22 | 34.87 | 34.92 | 35.25 | 34.99 |
| 15   | 34.32 | 34.85 | 34.90 | 34.33 | 34.53 | 35.02 | 35.32 | 35.22 | 34.87 | 34.94 | 35.26 | 34.99 |
| 16   | 34.30 | 34.86 | 34.91 | 34.33 | 34.53 | 35.05 | 35.30 | 35.22 | 34.87 | 35.06 | 35.26 | 34.99 |
| 17   | 34.30 | 34.91 | 34.91 | 34.34 | 34.56 | 35.05 | 35.20 | 35.22 | 34.60 | 35.06 | 35.26 | 34.99 |
| 18   | 34.30 | 34.92 | 34.91 | 34.34 | 34.68 | 35.07 | 35.20 | 35.22 | 34.60 | 35.06 | 35.27 | 34.99 |
| 19   | 34.30 | 34.91 | 34.91 | 34.35 | 34.75 | 35.07 | 35.19 | 35.22 | 34.57 | 35.06 | 35.27 | 34.99 |
| 20   | 34.31 | 34.91 | 34.91 | 34.36 | 34.75 | 35.15 | 35.19 | 35.22 | 34.57 | 35.06 | 35.28 | 34.99 |
| 21   | 34.32 | 34.91 | 34.91 | 34.36 | 34.75 | 35.16 | 35.19 | 35.22 | 34.58 | 35.06 | 35.28 | 34.98 |
| 22   | 34.34 | 34.90 | 34.93 | 34.36 | 34.76 | 35.16 | 35.18 | 35.13 | 34.61 | 35.06 | 35.28 | 33.04 |
| 23   | 34.35 | 34.90 | 34.93 | 34.36 | 34.78 | 35.22 | 35.03 | 35.11 | 34.61 | 35.06 | 35.29 | 32.49 |
| 24   | 34.35 | 34.90 | 35.06 | 34.37 | 34.78 | 35.24 | 35.03 | 34.87 | 34.62 | 35.07 | 35.29 | 33.09 |
| 25   | 34.39 | 34.90 | 35.06 | 34.37 | 34.79 | 35.24 | 35.02 | 34.85 | 34.62 | 35.07 | 35.08 | 33.26 |
| 26   | 34.39 | 34.90 | 35.06 | 34.38 | 34.79 | 35.24 | 35.02 | 34.85 | 34.62 | 35.09 | 34.95 | 33.45 |
| 27   | 34.50 | 34.90 | 35.06 | 34.40 | 34.79 | 35.25 | 35.01 | 34.84 | 34.70 | 35.12 | 34.96 | 33.45 |
| 28   | 34.52 | 34.90 | 35.09 | 34.43 | 34.79 | 35.25 | 35.01 | 34.85 | 34.70 | 35.12 | 34.96 | 33.55 |
| 29   | 34.53 | 34.90 | 35.18 | 34.55 | ---   | 35.25 | 35.01 | 34.85 | 34.71 | 35.12 | 34.96 | 33.55 |
| 30   | 34.53 | 34.90 | 35.20 | 34.60 | ---   | 35.26 | 35.14 | 34.85 | 34.72 | 35.13 | 34.98 | 33.54 |
| 31   | 34.55 | ---   | 35.25 | 34.60 | ---   | 35.25 | ---   | 34.85 | ---   | 35.13 | 34.98 | ---   |
| MEAN | 34.59 | 34.84 | 34.96 | 34.67 | 34.62 | 35.07 | 35.21 | 35.09 | 34.75 | 34.99 | 35.18 | 34.47 |

WTR YR 1998 MEAN 34.87 HIGHEST 32.48 SEPT. 23, 1998 LOWEST 35.34 APR. 9, 10, 1998



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182657066162700. Local number, SA-1.

LOCATION.--Lat 18°26'57", long 66°16'27", Hydrologic Unit 21010005, 1.16 mi south of Dorado plaza, 0.45 mi west of Laboratorio Dorado, 1.79 mi southeast of Dorado airport main gate, and 0.19 mi west of the PR Aqueduct and Sewer Authority San Antonio public supply well (San Antonio No. 3). Owner: US Geological Survey, WRD, Name: San Antonio No. 1.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-290 ft (0-88.4 m), screened 270-280 ft (82.3-85.3 m). Depth 290 ft (88.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 19.6 ft (6.00 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m), casing, 3.20 ft (0.98 m), above land-surface datum.

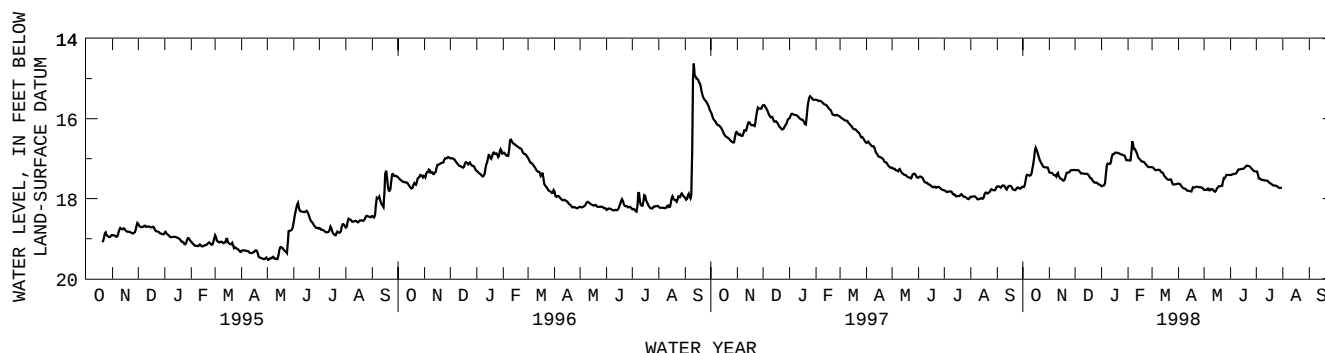
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 21, 1997.

PERIOD OF RECORD.--October 19, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.97 ft (4.26 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 19.56 ft (5.96 m), below land-surface datum, May 3, 4, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV                           | DEC                           | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP |
|-------------|------------|-------------------------------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| 1           | 17.71      | 17.34                         | 17.29                         | 17.68 | 17.04 | 17.21 | 17.62 | 17.78 | 17.41 | 17.32 | --- | --- |
| 2           | 17.70      | 17.35                         | 17.29                         | 17.69 | 17.04 | 17.21 | 17.63 | 17.78 | 17.41 | 17.32 | --- | --- |
| 3           | 17.72      | 17.36                         | 17.29                         | 17.68 | 17.05 | 17.23 | 17.64 | 17.78 | 17.41 | 17.32 | --- | --- |
| 4           | 17.63      | 17.35                         | 17.29                         | 17.66 | 17.05 | 17.25 | 17.64 | 17.78 | 17.38 | 17.50 | --- | --- |
| 5           | 17.48      | 17.36                         | 17.29                         | 17.67 | 17.04 | 17.29 | 17.71 | 17.78 | 17.39 | 17.49 | --- | --- |
| 6           | 17.40      | 17.40                         | 17.30                         | 17.57 | 16.57 | 17.29 | 17.71 | 17.72 | 17.38 | 17.50 | --- | --- |
| 7           | 17.41      | 17.42                         | 17.32                         | 17.25 | 16.57 | 17.29 | 17.74 | 17.78 | 17.38 | 17.53 | --- | --- |
| 8           | 17.42      | 17.41                         | 17.37                         | 17.12 | 16.76 | 17.28 | 17.75 | 17.80 | 17.37 | 17.53 | --- | --- |
| 9           | 17.42      | 17.43                         | 17.37                         | 17.13 | 16.76 | 17.28 | 17.75 | 17.77 | 17.34 | 17.53 | --- | --- |
| 10          | 17.43      | 17.46                         | 17.37                         | 17.13 | 16.76 | 17.28 | 17.76 | 17.76 | 17.28 | 17.54 | --- | --- |
| 11          | 17.40      | 17.29                         | 17.37                         | 17.13 | 16.85 | 17.29 | 17.79 | 17.77 | 17.27 | 17.54 | --- | --- |
| 12          | 17.36      | 17.42                         | 17.38                         | 17.13 | 16.86 | 17.34 | 17.80 | 17.77 | 17.27 | 17.54 | --- | --- |
| 13          | 17.18      | 17.46                         | 17.38                         | 17.02 | 16.96 | 17.34 | 17.80 | 17.82 | 17.27 | 17.55 | --- | --- |
| 14          | 17.10      | 17.48                         | 17.38                         | 16.89 | 16.99 | 17.34 | 17.81 | 17.82 | 17.25 | 17.55 | --- | --- |
| 15          | 16.92      | 17.52                         | 17.38                         | 16.89 | 17.01 | 17.40 | 17.81 | 17.83 | 17.26 | 17.55 | --- | --- |
| 16          | 16.68      | 17.51                         | 17.38                         | 16.89 | 17.03 | 17.44 | 17.82 | 17.75 | 17.26 | 17.59 | --- | --- |
| 17          | 16.77      | 17.53                         | 17.41                         | 16.85 | 17.07 | 17.45 | 17.82 | 17.74 | 17.25 | 17.61 | --- | --- |
| 18          | 16.80      | 17.57                         | 17.43                         | 16.85 | 17.07 | 17.48 | 17.71 | 17.69 | 17.21 | 17.62 | --- | --- |
| 19          | 16.88      | 17.52                         | 17.49                         | 16.85 | 17.07 | 17.51 | 17.72 | 17.69 | 17.21 | 17.63 | --- | --- |
| 20          | 16.97      | 17.51                         | 17.49                         | 16.85 | 17.09 | 17.53 | 17.72 | 17.69 | 17.17 | 17.65 | --- | --- |
| 21          | 17.01      | 17.36                         | 17.50                         | 16.86 | 17.09 | 17.53 | 17.72 | 17.68 | 17.18 | 17.67 | --- | --- |
| 22          | 17.08      | 17.35                         | 17.56                         | 16.87 | 17.15 | 17.53 | 17.70 | 17.68 | 17.18 | 17.67 | --- | --- |
| 23          | 17.11      | 17.35                         | 17.57                         | 16.88 | 17.16 | 17.52 | 17.70 | 17.68 | 17.18 | 17.67 | --- | --- |
| 24          | 17.15      | 17.34                         | 17.60                         | 16.89 | 17.18 | 17.52 | 17.70 | 17.48 | 17.20 | 17.67 | --- | --- |
| 25          | 17.20      | 17.34                         | 17.60                         | 16.90 | 17.21 | 17.61 | 17.72 | 17.49 | 17.22 | 17.68 | --- | --- |
| 26          | 17.21      | 17.29                         | 17.60                         | 16.90 | 17.21 | 17.65 | 17.71 | 17.49 | 17.26 | 17.69 | --- | --- |
| 27          | 17.22      | 17.29                         | 17.60                         | 16.92 | 17.21 | 17.65 | 17.71 | 17.41 | 17.26 | 17.72 | --- | --- |
| 28          | 17.21      | 17.29                         | 17.62                         | 16.92 | 17.21 | 17.65 | 17.72 | 17.41 | 17.31 | 17.73 | --- | --- |
| 29          | 17.22      | 17.29                         | 17.65                         | 16.93 | ---   | 17.64 | 17.73 | 17.41 | 17.31 | 17.73 | --- | --- |
| 30          | 17.22      | 17.28                         | 17.65                         | 17.04 | ---   | 17.64 | 17.73 | 17.41 | 17.31 | 17.73 | --- | --- |
| 31          | 17.23      | ---                           | 17.66                         | 17.04 | ---   | 17.63 | ---   | 17.41 | ---   | 17.73 | --- | --- |
| MEAN        | 17.23      | 17.40                         | 17.45                         | 17.10 | 17.00 | 17.43 | 17.73 | 17.67 | 17.29 | 17.58 | --- | --- |
| WTR YR 1998 | MEAN 17.47 | HIGHEST 16.57 FEB. 6, 7, 1998 | LOWEST 17.73 JULY 28-30, 1998 |       |       |       |       |       |       |       |     |     |



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182657066162701. Local number, SA-3.

LOCATION.--Lat 18°26'57", long 66°16'27", Hydrologic Unit 21010005, 20 ft north of San Antonio USGS # 1. Owner: US Geological Survey, WRD, Name: San Antonio No. 3.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-80.0 ft (0-24.4 m), screened 65-75.0 ft (19.8-22.9 m). Depth 80.0 ft (24.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 19.6 ft (6.00 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m), casing, 3.38 ft (1.03 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997.

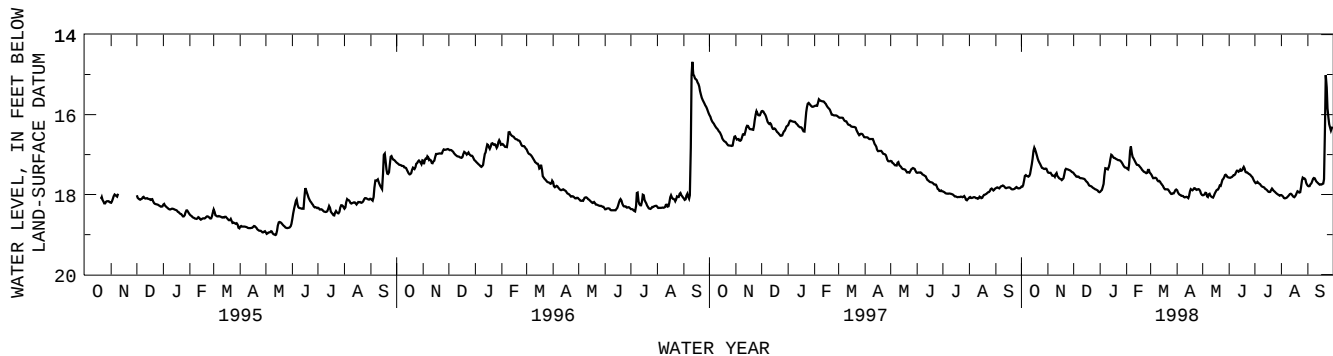
PERIOD OF RECORD.--October 19, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.95 ft (4.25 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 19.03 ft (5.80 m), below land-surface datum, May 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 17.81 | 17.44 | 17.45 | 17.94 | 17.33 | 17.46 | 17.87 | 18.01 | 17.57 | 17.68 | 18.01 | 17.77 |
| 2    | 17.79 | 17.45 | 17.48 | 17.92 | 17.35 | 17.49 | 17.92 | 18.03 | 17.58 | 17.70 | 18.02 | 17.79 |
| 3    | 17.81 | 17.46 | 17.51 | 17.89 | 17.37 | 17.52 | 17.97 | 18.00 | 17.58 | 17.73 | 18.03 | 17.79 |
| 4    | 17.72 | 17.45 | 17.53 | 17.88 | 17.38 | 17.58 | 18.00 | 18.00 | 17.56 | 17.68 | 18.07 | 17.78 |
| 5    | 17.57 | 17.46 | 17.56 | 17.76 | 17.10 | 17.60 | 18.01 | 17.91 | 17.56 | 17.68 | 18.10 | 17.71 |
| 6    | 17.50 | 17.52 | 17.55 | 17.71 | 16.71 | 17.58 | 18.02 | 18.01 | 17.52 | 17.73 | 18.09 | 17.73 |
| 7    | 17.53 | 17.54 | 17.54 | 17.34 | 16.89 | 17.58 | 18.04 | 18.08 | 17.51 | 17.72 | 18.09 | 17.61 |
| 8    | 17.54 | 17.52 | 17.57 | 17.34 | 17.04 | 17.58 | 18.02 | 18.04 | 17.52 | 17.76 | 18.07 | 17.60 |
| 9    | 17.54 | 17.54 | 17.59 | 17.35 | 17.08 | 17.62 | 18.05 | 17.95 | 17.47 | 17.78 | 18.05 | 17.57 |
| 10   | 17.56 | 17.57 | 17.59 | 17.36 | 17.11 | 17.67 | 18.07 | 18.01 | 17.41 | 17.80 | 18.03 | 17.62 |
| 11   | 17.51 | 17.40 | 17.59 | 17.38 | 17.16 | 17.66 | 18.07 | 18.04 | 17.40 | 17.81 | 18.00 | 17.66 |
| 12   | 17.46 | 17.52 | 17.60 | 17.24 | 17.20 | 17.66 | 18.05 | 18.06 | 17.41 | 17.81 | 17.98 | 17.68 |
| 13   | 17.29 | 17.55 | 17.60 | 17.23 | 17.24 | 17.69 | 18.06 | 18.07 | 17.44 | 17.84 | 17.98 | 17.71 |
| 14   | 17.19 | 17.57 | 17.61 | 17.01 | 17.27 | 17.74 | 18.08 | 18.08 | 17.38 | 17.87 | 18.01 | 17.72 |
| 15   | 17.03 | 17.61 | 17.63 | 17.00 | 17.25 | 17.75 | 18.10 | 17.99 | 17.37 | 17.87 | 18.04 | 17.76 |
| 16   | 16.78 | 17.60 | 17.67 | 17.04 | 17.28 | 17.78 | 17.97 | 17.96 | 17.44 | 17.90 | 18.06 | 17.75 |
| 17   | 16.87 | 17.63 | 17.68 | 17.08 | 17.31 | 17.83 | 17.86 | 17.91 | 17.35 | 17.92 | 18.07 | 17.74 |
| 18   | 16.90 | 17.65 | 17.70 | 17.08 | 17.32 | 17.87 | 17.87 | 17.88 | 17.33 | 17.94 | 18.02 | 17.76 |
| 19   | 16.99 | 17.59 | 17.76 | 17.09 | 17.37 | 17.87 | 17.89 | 17.88 | 17.28 | 17.93 | 17.99 | 17.71 |
| 20   | 17.08 | 17.59 | 17.78 | 17.11 | 17.39 | 17.87 | 17.90 | 17.87 | 17.41 | 17.93 | 17.92 | 17.74 |
| 21   | 17.13 | 17.42 | 17.78 | 17.12 | 17.42 | 17.87 | 17.85 | 17.78 | 17.45 | 17.85 | 17.91 | 17.49 |
| 22   | 17.19 | 17.35 | 17.79 | 17.13 | 17.43 | 17.87 | 17.83 | 17.77 | 17.44 | 17.85 | 17.95 | 15.13 |
| 23   | 17.22 | 17.36 | 17.81 | 17.15 | 17.44 | 17.91 | 17.86 | 17.79 | 17.45 | 17.90 | 17.95 | 14.90 |
| 24   | 17.26 | 17.37 | 17.83 | 17.13 | 17.46 | 17.94 | 17.89 | 17.64 | 17.48 | 17.91 | 17.93 | 15.74 |
| 25   | 17.33 | 17.37 | 17.84 | 17.16 | 17.47 | 17.97 | 17.88 | 17.62 | 17.49 | 17.93 | 17.72 | 15.95 |
| 26   | 17.33 | 17.39 | 17.86 | 17.17 | 17.44 | 18.00 | 17.86 | 17.60 | 17.50 | 17.96 | 17.58 | 16.22 |
| 27   | 17.35 | 17.39 | 17.87 | 17.20 | 17.33 | 17.97 | 17.87 | 17.53 | 17.54 | 17.97 | 17.57 | 16.26 |
| 28   | 17.36 | 17.41 | 17.88 | 17.25 | 17.44 | 17.97 | 17.88 | 17.50 | 17.54 | 18.00 | 17.62 | 16.41 |
| 29   | 17.36 | 17.43 | 17.89 | 17.28 | ---   | 17.97 | 17.94 | 17.51 | 17.59 | 18.00 | 17.57 | 16.39 |
| 30   | 17.34 | 17.44 | 17.91 | 17.32 | ---   | 17.90 | 18.01 | 17.55 | 17.63 | 18.03 | 17.68 | 16.28 |
| 31   | 17.37 | ---   | 17.94 | 17.32 | ---   | 17.88 | ---   | 17.57 | ---   | 18.02 | 17.73 | ---   |
| MEAN | 17.35 | 17.49 | 17.69 | 17.32 | 17.27 | 17.76 | 17.96 | 17.86 | 17.47 | 17.85 | 17.93 | 17.17 |

WTR YR 1998 MEAN 17.60 HIGHEST 14.51 SEPT. 22, 23, 1998 LOWEST 18.13 APR. 15, MAY 13, 1998



GROUND-WATER LEVELS  
RIO DE LA PLATA BASIN

182654066150600. Local number, TB-1.

LOCATION.--Lat 18°26'54", long 66°15'06", Hydrologic Unit 21010005, 0.92 mi southeast of the Dorado bridge, 0.66 mi east of Hwy 693, 0.09 mi north of the intersection of Hwy 165 with Hwy 867, and 0.01 mi east of Hwy 165. Owner: US Geological Survey, WRD, Name: Toa Baja TW-1.

AQUIFER.--Tertiary Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-165 ft (0-50.3 m), screened 25-165 ft (7.62-50.3 m). Depth 167 ft (50.9 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 7.00 ft (2.10 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor on top of 4 in (0.10 m) casing, 3.60 ft (1.10 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 25, 1997. Water levels affected by nearby pumping well.

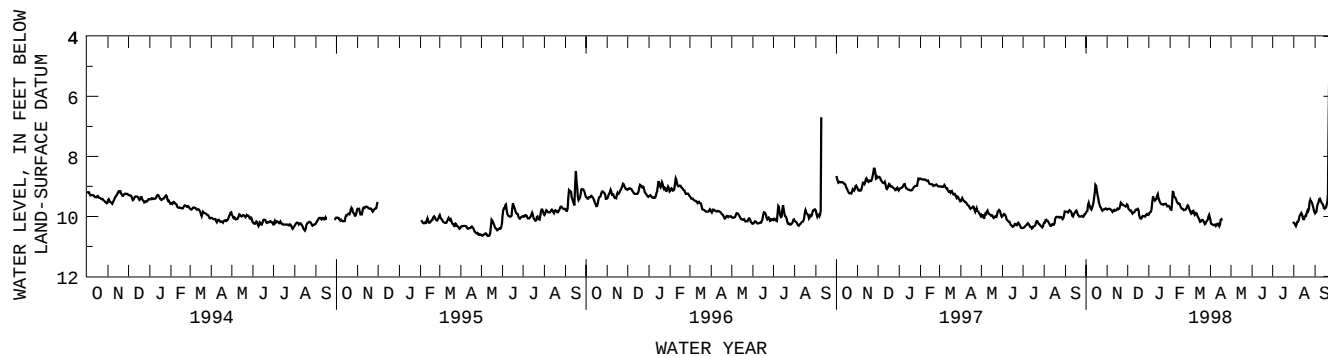
PERIOD OF RECORD.-- November 16, 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.04 ft (0.93 m), below land-surface datum, Sept. 10, 1996; lowest water level recorded, 10.68 ft (3.25 m), below land-surface datum May 3, 4, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC   | JAN  | FEB  | MAR   | APR   | MAY | JUN | JUL   | AUG   | SEP  |
|------|------|------|-------|------|------|-------|-------|-----|-----|-------|-------|------|
| 1    | 9.95 | 9.79 | 9.58  | 9.96 | 9.69 | 9.70  | 10.05 | --- | --- | ---   | 10.19 | 9.90 |
| 2    | 9.80 | 9.75 | 9.69  | 9.92 | 9.76 | 9.79  | 10.18 | --- | --- | ---   | 10.24 | 9.90 |
| 3    | 9.87 | 9.76 | 9.78  | 9.83 | 9.78 | 9.82  | 10.30 | --- | --- | ---   | 10.23 | 9.85 |
| 4    | 9.76 | 9.74 | 9.76  | 9.89 | 9.78 | 9.91  | 10.22 | --- | --- | ---   | 10.33 | 9.83 |
| 5    | 9.52 | 9.75 | 9.83  | 9.80 | 9.32 | 9.92  | 10.31 | --- | --- | ---   | 10.31 | 9.55 |
| 6    | 9.58 | 9.75 | 9.81  | 9.72 | 9.05 | 9.85  | 10.26 | --- | --- | ---   | 10.19 | 9.63 |
| 7    | 9.66 | 9.78 | 9.81  | 9.31 | 9.33 | 9.79  | 10.32 | --- | --- | ---   | 10.18 | 9.43 |
| 8    | 9.70 | 9.80 | 9.92  | 9.36 | 9.37 | 9.83  | 10.24 | --- | --- | ---   | 10.18 | 9.43 |
| 9    | 9.78 | 9.81 | 9.90  | 9.43 | 9.36 | 9.93  | 10.31 | --- | --- | ---   | 10.09 | 9.39 |
| 10   | 9.76 | 9.89 | 9.88  | 9.45 | 9.42 | 9.97  | 10.34 | --- | --- | ---   | 9.94  | 9.51 |
| 11   | 9.65 | 9.74 | 9.86  | 9.49 | 9.49 | 9.90  | 10.27 | --- | --- | ---   | 9.96  | 9.52 |
| 12   | 9.63 | 9.83 | 9.85  | 9.38 | 9.53 | 9.88  | 10.24 | --- | --- | ---   | 9.89  | 9.60 |
| 13   | 9.43 | 9.79 | 9.76  | 9.47 | 9.58 | 9.93  | 10.24 | --- | --- | ---   | 9.88  | 9.57 |
| 14   | 9.31 | 9.79 | 9.78  | 9.17 | 9.58 | 10.03 | 10.30 | --- | --- | ---   | 10.00 | 9.68 |
| 15   | 9.06 | 9.81 | 9.76  | 9.35 | 9.55 | 10.03 | 10.35 | --- | --- | ---   | 10.07 | 9.77 |
| 16   | 8.84 | 9.72 | 9.80  | 9.41 | 9.62 | 10.10 | 10.17 | --- | --- | ---   | 10.12 | 9.73 |
| 17   | 9.13 | 9.76 | 9.71  | 9.50 | 9.69 | 10.16 | 10.06 | --- | --- | ---   | 10.06 | 9.70 |
| 18   | 9.23 | 9.77 | 9.89  | 9.53 | 9.72 | 10.20 | 10.12 | --- | --- | ---   | 9.96  | 9.70 |
| 19   | 9.34 | 9.72 | 10.05 | 9.58 | 9.76 | 10.14 | 10.17 | --- | --- | ---   | 9.99  | 9.52 |
| 20   | 9.48 | 9.74 | 10.06 | 9.59 | 9.73 | 10.12 | ---   | --- | --- | ---   | 9.98  | 9.50 |
| 21   | 9.59 | 9.54 | 10.09 | 9.60 | 9.78 | 10.11 | ---   | --- | --- | ---   | 9.77  | 9.03 |
| 22   | 9.65 | 9.54 | 10.06 | 9.60 | 9.80 | 10.14 | ---   | --- | --- | ---   | 9.83  | 4.27 |
| 23   | 9.70 | 9.60 | 9.97  | 9.62 | 9.77 | 10.19 | ---   | --- | --- | ---   | 9.82  | 4.68 |
| 24   | 9.73 | 9.61 | 10.00 | 9.56 | 9.79 | 10.24 | ---   | --- | --- | ---   | 9.68  | 4.70 |
| 25   | 9.82 | 9.61 | 9.98  | 9.62 | 9.74 | 10.28 | ---   | --- | --- | ---   | 9.39  | 7.95 |
| 26   | 9.80 | 9.64 | 10.00 | 9.55 | 9.71 | 10.20 | ---   | --- | --- | ---   | 9.50  | 8.35 |
| 27   | 9.76 | 9.64 | 10.02 | 9.61 | 9.60 | 10.17 | ---   | --- | --- | ---   | 9.50  | 8.48 |
| 28   | 9.77 | 9.68 | 9.98  | 9.66 | 9.66 | 10.12 | ---   | --- | --- | ---   | 9.55  | 8.61 |
| 29   | 9.76 | 9.66 | 9.90  | 9.67 | ---  | 10.11 | ---   | --- | --- | ---   | 9.59  | 8.65 |
| 30   | 9.74 | 9.62 | 9.94  | 9.63 | ---  | 9.92  | ---   | --- | --- | ---   | 9.75  | 8.65 |
| 31   | 9.73 | ---  | 9.95  | 9.67 | ---  | 9.99  | ---   | --- | --- | 10.16 | 9.79  | ---  |
| MEAN | 9.60 | 9.72 | 9.88  | 9.58 | 9.61 | 10.02 | 10.23 | --- | --- | 10.16 | 9.93  | 8.87 |

WTR YR 1998 MEAN 9.70 HIGHEST 4.04 SEPT. 22, 1998 LOWEST 10.42 APR. 15, 1998



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182530066135400. Local number, 216.

LOCATION.--Lat 18°25'30", long 66°13'54", Hydrologic Unit 21010005, 2.61 mi northeast of Toa Alta plaza, 2.73 mi southwest of Sabana Seca U.S. Naval Radio Station, and 1.76 mi southeast of Hwy 2 km 17.7. Owner: PR Aqueduct and Sewer Authority, Name: Pozo Navy-Campanillas.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m) 0-106 ft (0-32.3 m), cased 16 in (0.41 m) 0-20 ft (0-6.10 m), cased 12 in (0.30 m) 0-106 ft (0-32.3 m), perforated 20-106 ft (6.10-32.3 m), diameter 10 in (0.25 m) 106-140 ft (32.3-42.7 m), cased 10 in (0.25 m) 106-140 ft (32.3-42.7 m), perforated 106-140 ft (32.3-42.7 m). Depth 140 ft (42.7 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 13.0 ft (3.96 m), above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.80 ft (0.55 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 6, 1998. Water levels affected by nearby pumping well.

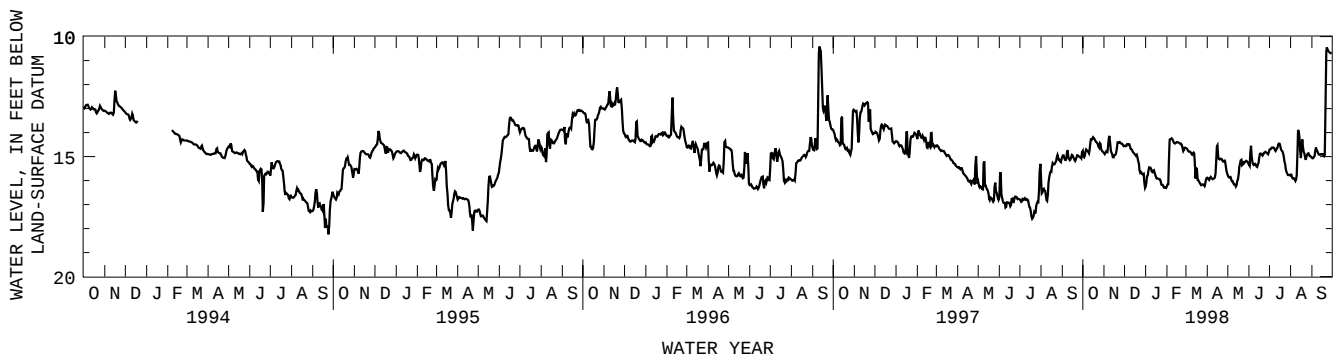
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.38 ft (2.86 m), below land-surface datum, June 23, 1987; lowest water level recorded, 18.40 ft (5.61 m), below land-surface datum, Sept. 24, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 14.52 | 14.84 | 14.57 | 16.16 | 16.31 | 14.63 | 15.90 | 15.73 | 15.30 | 14.74 | 15.81 | 15.04 |
| 2    | 15.00 | 14.86 | 14.55 | 16.33 | 16.14 | 14.66 | 15.86 | 15.83 | 15.37 | 14.69 | 15.70 | 15.07 |
| 3    | 14.98 | 14.93 | 14.54 | 15.86 | 16.18 | 14.66 | 15.93 | 15.85 | 15.41 | 14.71 | 15.81 | 15.07 |
| 4    | 15.09 | 14.76 | 14.60 | 15.79 | 16.13 | 14.71 | 15.97 | 15.89 | 14.33 | 14.66 | 15.90 | 15.06 |
| 5    | 14.87 | 14.82 | 14.49 | 15.80 | 14.34 | 14.82 | 15.98 | 15.82 | 14.77 | 14.60 | 15.93 | 14.97 |
| 6    | 14.71 | 14.82 | 14.47 | 15.45 | 14.26 | 14.77 | 15.81 | 15.87 | 15.16 | 14.64 | 15.88 | 14.98 |
| 7    | 14.70 | 14.81 | 14.49 | 15.47 | 14.28 | 14.80 | 15.88 | 15.99 | 15.28 | 14.63 | 15.95 | 14.51 |
| 8    | 14.77 | 14.39 | 14.51 | 15.47 | 14.26 | 14.80 | 15.88 | 16.05 | 15.33 | 14.62 | 15.98 | 14.74 |
| 9    | 14.77 | 14.12 | 14.47 | 15.46 | 14.22 | 14.86 | 15.96 | 15.99 | 15.38 | 14.68 | 16.05 | 14.71 |
| 10   | 14.83 | 14.15 | 14.65 | 15.59 | 14.30 | 14.92 | 15.92 | 16.19 | 15.30 | 14.77 | 15.84 | 14.81 |
| 11   | 14.89 | 14.69 | 14.71 | 15.66 | 14.37 | 14.92 | 15.93 | 16.13 | 15.31 | 14.77 | 15.70 | 14.89 |
| 12   | 14.59 | 14.81 | 14.67 | 15.64 | 14.44 | 14.80 | 15.90 | 16.19 | 15.37 | 14.64 | 13.85 | 14.91 |
| 13   | 14.29 | 14.85 | 14.77 | 15.55 | 14.46 | 14.87 | 15.86 | 16.16 | 15.45 | 14.68 | 13.93 | 14.93 |
| 14   | 14.29 | 14.96 | 14.83 | 15.58 | 14.46 | 14.87 | 15.60 | 16.34 | 15.41 | 14.52 | 14.03 | 14.93 |
| 15   | 14.32 | 15.08 | 14.84 | 15.76 | 14.40 | 15.88 | 14.97 | 16.05 | 15.27 | 14.45 | 14.50 | 14.87 |
| 16   | 14.20 | 14.98 | 14.88 | 15.76 | 14.40 | 15.95 | 14.19 | 16.00 | 15.27 | 14.46 | 15.07 | 14.92 |
| 17   | 14.19 | 14.92 | 14.93 | 15.94 | 14.40 | 15.02 | 14.88 | 15.89 | 14.88 | 14.47 | 15.06 | 14.90 |
| 18   | 14.26 | 14.95 | 14.92 | 15.89 | 14.40 | 15.98 | 15.11 | 15.53 | 14.89 | 14.69 | 14.14 | 14.91 |
| 19   | 14.27 | 14.88 | 15.01 | 15.93 | 14.43 | 15.96 | 15.10 | 15.32 | 14.86 | 14.72 | 14.43 | 14.95 |
| 20   | 14.37 | 14.77 | 14.84 | 15.91 | 14.43 | 16.00 | 15.14 | 15.25 | 14.92 | 14.79 | 14.71 | 15.01 |
| 21   | 14.38 | 14.44 | 15.19 | 15.94 | 14.46 | 16.10 | 15.09 | 15.07 | 14.94 | 14.80 | 14.88 | 14.85 |
| 22   | 14.42 | 14.37 | 15.16 | 15.94 | 14.50 | 16.10 | 15.09 | 15.21 | 14.98 | 14.93 | 14.86 | 10.85 |
| 23   | 14.45 | 14.44 | 15.44 | 15.96 | 14.45 | 16.19 | 15.12 | 15.51 | 14.84 | 15.14 | 15.15 | 10.37 |
| 24   | 14.52 | 14.38 | 15.69 | 16.14 | 14.60 | 16.19 | 15.19 | 15.14 | 14.85 | 15.26 | 15.12 | 10.52 |
| 25   | 14.64 | 14.41 | 15.66 | 16.20 | 14.74 | 16.16 | 15.22 | 15.35 | 14.80 | 15.39 | 14.94 | 10.56 |
| 26   | 14.62 | 14.46 | 15.62 | 16.16 | 14.79 | 16.16 | 15.19 | 15.19 | 14.80 | 15.67 | 14.92 | 10.62 |
| 27   | 14.26 | 14.46 | 15.72 | 16.21 | 14.62 | 16.16 | 15.15 | 15.25 | 14.84 | 15.63 | 14.84 | 10.65 |
| 28   | 14.69 | 14.46 | 15.73 | 16.29 | 14.64 | 16.22 | 15.19 | 15.16 | 14.87 | 15.77 | 14.88 | 10.67 |
| 29   | 14.72 | 14.50 | 15.76 | 16.30 | ---   | 16.25 | 15.54 | 15.19 | 14.88 | 15.76 | 14.95 | 10.69 |
| 30   | 14.79 | 14.57 | 15.68 | 16.28 | ---   | 16.04 | 15.65 | 15.19 | 14.92 | 15.77 | 15.02 | 10.70 |
| 31   | 14.79 | ---   | 16.45 | 16.32 | ---   | 15.90 | ---   | 15.25 | ---   | 15.76 | 14.97 | ---   |
| MEAN | 14.59 | 14.66 | 15.03 | 15.89 | 14.69 | 15.46 | 15.47 | 15.66 | 15.07 | 14.93 | 15.12 | 13.62 |

WTR YR 1998 MEAN 15.02 HIGHEST 10.36 SEPT. 23, 1998 LOWEST 16.45 DEC. 31, 1997



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182655066142400. Local number, 217.

LOCATION.--Lat 18°26'55", long 66°14'24", Hydrologic Unit 21010005, 4.00 mi northeast of Toa Alta plaza, 3.40 mi northwest of Hwy 2 km 17.7, and 3.49 mi northwest of Sabana Seca US Naval Radio Station. Owner: US Geological Survey, WRD, Name: Monserrate TW-2.

AQUIFER.--Alluvial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-80.0 ft (0-24.4 m), perforated 10-80 ft (3.05-24.4 m). Depth 80.0 ft (24.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 3.30 ft (1.00 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.50 ft (1.07 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 6, 1997.

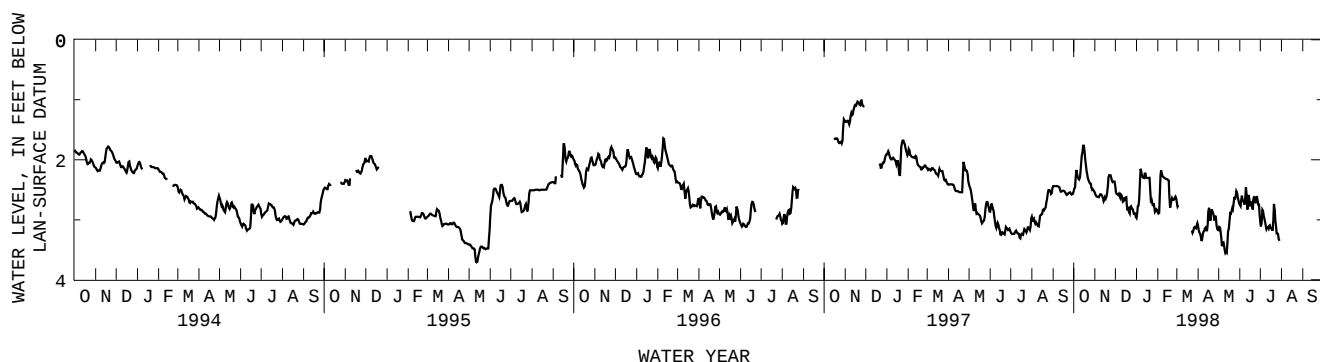
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.02 ft (0.006 m), below land-surface datum, May 16, 1986; lowest water level recorded, 3.72 ft (1.13 m), below land-surface datum, May 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| 1    | 2.56 | 2.53 | 2.37 | 2.97 | 2.85 | 2.65 | 3.08 | 3.16 | 2.73 | 3.03 | --- | --- |
| 2    | 2.48 | 2.57 | 2.53 | 2.97 | 2.91 | 2.77 | 3.14 | 3.19 | 2.77 | 3.07 | --- | --- |
| 3    | 2.48 | 2.60 | 2.55 | 2.79 | 2.88 | 2.79 | 3.21 | 3.05 | 2.77 | 3.15 | --- | --- |
| 4    | 2.44 | 2.61 | 2.59 | 2.75 | 2.89 | 2.74 | 3.22 | 3.21 | 2.59 | 2.94 | --- | --- |
| 5    | 2.17 | 2.62 | 2.57 | 2.77 | 2.38 | ---  | 3.24 | 3.19 | 2.61 | 2.73 | --- | --- |
| 6    | 2.17 | 2.61 | 2.60 | 2.55 | 2.15 | ---  | 3.32 | 3.43 | 2.71 | 2.98 | --- | --- |
| 7    | 2.28 | 2.63 | 2.53 | 2.16 | 2.20 | ---  | 3.39 | 3.45 | 2.68 | 2.90 | --- | --- |
| 8    | 2.30 | 2.62 | 2.67 | 2.14 | 2.27 | ---  | 3.26 | 3.33 | 2.73 | 3.05 | --- | --- |
| 9    | 2.33 | 2.57 | 2.59 | 2.27 | 2.28 | ---  | 3.20 | 3.43 | 2.76 | 3.03 | --- | --- |
| 10   | 2.33 | 2.58 | 2.56 | 2.28 | 2.29 | ---  | 3.20 | 3.43 | 2.47 | 3.16 | --- | --- |
| 11   | 2.27 | 2.57 | 2.62 | 2.29 | 2.30 | ---  | 3.17 | 3.60 | 2.45 | 3.15 | --- | --- |
| 12   | 2.15 | 2.61 | 2.66 | 2.31 | 2.31 | ---  | 3.12 | 3.51 | 2.75 | 3.10 | --- | --- |
| 13   | 1.95 | 2.61 | 2.74 | 2.30 | 2.32 | ---  | 3.14 | 3.56 | 2.91 | 3.14 | --- | --- |
| 14   | 1.91 | 2.67 | 2.64 | 2.16 | 2.32 | ---  | 3.18 | 3.54 | 2.68 | 3.15 | --- | --- |
| 15   | 1.82 | 2.71 | 2.66 | 2.30 | 2.32 | ---  | 3.20 | 3.19 | 2.49 | 3.05 | --- | --- |
| 16   | 1.71 | 2.62 | 2.65 | 2.30 | 2.33 | ---  | 2.95 | 3.20 | 2.83 | 3.13 | --- | --- |
| 17   | 1.82 | 2.63 | 2.61 | 2.30 | 2.34 | ---  | 2.78 | 3.10 | 2.72 | 3.15 | --- | --- |
| 18   | 1.94 | 2.66 | 2.64 | 2.31 | 2.35 | ---  | 2.82 | 2.90 | 2.72 | 3.14 | --- | --- |
| 19   | 2.05 | 2.56 | 2.90 | 2.30 | 2.84 | ---  | 3.03 | 2.88 | 2.70 | 3.15 | --- | --- |
| 20   | 2.15 | 2.54 | 2.79 | 2.30 | 2.76 | ---  | 3.00 | 2.91 | 2.85 | 3.21 | --- | --- |
| 21   | 2.22 | 2.34 | 2.78 | 2.30 | 2.73 | ---  | 2.82 | 2.81 | 2.81 | 2.76 | --- | --- |
| 22   | 2.29 | 2.25 | 2.96 | 2.66 | 2.63 | ---  | 2.83 | 2.80 | 2.49 | 2.71 | --- | --- |
| 23   | 2.33 | 2.26 | 2.83 | 2.71 | 2.65 | 3.14 | 2.90 | 2.85 | 2.73 | 2.96 | --- | --- |
| 24   | 2.36 | 2.26 | 2.74 | 2.63 | 2.69 | 3.22 | 2.87 | 2.59 | 2.68 | 3.07 | --- | --- |
| 25   | 2.39 | 2.26 | 2.81 | 2.81 | 2.65 | 3.21 | 3.03 | 2.65 | 2.74 | 3.15 | --- | --- |
| 26   | 2.40 | 2.33 | 2.81 | 2.73 | 2.67 | 3.16 | 2.99 | 2.67 | 2.60 | 3.31 | --- | --- |
| 27   | 2.40 | 2.37 | 2.82 | 2.72 | 2.59 | 3.12 | 2.87 | 2.53 | 2.61 | 3.15 | --- | --- |
| 28   | 2.53 | 2.37 | 2.86 | 2.87 | 2.64 | 3.12 | 3.05 | 2.52 | 2.76 | 3.32 | --- | --- |
| 29   | 2.47 | 2.36 | 2.94 | 2.87 | ---  | 3.14 | 3.13 | 2.59 | 2.74 | 3.33 | --- | --- |
| 30   | 2.51 | 2.36 | 2.85 | 2.83 | ---  | 3.14 | 3.18 | 2.64 | 2.76 | 3.37 | --- | --- |
| 31   | 2.51 | ---  | 2.94 | 2.82 | ---  | 3.04 | ---  | 2.71 | ---  | ---  | --- | --- |
| MEAN | 2.25 | 2.51 | 2.70 | 2.53 | 2.52 | 3.02 | 3.08 | 3.05 | 2.69 | 3.08 | --- | --- |

WTR YR 1998 MEAN 2.73 HIGHEST 1.71 OCT. 16, 1997 LOWEST 3.64 MAY 11, 1998



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182441066082600. Local number, 219.

LOCATION.--Lat 18°24'41", long 66°08'26", Hydrologic Unit 21010005, 0.47 mi west of Fort Buchanan Military Res. main gate, 1.74 mi northeast of Bayamón plaza, and 1.88 mi southwest of PR National Cemetery. Owner: US Department of Defense, Name: Buchanan Park No. 1.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 10 in (0.25 m), cased 10 in (0.25 m) 0-270 ft (0-82.3 m), perforated 46-685 ft (14.0-20.7 m), 88-120 ft (26.8-36.6 m), 160-191 ft (48.8-58.2 m), 240-270 ft (73.2-82.3 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 66.0 ft (20.1 m), above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.75 ft (0.23 m), above land-surface datum. Prior June 30, 1986, top of shelter floor, 3.59 ft (1.09 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on January 28, 1998.

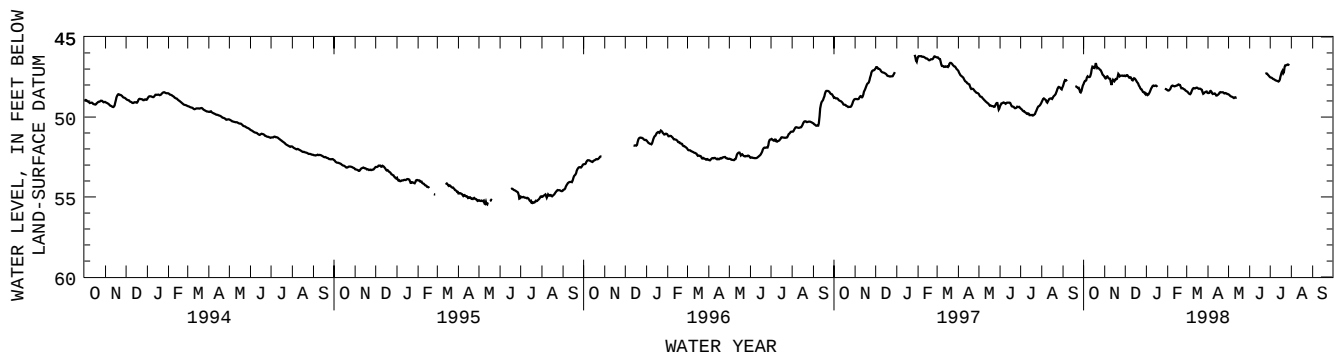
PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.9 ft (10.7 m), below land-surface datum, Nov. 12, 13, 14, 1989; lowest water level recorded, 55.67 ft (17.0 m), below land-surface datum, May 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| 1    | 47.97 | 47.48 | 47.42 | 48.56 | 48.32 | 48.38 | 48.55 | 48.57 | ---   | 47.50 | --- | --- |
| 2    | 47.90 | 47.57 | 47.48 | 48.53 | 48.35 | 48.40 | 48.45 | 48.60 | ---   | 47.53 | --- | --- |
| 3    | 47.77 | 47.62 | 47.40 | 48.61 | 48.34 | 48.43 | 48.56 | 48.63 | ---   | 47.54 | --- | --- |
| 4    | 47.72 | 47.53 | 47.37 | 48.63 | 48.33 | 48.51 | 48.42 | 48.68 | ---   | 47.54 | --- | --- |
| 5    | 47.78 | 47.42 | 47.41 | 48.55 | 48.27 | 48.54 | 48.36 | 48.71 | ---   | 47.61 | --- | --- |
| 6    | 47.62 | 47.51 | 47.45 | 48.50 | 48.22 | 48.60 | 48.38 | 48.72 | ---   | 47.63 | --- | --- |
| 7    | 47.44 | 47.56 | 47.54 | 48.36 | 48.08 | 48.55 | 48.47 | 48.75 | ---   | 47.64 | --- | --- |
| 8    | 47.47 | 47.59 | 47.54 | 48.26 | 48.05 | 48.49 | 48.57 | 48.76 | ---   | 47.67 | --- | --- |
| 9    | 47.51 | 47.65 | 47.49 | 48.17 | 48.03 | 48.33 | 48.57 | 48.83 | ---   | 47.71 | --- | --- |
| 10   | 47.50 | 47.58 | 47.54 | 48.11 | 48.06 | 48.26 | 48.54 | 48.79 | ---   | 47.72 | --- | --- |
| 11   | 47.48 | 48.11 | 47.65 | 48.04 | 48.08 | 48.19 | 48.54 | 48.76 | ---   | 47.74 | --- | --- |
| 12   | 47.38 | 47.89 | 47.72 | 48.04 | 48.08 | 48.19 | 48.52 | 48.78 | ---   | 47.75 | --- | --- |
| 13   | 47.15 | 47.69 | 47.70 | 48.07 | 48.07 | 48.22 | 48.64 | 48.80 | ---   | 47.77 | --- | --- |
| 14   | 46.91 | 47.67 | 47.57 | 48.05 | 48.04 | 48.21 | 48.67 | 48.77 | ---   | 47.80 | --- | --- |
| 15   | 46.78 | 47.77 | 47.58 | 48.02 | 48.03 | 48.17 | 48.65 | ---   | ---   | 47.73 | --- | --- |
| 16   | 46.95 | 47.78 | 47.62 | 48.06 | 48.02 | 48.16 | 48.60 | ---   | ---   | 47.59 | --- | --- |
| 17   | 46.91 | 47.64 | 47.69 | 48.08 | 47.95 | 48.17 | 48.59 | ---   | ---   | 47.40 | --- | --- |
| 18   | 46.97 | 47.62 | 47.75 | 48.17 | 47.99 | 48.22 | 48.52 | ---   | ---   | 47.24 | --- | --- |
| 19   | 46.67 | 47.66 | 47.83 | ---   | 47.99 | 48.24 | 48.43 | ---   | ---   | 47.16 | --- | --- |
| 20   | 46.60 | 47.58 | 47.89 | ---   | 48.02 | 48.25 | 48.46 | ---   | ---   | 47.07 | --- | --- |
| 21   | 47.00 | 47.35 | 47.92 | ---   | 48.16 | 48.21 | 48.45 | ---   | ---   | 47.47 | --- | --- |
| 22   | 46.89 | 47.26 | 48.14 | ---   | 48.25 | 48.26 | 48.46 | ---   | ---   | 46.95 | --- | --- |
| 23   | 46.95 | 47.47 | 48.08 | ---   | 48.17 | 48.29 | 48.45 | ---   | ---   | 46.80 | --- | --- |
| 24   | 46.95 | 47.44 | 48.30 | ---   | 48.23 | 48.32 | 48.47 | ---   | 47.32 | 46.76 | --- | --- |
| 25   | 47.01 | 47.41 | 48.23 | ---   | 48.26 | 48.55 | 48.52 | ---   | 47.28 | 46.77 | --- | --- |
| 26   | 47.07 | 47.44 | 48.32 | ---   | 48.26 | 48.56 | 48.53 | ---   | 47.28 | 46.76 | --- | --- |
| 27   | 47.08 | 47.39 | 48.40 | ---   | 48.31 | 48.49 | 48.51 | ---   | 47.29 | 46.70 | --- | --- |
| 28   | 47.21 | 47.44 | 48.47 | 48.23 | 48.37 | 48.45 | 48.50 | ---   | 47.36 | 46.73 | --- | --- |
| 29   | 47.31 | 47.44 | 48.43 | 48.25 | ---   | 48.44 | 48.56 | ---   | 47.40 | 46.75 | --- | --- |
| 30   | 47.39 | 47.41 | 48.47 | 48.26 | ---   | 48.41 | 48.56 | ---   | 47.44 | 46.77 | --- | --- |
| 31   | 47.40 | ---   | 48.64 | 48.27 | ---   | 48.40 | ---   | ---   | ---   | ---   | --- | --- |
| MEAN | 47.25 | 47.57 | 47.84 | 48.26 | 48.15 | 48.35 | 48.52 | 48.73 | 47.34 | 47.33 | --- | --- |

WTR YR 1998 MEAN 47.92 HIGHEST 46.55 OCT. 15, 1997 LOWEST 48.83 MAY 10, 1998



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182531066075900. Local number, 652.

LOCATION.--Lat 18°25'31", long 66°07'59", Hydrologic Unit 21010005, 0.07 mi north of Hwy 22, 0.32 mi southwest of the intersection of Hwy 165 with Hwy 28, and 1.40 mi south of the Cataño ferry building. Owner: US Geological Survey, WRD, Name: USGS Building 652.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 0-192 ft (0-58.5 m). Depth 192 ft (58.5 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of the 4.0 in (0.10 m) casing, 3.27 ft (1.00 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 14, 1997. Water level affected by marine tides.

PERIOD OF RECORD.--May 14, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.20 ft (1.89 m), below land-surface datum, May 26, 1998; lowest water level recorded, 9.02 ft (2.75 m), below land-surface datum, Dec. 13, 14, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| 1    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.64 | 8.70 | 8.18 | 7.96 |
| 2    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.67 | 8.63 | 7.83 | 7.90 |
| 3    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.60 | 8.62 | 7.61 | 7.59 |
| 4    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.50 | 8.40 | 7.52 | 7.17 |
| 5    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.40 | 8.39 | 7.59 | 7.03 |
| 6    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.43 | 8.09 | 7.71 | 6.97 |
| 7    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.33 | 8.19 | 7.80 | 7.00 |
| 8    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.35 | 7.99 | 7.80 | 7.14 |
| 9    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.42 | 7.95 | 7.90 | 7.39 |
| 10   | --- | --- | --- | --- | --- | --- | --- | ---  | 8.39 | 8.00 | 7.98 | 7.75 |
| 11   | --- | --- | --- | --- | --- | --- | --- | ---  | 8.44 | 8.13 | 7.93 | 8.02 |
| 12   | --- | --- | --- | --- | --- | --- | --- | ---  | 8.46 | 8.21 | 8.13 | 8.17 |
| 13   | --- | --- | --- | --- | --- | --- | --- | ---  | 8.51 | 8.21 | 8.15 | 8.10 |
| 14   | --- | --- | --- | --- | --- | --- | --- | ---  | 8.56 | 8.27 | 8.32 | 8.22 |
| 15   | --- | --- | --- | --- | --- | --- | --- | 8.81 | 8.68 | 8.43 | 8.31 | 7.81 |
| 16   | --- | --- | --- | --- | --- | --- | --- | 8.77 | 8.69 | 8.46 | 8.39 | 7.88 |
| 17   | --- | --- | --- | --- | --- | --- | --- | 8.68 | 8.81 | 8.47 | 8.19 | 7.68 |
| 18   | --- | --- | --- | --- | --- | --- | --- | 8.86 | 8.91 | 8.31 | 7.94 | 7.53 |
| 19   | --- | --- | --- | --- | --- | --- | --- | 8.81 | 8.80 | 8.11 | 7.36 | 7.55 |
| 20   | --- | --- | --- | --- | --- | --- | --- | 8.75 | 8.56 | 7.90 | 7.15 | 7.63 |
| 21   | --- | --- | --- | --- | --- | --- | --- | 8.62 | 8.30 | 7.55 | 7.06 | 7.69 |
| 22   | --- | --- | --- | --- | --- | --- | --- | 8.36 | 8.08 | 7.49 | 7.39 | 7.82 |
| 23   | --- | --- | --- | --- | --- | --- | --- | 8.29 | 7.91 | 7.47 | 7.67 | 7.83 |
| 24   | --- | --- | --- | --- | --- | --- | --- | 8.21 | 7.81 | 7.61 | 7.70 | 7.98 |
| 25   | --- | --- | --- | --- | --- | --- | --- | 8.13 | 7.84 | 7.72 | 7.93 | 7.89 |
| 26   | --- | --- | --- | --- | --- | --- | --- | 8.06 | 7.98 | 7.72 | 8.13 | 7.91 |
| 27   | --- | --- | --- | --- | --- | --- | --- | 8.11 | 7.98 | 7.97 | 8.26 | 7.90 |
| 28   | --- | --- | --- | --- | --- | --- | --- | 8.19 | 8.29 | 8.26 | 8.33 | 7.81 |
| 29   | --- | --- | --- | --- | --- | --- | --- | 8.37 | 8.50 | 8.32 | 8.32 | 7.74 |
| 30   | --- | --- | --- | --- | --- | --- | --- | 8.54 | 8.64 | 8.38 | 8.23 | 7.66 |
| 31   | --- | --- | --- | --- | --- | --- | --- | 8.64 | ---  | 8.20 | 8.05 | ---  |
| MEAN | --- | --- | --- | --- | --- | --- | --- | 8.48 | 8.42 | 8.13 | 7.90 | 7.69 |

WTR YR 1997 MEAN 8.09 HIGHEST 6.96 SEPT. 6, 7, 1997 LOWEST 8.95 JUNE 18, 1997

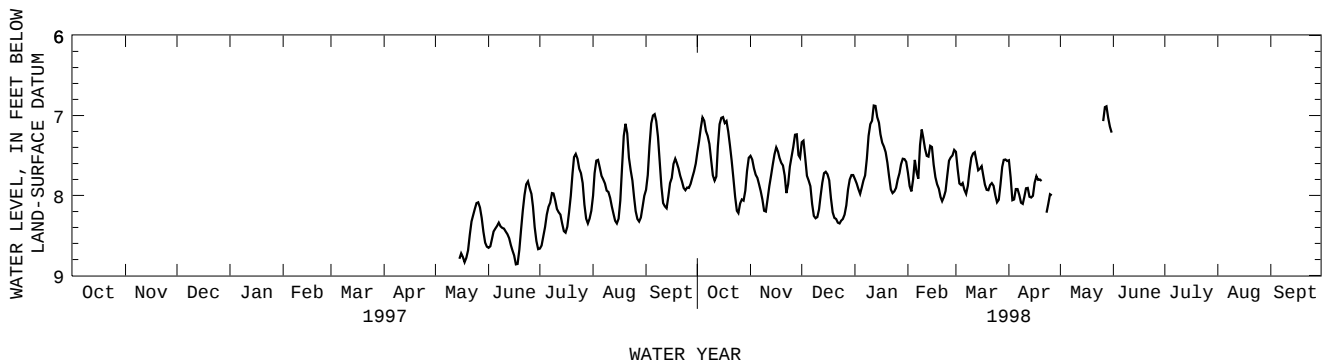
## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| 1    | 7.54 | 7.51 | 7.41 | 7.78 | 7.63 | 7.38 | 7.57 | ---  | 7.33 | --- | --- | --- |
| 2    | 7.39 | 7.50 | 7.26 | 7.81 | 7.80 | 7.53 | 7.55 | ---  | ---  | --- | --- | --- |
| 3    | 7.26 | 7.60 | 7.37 | 7.89 | 7.97 | 7.81 | 8.00 | ---  | ---  | --- | --- | --- |
| 4    | 7.06 | 7.72 | 7.69 | 7.95 | 7.93 | 7.89 | 8.12 | ---  | ---  | --- | --- | --- |
| 5    | 6.99 | 7.76 | 7.82 | 8.01 | 7.67 | 7.85 | 7.98 | ---  | ---  | --- | --- | --- |
| 6    | 7.14 | 7.80 | 7.81 | 7.80 | 7.44 | 7.84 | 7.86 | ---  | ---  | --- | --- | --- |
| 7    | 7.25 | 7.91 | 7.96 | 7.83 | 7.98 | 8.02 | 7.98 | ---  | ---  | --- | --- | --- |
| 8    | 7.26 | 7.98 | 8.25 | 7.67 | 7.60 | 7.94 | 8.01 | ---  | ---  | --- | --- | --- |
| 9    | 7.45 | 8.12 | 8.26 | 7.41 | 7.14 | 7.82 | 8.17 | ---  | ---  | --- | --- | --- |
| 10   | 7.66 | 8.26 | 8.31 | 7.10 | 7.21 | 7.55 | 8.04 | ---  | ---  | --- | --- | --- |
| 11   | 7.84 | 8.14 | 8.23 | 7.12 | 7.35 | 7.51 | 8.00 | ---  | ---  | --- | --- | --- |
| 12   | 7.79 | 7.95 | 8.12 | 7.01 | 7.48 | 7.44 | 7.82 | ---  | ---  | --- | --- | --- |
| 13   | 7.74 | 7.82 | 7.90 | 6.74 | 7.53 | 7.48 | 7.99 | ---  | ---  | --- | --- | --- |
| 14   | 7.04 | 7.69 | 7.78 | 7.02 | 7.50 | 7.66 | 8.04 | ---  | ---  | --- | --- | --- |
| 15   | 7.18 | 7.54 | 7.66 | 7.02 | 7.26 | 7.71 | 8.01 | ---  | ---  | --- | --- | --- |
| 16   | 6.88 | 7.43 | 7.75 | 7.16 | 7.53 | 7.62 | 8.00 | ---  | ---  | --- | --- | --- |
| 17   | 7.16 | 7.37 | 7.72 | 7.31 | 7.70 | 7.65 | 7.68 | ---  | ---  | --- | --- | --- |
| 18   | 7.03 | 7.53 | 7.90 | 7.37 | 7.84 | 7.84 | 7.84 | ---  | ---  | --- | --- | --- |
| 19   | 7.11 | 7.53 | 8.17 | 7.41 | 7.88 | 7.89 | 7.77 | ---  | ---  | --- | --- | --- |
| 20   | 7.29 | 7.65 | 8.25 | 7.51 | 7.95 | 7.97 | 7.83 | ---  | ---  | --- | --- | --- |
| 21   | 7.46 | 7.60 | 8.31 | 7.67 | 8.09 | 7.90 | 7.81 | ---  | ---  | --- | --- | --- |
| 22   | 7.67 | 7.90 | 8.28 | 7.86 | 8.05 | 7.84 | ---  | ---  | ---  | --- | --- | --- |
| 23   | 7.90 | 8.04 | 8.40 | 7.99 | 7.99 | 7.85 | 8.25 | ---  | ---  | --- | --- | --- |
| 24   | 8.13 | 7.68 | 8.30 | 7.95 | 7.90 | 7.91 | 8.18 | ---  | ---  | --- | --- | --- |
| 25   | 8.25 | 7.60 | 8.33 | 7.95 | 7.60 | 8.08 | 8.03 | ---  | ---  | --- | --- | --- |
| 26   | 8.19 | 7.43 | 8.26 | 7.86 | 7.53 | 8.09 | 7.94 | 7.24 | ---  | --- | --- | --- |
| 27   | 8.01 | 7.35 | 8.22 | 7.74 | 7.52 | 8.02 | 8.06 | 6.90 | ---  | --- | --- | --- |
| 28   | 8.09 | 7.13 | 8.03 | 7.70 | 7.48 | 7.71 | ---  | 6.89 | ---  | --- | --- | --- |
| 29   | 8.04 | 7.34 | 7.82 | 7.52 | ---  | 7.58 | ---  | 6.88 | ---  | --- | --- | --- |
| 30   | 7.84 | 7.65 | 7.78 | 7.56 | ---  | 7.53 | ---  | 7.18 | ---  | --- | --- | --- |
| 31   | 7.55 | ---  | 7.71 | 7.53 | ---  | 7.57 | ---  | 7.10 | ---  | --- | --- | --- |
| MEAN | 7.52 | 7.68 | 7.97 | 7.56 | 7.66 | 7.76 | 7.94 | 7.03 | 7.33 | --- | --- | --- |

WTR YR 1998 MEAN 7.70 HIGHEST 6.20 MAY 26, 1998 LOWEST 9.02 DEC. 13, 14, 1997



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182511066045401. Local number, PN-2.

LOCATION.--Lat 18°25'11", long 66°04'54", Hydrologic Unit 21010005, 1.58 mi northeast of Fort Buchanan Military Res. main gate, 2.95 mi southeast of Cataño plaza, and 2.45 mi southeast of US Naval Reservation in Miramar.

Owner: US Geological Survey, WRD, Name: La Esperanza No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), perforated 30-40 ft (9.15-12.2 m). Depth 40.0 ft (12.2 m).

INSTRUMENTATION.--Electronic water level logger--15-minute interval.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m), above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.17 ft (0.97 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 8, 1998.

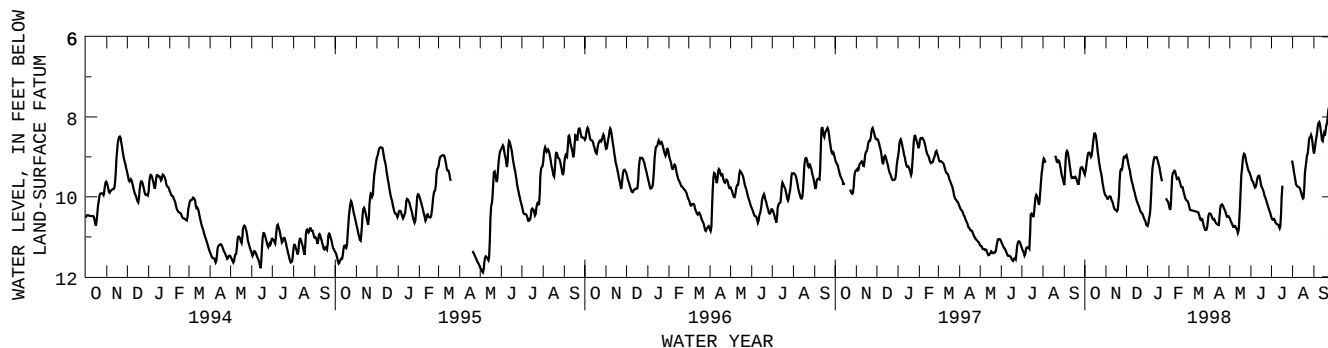
PERIOD OF RECORD.--July 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.71 ft (2.35 m), below land-surface datum, Sept. 23, 1998; lowest water level recorded, 11.90 ft (3.63 m), below land-surface datum, July 15, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP  |
|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 1    | 9.43 | 9.97  | 8.94  | 10.73 | 10.16 | 10.11 | 10.42 | 10.52 | 9.45  | 10.49 | 9.12  | 8.86 |
| 2    | 9.45 | 9.98  | 8.97  | 10.73 | 10.26 | 10.16 | 10.41 | 10.54 | 9.53  | 10.54 | 9.21  | 8.97 |
| 3    | 9.28 | 10.04 | 9.06  | 10.60 | 10.30 | 10.19 | 10.42 | 10.62 | 9.61  | 10.57 | 9.33  | 8.76 |
| 4    | 9.19 | 10.05 | 9.16  | 10.50 | 10.35 | 10.32 | 10.43 | 10.64 | 9.60  | 10.57 | 9.42  | 8.65 |
| 5    | 9.05 | 10.04 | 9.26  | 10.42 | 9.99  | 10.33 | 10.47 | 10.67 | 9.64  | 10.53 | 9.55  | 8.53 |
| 6    | 8.92 | 9.99  | 9.30  | 10.23 | 9.56  | 10.33 | 10.53 | 10.73 | 9.70  | 10.57 | 9.65  | 8.43 |
| 7    | 8.90 | 9.99  | 9.40  | 9.71  | 9.40  | 10.34 | 10.59 | 10.76 | 9.75  | 10.62 | 9.72  | 8.25 |
| 8    | 8.89 | 9.99  | 9.52  | 9.36  | 9.40  | 10.34 | 10.54 | 10.74 | 9.79  | 10.66 | 9.72  | 8.17 |
| 9    | 8.90 | 10.02 | 9.59  | 9.23  | 9.37  | 10.35 | 10.56 | 10.72 | 9.71  | 10.67 | 9.76  | 8.11 |
| 10   | 8.98 | 10.11 | 9.66  | 9.11  | 9.32  | 10.35 | 10.60 | 10.75 | 9.63  | 10.69 | 9.74  | 8.14 |
| 11   | 9.02 | 10.11 | 9.72  | 9.03  | 9.39  | 10.36 | 10.65 | 10.79 | 9.51  | 10.69 | 9.77  | 8.26 |
| 12   | 8.92 | 10.19 | 9.81  | 8.99  | 9.46  | 10.36 | 10.66 | 10.81 | 9.49  | 10.72 | 9.78  | 8.38 |
| 13   | 8.75 | 10.26 | 9.86  | 9.05  | 9.55  | 10.37 | 10.69 | 10.88 | 9.46  | 10.75 | 9.82  | 8.52 |
| 14   | 8.61 | 10.31 | 9.94  | 8.99  | 9.56  | 10.37 | 10.68 | 10.92 | 9.48  | 10.82 | 9.91  | 8.64 |
| 15   | 8.45 | 10.32 | 10.01 | 9.03  | 9.54  | 10.38 | 10.73 | 10.76 | 9.57  | 10.66 | 9.96  | 8.57 |
| 16   | 8.39 | 10.33 | 10.07 | 9.08  | 9.52  | 10.38 | 10.68 | 10.47 | 9.67  | 10.16 | 10.03 | 8.39 |
| 17   | 8.44 | 10.34 | 10.12 | 9.15  | 9.61  | 10.39 | 10.36 | 9.97  | 9.75  | 9.86  | 10.05 | 8.44 |
| 18   | 8.49 | 10.38 | 10.17 | 9.21  | 9.64  | 10.47 | 10.23 | 9.56  | 9.78  | 9.58  | 10.00 | 8.50 |
| 19   | 8.63 | 10.27 | 10.21 | 9.28  | 9.73  | 10.53 | 10.21 | 9.36  | 9.82  | ---   | 9.53  | 8.27 |
| 20   | 8.82 | 10.10 | 10.25 | 9.39  | 9.78  | 10.60 | 10.17 | 9.21  | 9.86  | ---   | 9.31  | 8.17 |
| 21   | 8.93 | 9.82  | 10.30 | 9.49  | 9.74  | 10.56 | 10.20 | 8.99  | 9.95  | ---   | 9.18  | 8.20 |
| 22   | 9.07 | 9.41  | 10.38 | 9.57  | 9.78  | 10.54 | 10.24 | 8.94  | 10.00 | ---   | 9.00  | 7.92 |
| 23   | 9.18 | 9.30  | 10.39 | 9.65  | 9.87  | 10.58 | 10.29 | 8.91  | 10.03 | ---   | 8.92  | 7.75 |
| 24   | 9.30 | 9.33  | 10.40 | ---   | 9.94  | 10.70 | 10.32 | 8.97  | 10.09 | ---   | 8.92  | 7.80 |
| 25   | 9.36 | 9.32  | 10.43 | ---   | 10.02 | 10.75 | 10.36 | 9.07  | 10.16 | ---   | 8.61  | 7.88 |
| 26   | 9.46 | 9.24  | 10.48 | ---   | 10.05 | 10.80 | 10.41 | 9.16  | 10.21 | ---   | 8.51  | 8.02 |
| 27   | 9.60 | 9.01  | 10.53 | ---   | 10.09 | 10.85 | 10.49 | 9.20  | 10.27 | ---   | 8.52  | 8.00 |
| 28   | 9.71 | 8.99  | 10.56 | 10.00 | 10.09 | 10.81 | 10.50 | 9.30  | 10.32 | ---   | 8.47  | 8.01 |
| 29   | 9.79 | 9.01  | 10.60 | 10.07 | ---   | 10.83 | 10.47 | 9.35  | 10.37 | ---   | 8.44  | 8.11 |
| 30   | 9.88 | 9.01  | 10.68 | 10.10 | ---   | 10.68 | 10.50 | 9.36  | 10.41 | ---   | 8.58  | 8.10 |
| 31   | 9.94 | ---   | 10.71 | 10.11 | ---   | 10.52 | ---   | 9.43  | ---   | 9.06  | 8.73  | ---  |
| MEAN | 9.09 | 9.84  | 9.95  | 9.66  | 9.77  | 10.47 | 10.46 | 10.00 | 9.82  | 10.43 | 9.33  | 8.29 |

WTR YR 1998 MEAN 9.74 HIGHEST 7.71 SEPT. 23, 1998 LOWEST 10.94 MAY 14, 1998



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182435066052700. Local number, PN-5.

LOCATION.--Lat 18°24'35", long 66°05'27", Hydrologic Unit 21010005, 2.94 mi southeast of Cataño plaza, 0.44 mi north of Escuela Superior Gabriela Mistral, and 1.19 mi northeast of WAPA TV radio antenna. Owner: US Geological Survey, WRD, Name: Salud Mental No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 4.0 in (0.10 m), 0-83.0 ft (0-25.3 m), perforated 73-83.0 ft (22.2-25.3 m). Depth 83.0 ft (25.3 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 85.0 ft (25.9 m), above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.85 ft (0.87 m), above land-surface datum.

REMARKS.--Recording observation well.

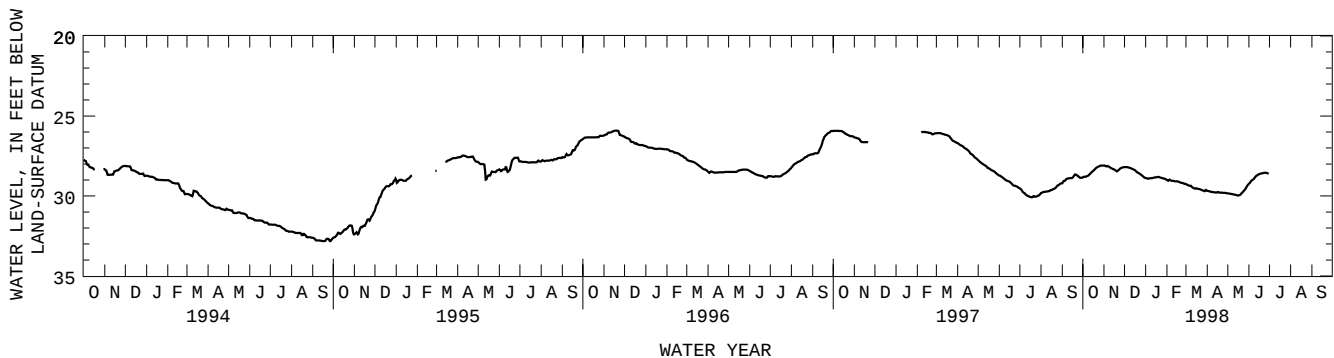
PERIOD OF RECORD.--April 1989 to July 1, 1998, temporarily discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 25.37 ft (7.73 m), below land-surface datum, Feb. 5, 1993; lowest water level recorded, 32.82 ft (10.0 m), below land-surface datum, Sept. 25-28, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| 1    | 28.85 | 28.10 | 28.20 | 28.88 | 28.98 | 29.25 | 29.67 | 29.83 | 29.26 | 28.62 | --- | --- |
| 2    | 28.84 | 28.10 | 28.20 | 28.89 | 29.01 | 29.27 | 29.68 | 29.84 | 29.22 | ---   | --- | --- |
| 3    | 28.78 | 28.10 | 28.20 | 28.89 | 29.04 | 29.28 | 29.69 | 29.85 | 29.17 | ---   | --- | --- |
| 4    | 28.80 | 28.14 | 28.20 | 28.90 | 29.06 | 29.31 | 29.71 | 29.85 | 29.11 | ---   | --- | --- |
| 5    | 28.80 | 28.16 | 28.20 | 28.92 | 28.95 | 29.34 | 29.71 | 29.86 | 29.04 | ---   | --- | --- |
| 6    | 28.79 | 28.11 | 28.20 | 28.91 | 29.00 | 29.35 | 29.72 | 29.86 | 29.02 | ---   | --- | --- |
| 7    | 28.77 | 28.15 | 28.21 | 28.89 | 29.03 | 29.37 | 29.73 | 29.88 | 28.99 | ---   | --- | --- |
| 8    | 28.75 | 28.15 | 28.22 | 28.89 | 29.05 | 29.34 | 29.75 | 29.88 | 28.97 | ---   | --- | --- |
| 9    | 28.74 | 28.17 | 28.24 | 28.89 | 29.05 | 29.39 | 29.76 | 29.90 | 28.92 | ---   | --- | --- |
| 10   | 28.72 | 28.20 | 28.25 | 28.89 | 29.05 | 29.42 | 29.76 | 29.91 | 28.84 | ---   | --- | --- |
| 11   | 28.66 | 28.23 | 28.27 | 28.88 | 29.06 | 29.46 | 29.76 | 29.91 | 28.80 | ---   | --- | --- |
| 12   | 28.62 | 28.26 | 28.29 | 28.87 | 29.07 | 29.50 | 29.77 | 29.92 | 28.75 | ---   | --- | --- |
| 13   | 28.58 | 28.28 | 28.31 | 28.86 | 29.08 | 29.52 | 29.76 | 29.93 | 28.73 | ---   | --- | --- |
| 14   | 28.53 | 28.30 | 28.33 | 28.85 | 29.08 | 29.53 | 29.79 | 29.94 | 28.69 | ---   | --- | --- |
| 15   | 28.48 | 28.33 | 28.35 | 28.84 | 29.08 | 29.54 | 29.80 | 29.96 | 28.66 | ---   | --- | --- |
| 16   | 28.46 | 28.33 | 28.37 | 28.83 | 29.08 | 29.51 | 29.77 | 29.97 | 28.64 | ---   | --- | --- |
| 17   | 28.42 | 28.35 | 28.39 | 28.83 | 29.09 | 29.53 | 29.75 | 29.97 | 28.63 | ---   | --- | --- |
| 18   | 28.38 | 28.39 | 28.44 | 28.83 | 29.10 | 29.55 | 29.77 | 29.96 | 28.61 | ---   | --- | --- |
| 19   | 28.33 | 28.41 | 28.47 | 28.82 | 29.12 | 29.55 | 29.78 | 29.94 | 28.60 | ---   | --- | --- |
| 20   | 28.29 | 28.46 | 28.52 | 28.80 | 29.13 | 29.56 | 29.79 | 29.93 | 28.58 | ---   | --- | --- |
| 21   | 28.25 | 28.46 | 28.54 | 28.82 | 29.15 | 29.57 | 29.80 | 29.86 | 28.58 | ---   | --- | --- |
| 22   | 28.22 | 28.40 | 28.56 | 28.83 | 29.17 | 29.58 | 29.79 | 29.82 | 28.58 | ---   | --- | --- |
| 23   | 28.20 | 28.38 | 28.59 | 28.85 | 29.18 | 29.60 | 29.79 | 29.79 | 28.56 | ---   | --- | --- |
| 24   | 28.17 | 28.34 | 28.61 | 28.86 | 29.19 | 29.62 | 29.80 | 29.72 | 28.55 | ---   | --- | --- |
| 25   | 28.16 | 28.30 | 28.64 | 28.87 | 29.20 | 29.63 | 29.80 | 29.68 | 28.55 | ---   | --- | --- |
| 26   | 28.13 | 28.26 | 28.68 | 28.88 | 29.22 | 29.66 | 29.80 | 29.64 | 28.55 | ---   | --- | --- |
| 27   | 28.11 | 28.24 | 28.71 | 28.90 | 29.23 | 29.66 | 29.80 | 29.57 | 28.56 | ---   | --- | --- |
| 28   | 28.10 | 28.23 | 28.75 | 28.91 | 29.24 | 29.69 | 29.81 | 29.52 | 28.58 | ---   | --- | --- |
| 29   | 28.10 | 28.22 | 28.79 | 28.92 | ---   | 29.70 | 29.81 | 29.43 | 28.59 | ---   | --- | --- |
| 30   | 28.10 | 28.20 | 28.83 | 28.93 | ---   | 29.61 | 29.83 | 29.36 | 28.60 | ---   | --- | --- |
| 31   | 28.10 | ---   | 28.86 | 28.95 | ---   | 29.65 | ---   | 29.31 | ---   | ---   | --- | --- |
| MEAN | 28.46 | 28.26 | 28.43 | 28.87 | 29.10 | 29.50 | 29.77 | 29.80 | 28.76 | 28.62 | --- | --- |

WTR YR 1998 MEAN 28.99 HIGHEST 28.10 Oct. 27-Nov. 3, 5, 6, 1997 LOWEST 29.97 MAY 16, 17, 1998



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182445066043401. Local number, PN-6.

LOCATION.--Lat 18°24'45", long 66°04'34", Hydrologic Unit 21010005, 0.28 mi northeast of Escuela Dr. Pedreira, 3.52 mi southeast of Cataño plaza, and 0.53 mi south of Hiram Bithorn Stadium main gate. Owner: US Geological Survey, WRD, Name: Alsacia No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-27.0 ft (0-8.23 m), perforated 21-27.0 ft (6.40-8.23 m). Depth 27 ft (8.23 m).

INSTRUMENTATION.--Electronic water level logger--15-minute interval.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m), above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.03 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on January 26, 1998.

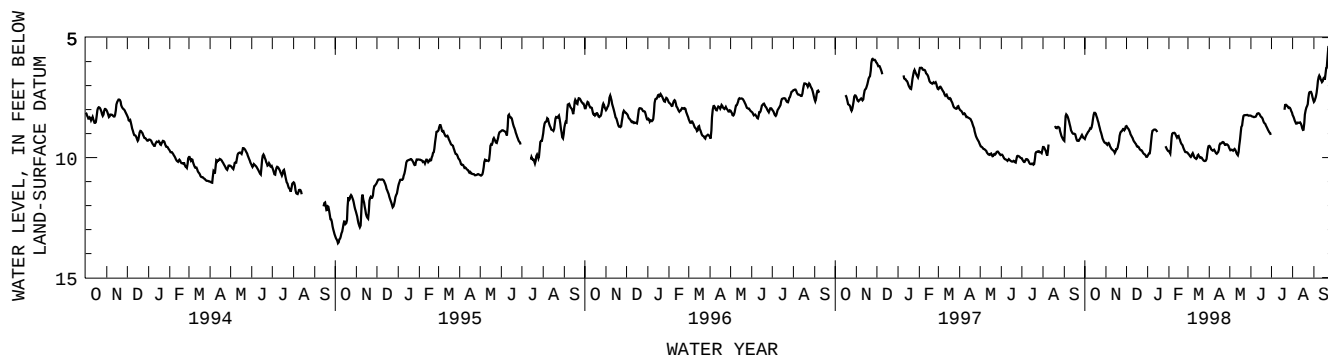
PERIOD OF RECORD.--July 1989 to November 27, 1991, Temporary discontinued, September 9, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.11 ft (0.95 m), below land-surface datum, Sept. 18, 1989; lowest water level recorded, 13.65 ft (4.16 m), below land-surface datum, Oct. 6, 7, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR   | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|------|------|------|------|------|-------|------|------|------|------|------|------|
| 1    | 9.21 | 9.40 | 8.67 | 9.95 | 9.73 | 9.81  | 9.51 | 9.62 | 8.24 | 9.13 | 8.17 | 7.63 |
| 2    | 9.23 | 9.39 | 8.70 | 9.91 | 9.74 | 9.84  | 9.52 | 9.68 | 8.27 | ---  | 8.28 | 7.73 |
| 3    | 9.07 | 9.50 | 8.75 | 9.84 | 9.80 | 9.88  | 9.54 | 9.71 | 8.29 | ---  | 8.30 | 7.57 |
| 4    | 9.07 | 9.44 | 8.80 | 9.83 | 9.87 | 9.90  | 9.64 | 9.67 | 8.28 | ---  | 8.41 | 7.54 |
| 5    | 8.99 | 9.37 | 8.84 | 9.82 | 9.27 | 9.99  | 9.67 | 9.67 | 8.31 | ---  | 8.51 | 7.40 |
| 6    | 8.96 | 9.41 | 8.89 | 9.50 | 9.04 | 9.96  | 9.70 | 9.71 | 8.31 | ---  | 8.55 | 7.21 |
| 7    | 8.90 | 9.49 | 8.99 | 9.17 | 8.97 | 9.92  | 9.72 | 9.71 | 8.32 | ---  | 8.61 | 6.89 |
| 8    | 8.89 | 9.56 | 9.08 | 8.89 | 8.99 | 9.79  | 9.67 | 9.64 | 8.29 | ---  | 8.55 | 6.71 |
| 9    | 8.81 | 9.61 | 9.10 | 8.88 | 8.96 | 9.84  | 9.68 | 9.64 | 8.30 | ---  | 8.54 | 6.57 |
| 10   | 8.75 | 9.65 | 9.18 | 8.85 | 8.98 | 9.93  | 9.75 | 9.70 | 8.18 | ---  | 8.55 | 6.60 |
| 11   | 8.83 | 9.67 | 9.21 | 8.83 | 9.01 | 10.00 | 9.79 | 9.79 | 8.17 | ---  | 8.56 | 6.70 |
| 12   | 8.66 | 9.72 | 9.31 | 8.83 | 9.08 | 10.03 | 9.85 | 9.85 | 8.15 | ---  | 8.54 | 6.77 |
| 13   | 8.53 | 9.70 | 9.35 | 8.84 | 9.16 | 10.04 | 9.83 | 9.89 | 8.16 | ---  | 8.53 | 6.83 |
| 14   | 8.28 | 9.80 | 9.39 | 8.85 | 9.18 | 10.08 | 9.77 | 9.91 | 8.17 | ---  | 8.63 | 6.88 |
| 15   | 8.15 | 9.82 | 9.42 | 8.92 | 9.05 | 9.96  | 9.78 | 9.63 | 8.24 | ---  | 8.72 | 6.75 |
| 16   | 8.13 | 9.67 | 9.48 | 8.95 | 9.15 | 9.86  | 9.56 | 9.40 | 8.30 | ---  | 8.83 | 6.65 |
| 17   | 8.14 | 9.63 | 9.55 | ---  | 9.21 | 9.90  | 9.42 | 9.12 | 8.31 | ---  | 8.87 | 6.69 |
| 18   | 8.21 | 9.67 | 9.55 | ---  | 9.28 | 9.96  | 9.41 | 8.77 | 8.35 | ---  | 8.81 | 6.81 |
| 19   | 8.31 | 9.49 | 9.54 | ---  | 9.39 | 10.00 | 9.43 | 8.69 | 8.42 | ---  | 8.29 | 6.28 |
| 20   | 8.40 | 9.43 | 9.60 | ---  | 9.44 | 10.01 | 9.37 | 8.64 | 8.51 | 8.17 | 8.12 | 6.26 |
| 21   | 8.50 | 9.19 | 9.64 | ---  | 9.45 | 9.98  | 9.36 | 8.30 | 8.57 | 7.84 | 7.95 | 6.25 |
| 22   | 8.59 | 9.01 | 9.70 | ---  | 9.52 | 10.04 | 9.35 | 8.24 | 8.57 | 7.77 | 7.88 | 5.41 |
| 23   | 8.72 | 8.93 | 9.69 | ---  | 9.61 | 10.08 | 9.38 | 8.24 | 8.63 | 7.83 | 7.84 | 5.44 |
| 24   | 8.83 | 8.91 | 9.71 | ---  | 9.68 | 10.12 | 9.45 | 8.23 | 8.69 | 7.83 | 7.72 | 5.44 |
| 25   | 8.93 | 8.89 | 9.77 | ---  | 9.76 | 10.14 | 9.49 | 8.24 | 8.77 | 7.85 | 7.34 | 5.44 |
| 26   | 9.03 | 8.83 | 9.82 | ---  | 9.78 | 10.15 | 9.46 | 8.23 | 8.82 | 7.93 | 7.28 | 5.45 |
| 27   | 9.16 | 8.78 | 9.85 | 9.51 | 9.77 | 10.14 | 9.44 | 8.21 | 8.87 | 7.92 | 7.27 | 5.41 |
| 28   | 9.24 | 8.84 | 9.86 | 9.54 | 9.78 | 10.11 | 9.46 | 8.24 | 8.93 | 7.91 | 7.25 | 5.41 |
| 29   | 9.30 | 8.87 | 9.89 | 9.61 | ---  | 10.01 | 9.48 | 8.26 | 8.97 | 7.94 | 7.28 | 5.41 |
| 30   | 9.36 | 8.74 | 9.95 | 9.68 | ---  | 9.71  | 9.54 | 8.25 | 8.98 | 8.04 | 7.43 | 5.32 |
| 31   | 9.39 | ---  | 9.98 | 9.72 | ---  | 9.55  | ---  | 8.25 | ---  | 8.09 | 7.54 | ---  |
| MEAN | 8.79 | 9.35 | 9.40 | 9.33 | 9.38 | 9.96  | 9.57 | 9.07 | 8.45 | 8.02 | 8.17 | 6.45 |

WTR YR 1998 MEAN 8.85 HIGHEST 5.29 SEPT. 30, 1998 LOWEST 10.18 MAR. 24-27, 1998



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182443066041502. Local number, PN-8c.

LOCATION.--Lat 18°24'43", long 66°04'15", Hydrologic Unit 21010005, 2.29 mi east of Fort Buchanan Military Res. main gate, 3.83 mi southeast of Cataño plaza, and 0.16 mi southwest of Hospital del Maestro. Owner: US Geological Survey, WRD, Name: Parque Luis Muñoz Marín 1C.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10), 0-33.0 ft (0-10.1 m), perforated 33-40 ft (10.1-12.2 m). Depth 40.0 ft (12.2 m).

INSTRUMENTATION.--Electronic water level logger--15-minute interval.

DATUM.--Elevation of land-surface datum is about 13.0 ft (3.96 m), above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.00 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on January 26, 1998.

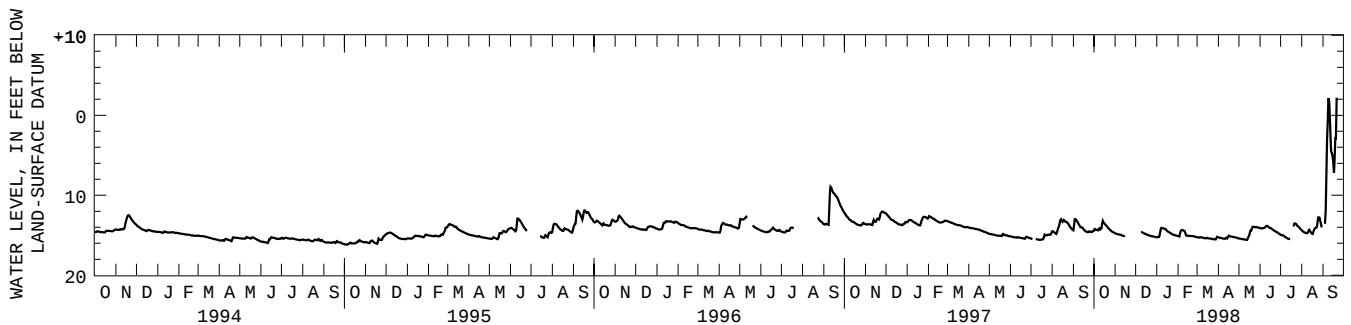
PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +7.28 ft (+2.22 m), above land-surface datum, Sept. 21, 1996; lowest water level recorded, 16.18 ft (4.93 m), below land-surface datum, Oct. 5, 6, 7, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 14.53 | 14.73 | ---   | 15.24 | 15.10 | 15.24 | 15.24 | 15.39 | 14.07 | 14.90 | 14.33 | ---   |
| 2    | 14.33 | 14.78 | ---   | 15.24 | 15.12 | 15.26 | 15.26 | 15.41 | 14.11 | 14.95 | 14.43 | ---   |
| 3    | 14.10 | 14.81 | ---   | 15.20 | 15.13 | 15.26 | 15.29 | 15.43 | 14.15 | 15.02 | 14.51 | ---   |
| 4    | 14.33 | 14.83 | ---   | 15.22 | 15.18 | 15.28 | 15.33 | 15.44 | 14.15 | 14.96 | 14.56 | 13.59 |
| 5    | 14.32 | 14.84 | ---   | 15.23 | 14.45 | 15.29 | 15.33 | 15.45 | 14.16 | 15.00 | 14.62 | 13.56 |
| 6    | 14.34 | 14.87 | ---   | 14.98 | 14.44 | 15.23 | 15.36 | 15.49 | 14.07 | 15.07 | 14.68 | 10.32 |
| 7    | 14.35 | 14.89 | ---   | 14.18 | 14.33 | 15.27 | 15.39 | 15.50 | 14.12 | 15.16 | 14.73 | 3.21  |
| 8    | 14.42 | 14.92 | ---   | 14.08 | 14.35 | 15.26 | 15.39 | 15.50 | 14.01 | 15.19 | 14.67 | 2.76  |
| 9    | 14.05 | 14.95 | 14.57 | 14.08 | 14.38 | 15.30 | 15.42 | 15.51 | 14.04 | 15.23 | 14.75 | +1.86 |
| 10   | 14.23 | 14.92 | 14.59 | 14.09 | 14.45 | 15.31 | 15.42 | 15.53 | 13.80 | 15.33 | 14.75 | +2.42 |
| 11   | 14.33 | 15.02 | 14.63 | 14.14 | 14.47 | 15.32 | 15.44 | 15.55 | 13.87 | 15.38 | 14.59 | +1.11 |
| 12   | 14.12 | 15.05 | 14.68 | 14.19 | 14.54 | 15.37 | 15.44 | 15.57 | 13.81 | 15.42 | 14.23 | .88   |
| 13   | 14.14 | 15.07 | 14.73 | 14.21 | 15.04 | 15.38 | 15.23 | 15.59 | 13.90 | 15.45 | 14.39 | 4.43  |
| 14   | 13.11 | 15.09 | 14.78 | 14.18 | 15.04 | 15.40 | 15.37 | 15.59 | 13.98 | 15.48 | 14.55 | 4.68  |
| 15   | 13.32 | 15.11 | 14.81 | 14.32 | 15.04 | 15.30 | 15.41 | 15.26 | 14.03 | 15.47 | 14.67 | 4.68  |
| 16   | 13.44 | 14.90 | 14.84 | 14.42 | 15.06 | 15.32 | 15.08 | 15.21 | 14.10 | 15.46 | 14.77 | 5.78  |
| 17   | 13.55 | ---   | 14.87 | 14.50 | 15.08 | 15.38 | 15.02 | 14.91 | 14.13 | ---   | 14.85 | 5.80  |
| 18   | 13.63 | ---   | 14.91 | 14.56 | 15.09 | 15.39 | 15.12 | 14.44 | 14.12 | ---   | 14.85 | 8.57  |
| 19   | 13.73 | ---   | 14.95 | 14.57 | 15.09 | 15.38 | 15.15 | 14.40 | 14.22 | ---   | 14.25 | 2.89  |
| 20   | 13.85 | ---   | 14.98 | 14.63 | 15.09 | 15.41 | 15.16 | 14.40 | 14.29 | 14.20 | 14.36 | 2.88  |
| 21   | 13.93 | ---   | 15.01 | 14.69 | 15.10 | 15.41 | 15.16 | 13.97 | 14.36 | 13.60 | 14.04 | 2.88  |
| 22   | 14.03 | ---   | 15.05 | 14.76 | 15.10 | 15.43 | 15.17 | 13.93 | 14.40 | 13.47 | 14.06 | +7.28 |
| 23   | 14.16 | ---   | 15.08 | 14.81 | 15.10 | 15.46 | 15.22 | 13.95 | 14.45 | 13.55 | 14.03 | ---   |
| 24   | 14.22 | ---   | 15.08 | 14.87 | 15.11 | 15.48 | 15.25 | 13.94 | 14.51 | 13.52 | 13.97 | ---   |
| 25   | 14.33 | ---   | 15.12 | 14.91 | 15.14 | 15.49 | 15.27 | 14.00 | 14.58 | 13.70 | 12.81 | ---   |
| 26   | 14.40 | ---   | 15.13 | 14.96 | 15.17 | 15.50 | 15.24 | 13.98 | 14.61 | 13.81 | 12.73 | ---   |
| 27   | 14.48 | ---   | 15.15 | 14.96 | 15.20 | 15.50 | 15.27 | 13.94 | 14.66 | 13.88 | 12.75 | ---   |
| 28   | 14.54 | ---   | 15.17 | 14.98 | 15.23 | 15.51 | 15.29 | 14.05 | 14.74 | 13.94 | 12.83 | ---   |
| 29   | 14.59 | ---   | 15.20 | 15.02 | ---   | 15.51 | 15.35 | 14.01 | 14.80 | 14.06 | 13.43 | ---   |
| 30   | 14.63 | ---   | 15.22 | 15.05 | ---   | 15.22 | 15.37 | 14.04 | 14.85 | 14.17 | 13.67 | ---   |
| 31   | 14.67 | ---   | 15.25 | 15.08 | ---   | 15.20 | ---   | 14.06 | ---   | 14.25 | 14.40 | ---   |
| MEAN | 14.14 | 14.92 | 14.95 | 14.69 | 14.91 | 15.36 | 15.28 | 14.82 | 14.24 | 14.63 | 14.20 | 3.91  |

WTR YR 1998 MEAN 14.10 HIGHEST +7.28 SEPT. 21, 1998 LOWEST 15.59 MAY 13, 14, 1998



+ above land-surface datum

## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182417066042700. Local number, PN-10.

LOCATION.--Lat 18°24'17", long 66°04'27", Hydrologic Unit 21010005, 3.96 mi southeast of Cataño plaza, 1.00 mi southwest of Escuela J.J. Osuna, and 2.26 mi east of WAPA TV radio antenna. Owner: US Geological Survey, WRD, Name: Las Américas No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, cased 4 in (0.10 m), 0-80.0 ft (0-24.4 m), 4 in (0.10 m), perforated pipe 80-90.0 ft (24.4-27.4 m). Depth 90.0 ft (27.4 m).

INSTRUMENTATION.--Electronic water level logger--15-minute interval.

DATUM.--Elevation of land-surface datum is about 16.0 ft (4.89 m), above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.10 ft (0.95 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on February 23, 1998. Well affected by pumping during June 1994. [+ , above land-surface datum].

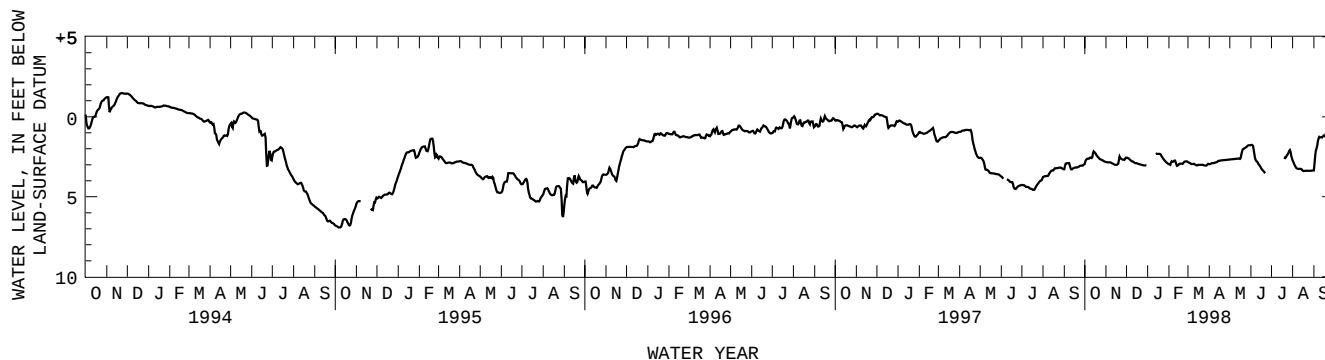
PERIOD OF RECORD.--October 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.30 ft (+0.70 m), above land-surface datum, Jan. 9-12, 1993; lowest water level recorded, 6.92 ft (2.11 m) below land-surface datum, Oct. 6-9, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1    | 2.98 | 2.81 | 2.56 | ---  | 2.96 | 2.81 | 2.96 | 2.67 | 1.77 | ---  | 2.68 | 3.35 |
| 2    | 2.88 | 2.83 | 2.56 | ---  | 2.98 | 2.85 | 2.97 | 2.67 | 1.76 | ---  | 2.78 | 3.35 |
| 3    | 2.67 | 2.85 | 2.57 | ---  | 2.99 | 2.87 | 2.95 | 2.66 | 1.76 | ---  | 2.87 | 2.53 |
| 4    | 2.68 | 2.85 | 2.59 | ---  | 3.01 | 2.88 | 2.94 | 2.66 | 1.77 | ---  | 2.98 | 2.30 |
| 5    | 2.62 | 2.85 | 2.61 | ---  | 2.76 | 2.92 | 2.90 | 2.66 | 1.87 | ---  | 3.08 | 1.96 |
| 6    | 2.62 | 2.85 | 2.67 | ---  | 2.81 | 2.94 | 2.90 | 2.65 | 2.19 | ---  | 3.15 | 1.95 |
| 7    | 2.62 | 2.85 | 2.70 | ---  | 2.81 | 2.97 | 2.89 | 2.65 | 2.48 | ---  | 3.21 | 1.59 |
| 8    | 2.62 | 2.85 | 2.74 | ---  | 2.81 | 2.95 | 2.89 | 2.64 | 2.64 | ---  | 3.24 | 1.43 |
| 9    | 2.55 | 2.87 | 2.79 | ---  | 2.74 | 2.95 | 2.88 | 2.64 | 2.76 | ---  | 3.25 | 1.23 |
| 10   | 2.55 | 2.89 | 2.79 | ---  | 2.73 | 2.94 | 2.86 | 2.63 | 2.78 | ---  | 3.25 | 1.27 |
| 11   | 2.60 | 2.92 | 2.79 | ---  | 2.74 | 2.95 | 2.85 | 2.63 | 2.83 | ---  | 3.26 | 1.29 |
| 12   | 2.58 | 2.94 | 2.83 | ---  | 2.92 | 3.00 | 2.84 | 2.62 | 2.92 | ---  | 3.25 | 1.29 |
| 13   | 2.46 | 2.98 | 2.87 | 2.37 | 3.06 | 3.02 | 2.82 | 2.62 | 2.98 | ---  | 3.25 | 1.29 |
| 14   | 2.14 | 2.99 | 2.89 | 2.31 | 3.07 | 3.04 | 2.77 | 2.61 | 3.04 | ---  | 3.26 | 1.30 |
| 15   | 2.19 | 3.00 | 2.89 | 2.31 | 3.02 | 3.04 | 2.76 | 2.61 | 3.09 | ---  | 3.31 | 1.17 |
| 16   | 2.22 | 3.01 | 2.89 | 2.32 | 2.98 | 3.01 | 2.75 | 2.62 | 3.18 | ---  | 3.36 | 1.19 |
| 17   | 2.28 | 3.01 | 2.91 | 2.32 | 2.93 | 3.01 | 2.75 | 2.65 | 3.26 | ---  | 3.38 | 1.21 |
| 18   | 2.36 | 2.99 | 2.93 | 2.32 | 2.93 | 3.01 | 2.73 | 2.47 | 3.31 | ---  | 3.39 | 1.23 |
| 19   | 2.43 | 2.95 | 2.96 | 2.32 | 2.93 | 3.00 | 2.73 | 2.26 | 3.36 | ---  | 3.38 | 1.00 |
| 20   | 2.48 | 2.92 | 2.95 | 2.32 | 2.93 | 3.01 | 2.72 | 2.06 | 3.40 | 2.76 | 3.38 | 1.03 |
| 21   | 2.52 | 2.41 | 2.96 | 2.38 | 2.94 | 3.01 | 2.72 | 2.02 | 3.46 | 2.53 | 3.38 | 1.02 |
| 22   | 2.57 | 2.57 | 2.99 | 2.47 | 2.95 | 3.00 | 2.72 | 2.00 | 3.49 | 2.53 | 3.38 | .44  |
| 23   | 2.63 | 2.59 | 2.99 | 2.55 | 2.86 | 3.00 | 2.71 | 1.97 | 3.55 | 2.53 | 3.38 | .59  |
| 24   | 2.65 | 2.63 | 3.01 | 2.60 | 2.80 | 3.02 | 2.71 | 1.94 | ---  | 2.39 | 3.37 | .64  |
| 25   | 2.67 | 2.66 | 3.02 | 2.66 | 2.80 | 3.03 | 2.70 | 1.91 | ---  | 2.38 | 3.37 | .65  |
| 26   | 2.69 | 2.68 | 3.03 | 2.73 | 2.79 | 3.05 | 2.70 | 1.89 | ---  | 2.31 | 3.37 | .68  |
| 27   | 2.72 | 2.68 | 3.03 | 2.76 | 2.79 | 3.05 | 2.69 | 1.84 | ---  | 2.19 | 3.37 | .67  |
| 28   | 2.73 | 2.69 | 3.04 | 2.82 | 2.79 | 3.05 | 2.69 | 1.79 | ---  | 2.08 | 3.37 | .67  |
| 29   | 2.76 | 2.69 | 3.04 | 2.86 | ---  | 3.04 | 2.68 | 1.79 | ---  | 2.09 | 3.37 | .70  |
| 30   | 2.78 | 2.57 | 3.05 | 2.88 | ---  | 2.97 | 2.68 | 1.78 | ---  | 2.34 | 3.36 | .62  |
| 31   | 2.81 | ---  | 3.07 | 2.93 | ---  | 2.92 | ---  | 1.78 | ---  | 2.54 | 3.36 | ---  |
| MEAN | 2.58 | 2.81 | 2.86 | 2.54 | 2.89 | 2.98 | 2.80 | 2.34 | 2.77 | 2.39 | 3.25 | 1.32 |

WTR YR 1998 MEAN 2.64 HIGHEST 0.44 SEPT. 22, 1998 LOWEST 3.55 JUNE 23, 1998



+ above land-surface datum

## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182349066032600. Local number, PN-13.

LOCATION.--Lat 18°23'49", long 66°03'26", Hydrologic Unit 21010005, 5.15 mi southeast of Cataño plaza, 1.28 mi south of Escuela J.J. Osuna, and 0.69 mi southwest of University of Puerto Rico main gate. Owner: US Geological Survey, WRD, Name: Jardín Botánico No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-45.0 ft (0-13.72 m), perforated 35-45.0 ft (10.67-13.72 m). Depth 45.0 ft (13.72 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m), above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.84 ft (0.86 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on May 22, 1998. From July 30, 1998, monthly measurements only.

PERIOD OF RECORD.--March 1989 to current year.

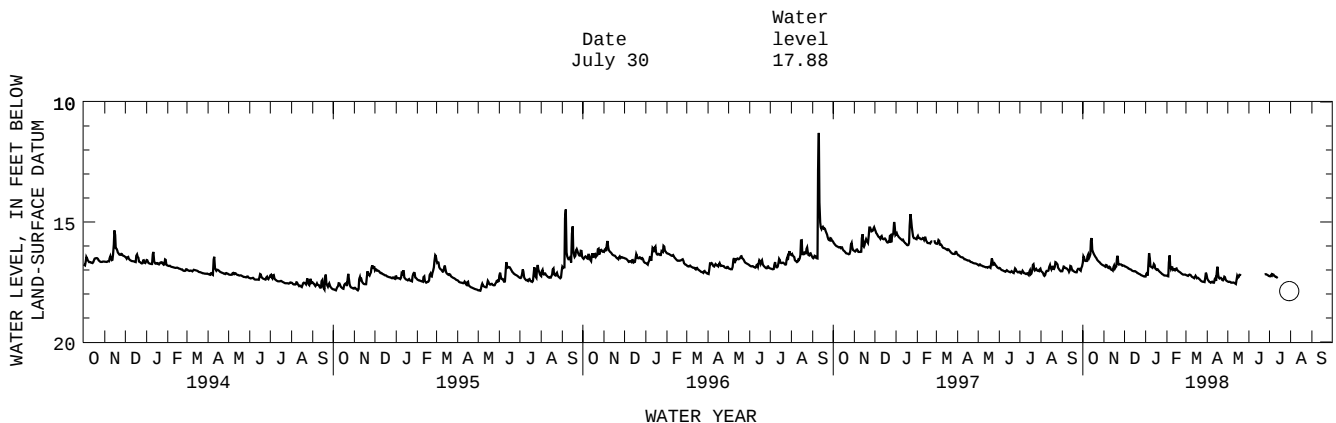
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.96 ft (2.12 m), below land-surface datum, Sept. 10, 1996; lowest water level recorded, 17.87 ft (5.45 m), below land-surface datum, Oct. 7, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| 1    | 16.90 | 16.81 | 16.82 | 17.28 | 17.23 | 17.20 | 17.32 | 17.47 | ---   | 17.26 | --- | --- |
| 2    | 16.47 | 16.83 | 16.85 | 17.27 | 17.25 | 17.22 | 17.38 | 17.49 | ---   | 17.25 | --- | --- |
| 3    | 16.39 | 16.86 | 16.86 | 17.03 | 17.26 | 17.23 | 17.43 | 17.50 | ---   | 17.27 | --- | --- |
| 4    | 16.61 | 16.86 | 16.87 | 17.22 | 17.27 | 17.23 | 17.47 | 17.49 | ---   | 17.18 | --- | --- |
| 5    | 16.61 | 16.73 | 16.89 | 17.25 | 16.11 | 17.26 | 17.50 | 17.49 | ---   | 17.19 | --- | --- |
| 6    | 16.64 | 16.87 | 16.90 | 16.39 | 16.68 | 17.17 | 17.51 | 17.52 | ---   | 17.27 | --- | --- |
| 7    | 16.60 | 16.89 | 16.93 | 16.20 | 16.94 | 17.22 | 17.54 | 17.53 | ---   | 17.10 | --- | --- |
| 8    | 16.64 | 16.91 | 16.95 | 16.83 | 16.98 | 17.18 | 17.46 | 17.53 | ---   | 17.28 | --- | --- |
| 9    | 16.23 | 16.93 | 16.96 | 16.87 | 16.80 | 17.25 | 17.51 | 17.52 | ---   | 17.21 | --- | --- |
| 10   | 16.47 | 16.80 | 16.98 | 16.88 | 16.98 | 17.28 | 17.53 | 17.52 | ---   | 17.30 | --- | --- |
| 11   | 16.54 | 16.97 | 16.98 | 16.90 | 17.02 | 17.29 | 17.53 | 17.53 | ---   | 17.28 | --- | --- |
| 12   | 16.36 | 16.99 | 17.01 | 16.92 | 16.95 | 17.32 | 17.53 | 17.55 | ---   | 17.30 | --- | --- |
| 13   | 16.33 | 16.99 | 17.03 | 16.81 | 17.00 | 17.34 | 17.22 | 17.58 | ---   | 17.33 | --- | --- |
| 14   | 15.23 | 17.01 | 17.05 | 16.69 | 17.02 | 17.35 | 17.43 | 17.58 | ---   | 17.35 | --- | --- |
| 15   | 16.12 | 17.03 | 17.05 | 16.91 | 16.88 | 17.22 | 17.48 | 17.20 | ---   | ---   | --- | --- |
| 16   | 16.20 | 16.69 | 17.07 | 16.96 | 16.99 | 17.26 | 16.61 | 17.30 | ---   | ---   | --- | --- |
| 17   | 16.31 | 16.92 | 17.03 | 16.98 | 17.01 | 17.32 | 17.12 | 17.34 | ---   | ---   | --- | --- |
| 18   | 16.35 | 16.95 | 17.08 | 17.00 | 17.04 | 17.37 | 17.29 | 17.23 | ---   | ---   | --- | --- |
| 19   | 16.40 | 16.81 | 17.08 | 16.93 | 17.07 | 17.29 | 17.35 | 17.19 | ---   | ---   | --- | --- |
| 20   | 16.46 | 16.90 | 17.12 | 17.02 | 17.08 | 17.37 | 17.35 | 17.22 | ---   | ---   | --- | --- |
| 21   | 16.48 | 16.10 | 17.13 | 17.05 | 17.10 | 17.37 | 17.31 | 17.12 | ---   | ---   | --- | --- |
| 22   | 16.55 | 16.71 | 17.15 | 17.07 | 17.13 | 17.41 | 17.34 | ---   | ---   | ---   | --- | --- |
| 23   | 16.59 | 16.77 | 17.17 | 17.10 | 17.15 | 17.44 | 17.40 | ---   | ---   | ---   | --- | --- |
| 24   | 16.62 | 16.78 | 17.16 | 17.12 | 17.17 | 17.47 | 17.43 | ---   | 17.18 | ---   | --- | --- |
| 25   | 16.65 | 16.76 | 17.20 | 17.15 | 17.19 | 17.48 | 17.44 | ---   | 17.19 | ---   | --- | --- |
| 26   | 16.67 | 16.77 | 17.22 | 17.18 | 17.19 | 17.49 | 17.35 | ---   | 17.16 | ---   | --- | --- |
| 27   | 16.71 | 16.77 | 17.22 | 17.19 | 17.19 | 17.49 | 17.21 | ---   | 17.19 | ---   | --- | --- |
| 28   | 16.74 | 16.82 | 17.24 | 17.21 | 17.19 | 17.50 | 17.38 | ---   | 17.20 | ---   | --- | --- |
| 29   | 16.77 | 16.83 | 17.26 | 17.23 | ---   | 17.50 | 17.43 | ---   | 17.21 | ---   | --- | --- |
| 30   | 16.79 | 16.81 | 17.27 | 17.23 | ---   | 17.19 | 17.46 | ---   | 17.24 | ---   | --- | --- |
| 31   | 16.80 | ---   | 17.27 | 17.23 | ---   | 17.04 | ---   | ---   | ---   | ---   | --- | --- |
| MEAN | 16.49 | 16.83 | 17.06 | 17.00 | 17.03 | 17.31 | 17.38 | 17.42 | 17.20 | 17.26 | --- | --- |

WTR YR 1998 MEAN 17.07 HIGHEST 13.58 OCT. 14, 1997 LOWEST 17.59 MAY 13, 1998

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182406066034700. Local number, PN-19.

LOCATION.--Lat 18°24'06", long 66°03'47", Hydrologic Unit 21010005, 4.65 mi southeast of Cataño plaza, 0.89 mi south of Escuela J.J. Osuna, and 0.78 mi southwest of University of Puerto Rico main gate. Owner: US Geological Survey, WRD, Name: Jardín Botánico No. 3.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-48.0 ft (0-14.6 m), perforated 38-48 ft (11.6-14.6 m). Depth 48.0 ft (14.6 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 32.0 ft (9.75 m), above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.91 ft (0.88 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on May 22, 1998.

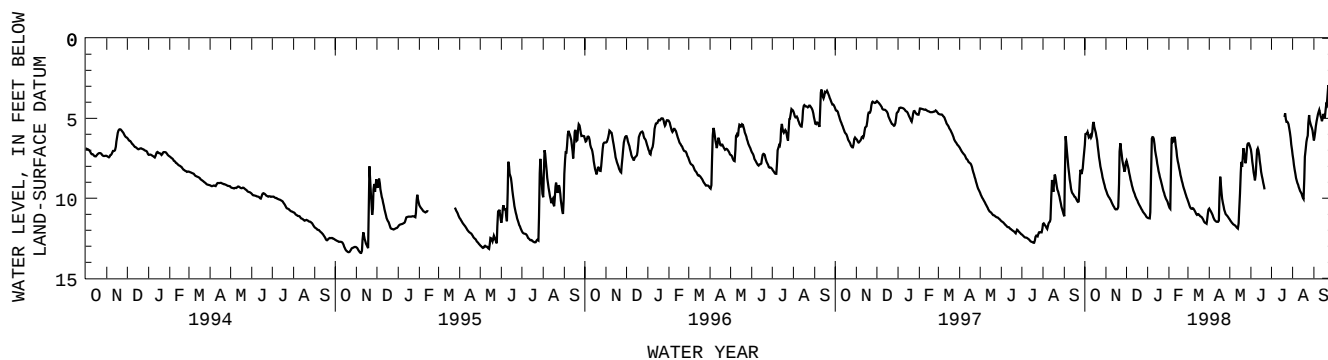
PERIOD OF RECORD.--June 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.84 ft (0.86 m), below land-surface datum, Sept. 22, 23, 1998; lowest water level recorded, 13.43 ft (4.09 m), below land-surface datum, Nov. 8, 9, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN  | JUL  | AUG   | SEP  |
|------|------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|------|
| 1    | 7.13 | 9.43  | 7.62  | 11.21 | 10.45 | 10.11 | 10.62 | 11.29 | 6.83 | ---  | 7.13  | 6.23 |
| 2    | 6.19 | 9.56  | 7.70  | 11.24 | 10.55 | 10.22 | 10.68 | 11.37 | 7.10 | ---  | 7.43  | 6.53 |
| 3    | 5.78 | 9.70  | 7.88  | 11.25 | 10.64 | 10.36 | 10.75 | 11.44 | 7.53 | ---  | 7.76  | 5.85 |
| 4    | 6.15 | 9.78  | 8.09  | 11.24 | 10.68 | 10.48 | 10.83 | 11.49 | 7.87 | ---  | 8.07  | 5.81 |
| 5    | 5.78 | 9.89  | 8.31  | 11.28 | 6.47  | 10.62 | 10.90 | 11.54 | 8.22 | ---  | 8.39  | 5.18 |
| 6    | 5.94 | 9.94  | 8.52  | 10.47 | 6.10  | 10.64 | 11.00 | 11.60 | 8.52 | ---  | 8.63  | 5.19 |
| 7    | 6.11 | 10.01 | 8.74  | 6.43  | 6.26  | 10.67 | 11.13 | 11.64 | 8.79 | ---  | 8.84  | 4.69 |
| 8    | 6.31 | 10.07 | 8.92  | 6.09  | 6.67  | 10.62 | 11.25 | 11.66 | 8.96 | ---  | 9.00  | 4.81 |
| 9    | 6.03 | 10.16 | 9.10  | 6.26  | 6.20  | 10.63 | 11.33 | 11.70 | 8.09 | ---  | 9.09  | 4.37 |
| 10   | 6.11 | 10.27 | 9.29  | 6.13  | 6.11  | 10.69 | 11.39 | 11.73 | 7.10 | ---  | 9.23  | 4.58 |
| 11   | 6.33 | 10.36 | 9.43  | 6.45  | 6.51  | 10.75 | 11.43 | 11.79 | 6.87 | ---  | 9.36  | 4.77 |
| 12   | 5.95 | 10.47 | 9.57  | 6.84  | 6.86  | 10.85 | 11.47 | 11.82 | 6.88 | ---  | 9.50  | 4.94 |
| 13   | 5.72 | 10.51 | 9.68  | 7.17  | 7.19  | 10.94 | 11.47 | 11.88 | 7.12 | ---  | 9.59  | 5.10 |
| 14   | 5.07 | 10.60 | 9.82  | 7.41  | 7.57  | 11.03 | 11.47 | 11.91 | 7.48 | ---  | 9.66  | 5.26 |
| 15   | 5.39 | 10.70 | 9.93  | 7.72  | 7.78  | 11.05 | 11.47 | 11.22 | 7.83 | ---  | 9.78  | 4.71 |
| 16   | 5.66 | 10.69 | 10.03 | 7.96  | 8.00  | 10.99 | 11.34 | 10.24 | 8.19 | ---  | 9.93  | 4.75 |
| 17   | 5.80 | 10.68 | 10.11 | 8.20  | 8.19  | 10.99 | 8.58  | 9.17  | 8.49 | ---  | 10.03 | 4.91 |
| 18   | 6.01 | 10.70 | 10.20 | 8.41  | 8.45  | 11.05 | 8.73  | 7.62  | 8.71 | ---  | 10.06 | 5.05 |
| 19   | 6.22 | 10.58 | 10.32 | 8.59  | 8.65  | 11.10 | 9.42  | 7.83  | 8.92 | ---  | 7.48  | 4.13 |
| 20   | 6.53 | 10.48 | 10.40 | 8.76  | 8.83  | 11.14 | 9.89  | 8.25  | 9.13 | ---  | 7.33  | 4.18 |
| 21   | 6.93 | 7.71  | 10.46 | 8.92  | 8.97  | 11.16 | 10.16 | 6.85  | 9.35 | 4.45 | 6.59  | 4.21 |
| 22   | 7.28 | 6.44  | 10.56 | 9.09  | 9.17  | 11.21 | 10.42 | 6.89  | 9.53 | 4.93 | 6.37  | 2.91 |
| 23   | 7.60 | 6.68  | 10.65 | 9.30  | 9.31  | 11.28 | 10.63 | 7.32  | ---  | 5.21 | 6.16  | 2.96 |
| 24   | 7.89 | 7.11  | 10.71 | 9.48  | 9.48  | 11.36 | 10.80 | 7.64  | ---  | 5.23 | 6.01  | 3.30 |
| 25   | 8.13 | 7.43  | 10.80 | 9.60  | 9.61  | 11.46 | 10.93 | 7.98  | ---  | 5.21 | 4.59  | 3.54 |
| 26   | 8.34 | 7.78  | 10.87 | 9.74  | 9.74  | 11.53 | 11.03 | 7.18  | ---  | 5.29 | 5.02  | 3.75 |
| 27   | 8.58 | 7.97  | 10.91 | 9.89  | 9.88  | 11.54 | 11.06 | 6.65  | ---  | 5.47 | 5.26  | 3.86 |
| 28   | 8.79 | 8.22  | 10.97 | 10.00 | 10.00 | 11.58 | 11.10 | 6.61  | ---  | 5.71 | 5.39  | 4.04 |
| 29   | 8.95 | 8.47  | 11.05 | 10.09 | ---   | 11.60 | 11.17 | 6.53  | ---  | 6.04 | 5.53  | 4.20 |
| 30   | 9.10 | 7.92  | 11.11 | 10.17 | ---   | 11.08 | 11.24 | 6.61  | ---  | 6.47 | 5.66  | 4.17 |
| 31   | 9.28 | ---   | 11.18 | 10.27 | ---   | 10.79 | ---   | 6.76  | ---  | 6.81 | 5.89  | ---  |
| MEAN | 6.81 | 9.34  | 9.77  | 8.89  | 8.37  | 10.95 | 10.79 | 9.49  | 8.07 | 5.53 | 7.70  | 4.60 |

WTR YR 1998 MEAN 8.54 HIGHEST 2.84 SEPT. 22, 23, 1998 LOWEST 11.91 MAY 14, 1998



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181352066025300. Local number, CJ-TW19A.

LOCATION.--Lat 18°13'52", long 66°02'53", Hydrologic Unit 21010005, 0.96 mi southwest of Caguas plaza, 1.02 mi northwest of Escuela Antonio S. Pedreira, and 0.30 mi southeast of Hwy 156 km 59.1. Owner: US Geological Survey, WRD, Name: CJ-TW19A, Bonneville.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-67.0 ft (0-20.4 m), screened 50-65 ft (15.2-19.8 m). Depth 67.0 ft (20.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 262 ft (79.8 m), above mean sea level, from topographic map.

Measuring point: Top of casing 3.00 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well.

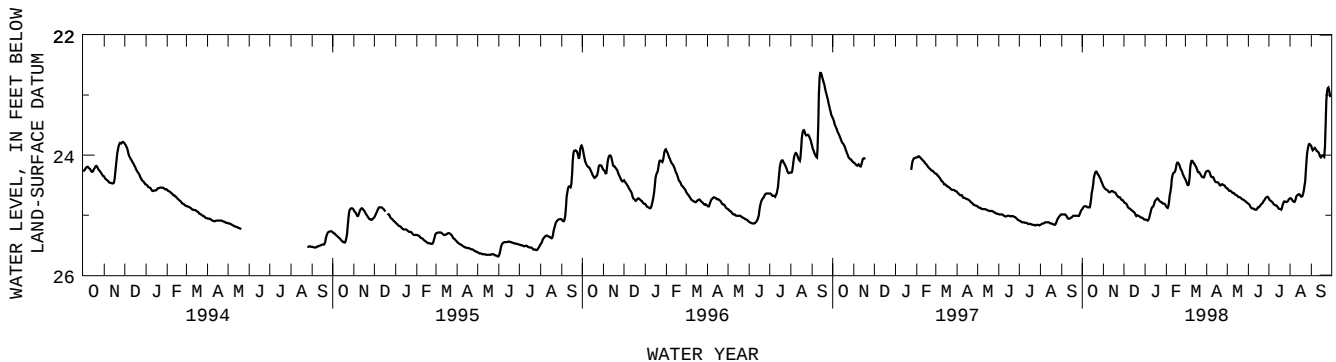
PERIOD OF RECORD.-- June 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.07 ft (6.73 m), below land-surface datum, Sept. 25, 26, 27, 1998; lowest water level recorded, 25.70 ft (7.83 m), below land-surface datum, May 31, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 24.91 | 24.51 | 24.77 | 25.08 | 24.85 | 24.39 | 24.27 | 24.55 | 24.80 | 24.71 | 24.72 | 23.84 |
| 2    | 24.89 | 24.53 | 24.79 | 25.07 | 24.87 | 24.42 | 24.27 | 24.56 | 24.82 | 24.74 | 24.72 | 23.86 |
| 3    | 24.87 | 24.55 | 24.80 | 25.08 | 24.88 | 24.45 | 24.26 | 24.57 | 24.82 | 24.75 | 24.72 | 23.92 |
| 4    | 24.86 | 24.56 | 24.80 | 25.08 | 24.88 | 24.48 | 24.26 | 24.59 | 24.85 | 24.76 | 24.73 | 23.92 |
| 5    | 24.85 | 24.57 | 24.81 | 25.09 | 24.83 | 24.51 | 24.27 | 24.60 | 24.87 | 24.77 | 24.76 | 23.90 |
| 6    | 24.85 | 24.58 | 24.83 | 25.09 | 24.72 | 24.49 | 24.29 | 24.59 | 24.88 | 24.78 | 24.77 | 23.88 |
| 7    | 24.85 | 24.58 | 24.86 | 25.06 | 24.64 | 24.47 | 24.34 | 24.60 | 24.89 | 24.79 | 24.78 | 23.88 |
| 8    | 24.86 | 24.59 | 24.88 | 25.02 | 24.59 | 24.27 | 24.36 | 24.61 | 24.89 | 24.81 | 24.78 | 23.90 |
| 9    | 24.87 | 24.61 | 24.88 | 24.97 | 24.45 | 24.15 | 24.37 | 24.63 | 24.89 | 24.82 | 24.77 | 23.92 |
| 10   | 24.87 | 24.62 | 24.89 | 24.93 | 24.36 | 24.10 | 24.36 | 24.63 | 24.90 | 24.83 | 24.71 | 23.94 |
| 11   | 24.87 | 24.62 | 24.90 | 24.88 | 24.31 | 24.09 | 24.37 | 24.63 | 24.91 | 24.84 | 24.68 | 23.94 |
| 12   | 24.87 | 24.61 | 24.91 | 24.87 | 24.30 | 24.10 | 24.38 | 24.64 | 24.91 | 24.84 | 24.67 | 23.95 |
| 13   | 24.87 | 24.60 | 24.92 | 24.86 | 24.29 | 24.13 | 24.43 | 24.66 | 24.91 | 24.84 | 24.66 | 23.98 |
| 14   | 24.78 | 24.60 | 24.93 | 24.84 | 24.28 | 24.14 | 24.44 | 24.66 | 24.91 | 24.86 | 24.65 | 24.01 |
| 15   | 24.67 | 24.60 | 24.94 | 24.79 | 24.25 | 24.15 | 24.45 | 24.67 | 24.87 | 24.88 | 24.65 | 24.04 |
| 16   | 24.60 | 24.61 | 24.95 | 24.76 | 24.17 | 24.18 | 24.45 | 24.67 | 24.87 | 24.89 | 24.66 | 24.04 |
| 17   | 24.54 | 24.62 | 24.96 | 24.75 | 24.13 | 24.19 | 24.45 | 24.69 | 24.87 | 24.90 | 24.69 | 24.01 |
| 18   | 24.42 | 24.62 | 24.97 | 24.74 | 24.12 | 24.22 | 24.46 | 24.70 | 24.85 | 24.89 | 24.69 | 24.00 |
| 19   | 24.35 | 24.63 | 25.02 | 24.72 | 24.13 | 24.26 | 24.46 | 24.70 | 24.84 | 24.91 | 24.69 | 24.01 |
| 20   | 24.30 | 24.64 | 25.01 | 24.72 | 24.15 | 24.29 | 24.49 | 24.70 | 24.82 | 24.91 | 24.68 | 24.03 |
| 21   | 24.28 | 24.67 | 25.00 | 24.74 | 24.17 | 24.28 | 24.51 | 24.71 | 24.81 | 24.85 | 24.61 | 24.03 |
| 22   | 24.27 | 24.68 | 25.01 | 24.75 | 24.22 | 24.29 | 24.50 | 24.72 | 24.80 | 24.82 | 24.56 | 23.68 |
| 23   | 24.28 | 24.69 | 25.01 | 24.77 | 24.24 | 24.31 | 24.49 | 24.73 | 24.79 | 24.78 | 24.47 | 23.19 |
| 24   | 24.32 | 24.71 | 25.02 | 24.78 | 24.26 | 24.33 | 24.48 | 24.74 | 24.76 | 24.77 | 24.40 | 22.98 |
| 25   | 24.32 | 24.69 | 25.03 | 24.78 | 24.30 | 24.35 | 24.49 | 24.74 | 24.75 | 24.77 | 24.16 | 22.90 |
| 26   | 24.35 | 24.71 | 25.04 | 24.79 | 24.33 | 24.37 | 24.50 | 24.75 | 24.73 | 24.78 | 24.01 | 22.87 |
| 27   | 24.37 | 24.73 | 25.04 | 24.81 | 24.35 | 24.36 | 24.50 | 24.76 | 24.71 | 24.78 | 23.92 | 22.88 |
| 28   | 24.39 | 24.75 | 25.04 | 24.80 | 24.38 | 24.38 | 24.51 | 24.77 | 24.70 | 24.78 | 23.86 | 22.95 |
| 29   | 24.42 | 24.75 | 25.05 | 24.81 | ---   | 24.36 | 24.53 | 24.77 | 24.70 | 24.77 | 23.82 | 23.00 |
| 30   | 24.46 | 24.75 | 25.06 | 24.81 | ---   | 24.32 | 24.55 | 24.79 | 24.69 | 24.75 | 23.81 | 23.07 |
| 31   | 24.47 | ---   | 25.07 | 24.83 | ---   | 24.29 | ---   | 24.80 | ---   | 24.73 | 23.83 | ---   |
| MEAN | 24.61 | 24.63 | 24.94 | 24.87 | 24.41 | 24.29 | 24.42 | 24.68 | 24.83 | 24.81 | 24.50 | 23.68 |

WTR YR 1998 MEAN 24.56 HIGHEST 22.07 SEPT. 25, 26, 27, 1998 LOWEST 25.09 JAN. 4, 5, 6, 1998



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181311066022500. Local number, CJ-TW11.

LOCATION.--Lat 18°13'11", long 66°02'25", Hydrologic Unit 21010005, 1.13 mi south of the intersection of Hwy 156 with Hwy 52, 0.15 mi southeast of the intersection of Hwy 172 with Hwy 1, and 0.20 mi northeast of Escuela Antonio S.

Pereira. Owner: US Geological Survey, WRD, Name: CJ-TW11.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-110 ft (0-33.5 m), screened 66-96 ft (20.1-29.3 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 279 ft (85.0 m), above mean sea level.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.04 ft (0.24 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 2, 1997.

PERIOD OF RECORD.--May 2, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.08 ft (7.03 m), below land-surface datum, Sept. 27 1998; lowest water level recorded, 28.73 ft (8.76 m), below land-surface datum, Aug. 22, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV | DEC                       | JAN | FEB | MAR | APR                        | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|-----|---------------------------|-----|-----|-----|----------------------------|-------|-------|-------|-------|-------|
| 1           | ---        | --- | ---                       | --- | --- | --- | ---                        | ---   | 27.91 | ---   | 28.20 | 28.27 |
| 2           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.64 | 27.93 | 28.10 | 28.24 | 28.27 |
| 3           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.69 | 27.98 | 28.15 | 28.28 | 28.27 |
| 4           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.69 | 28.03 | 28.19 | 28.31 | 28.25 |
| 5           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.74 | 28.10 | 28.25 | 28.38 | 28.26 |
| 6           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.82 | ---   | 28.26 | 28.44 | 28.27 |
| 7           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.87 | ---   | 28.26 | 28.46 | 28.20 |
| 8           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.90 | ---   | 28.26 | 28.47 | 28.20 |
| 9           | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.92 | ---   | 28.24 | 28.49 | 28.20 |
| 10          | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.90 | ---   | 28.28 | 28.51 | 28.20 |
| 11          | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.96 | ---   | 28.30 | 28.51 | 28.20 |
| 12          | ---        | --- | ---                       | --- | --- | --- | ---                        | 26.97 | ---   | 28.31 | 28.51 | 28.19 |
| 13          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.00 | ---   | 28.31 | 28.53 | 28.18 |
| 14          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.04 | ---   | 28.36 | 28.55 | 28.17 |
| 15          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.08 | ---   | 28.41 | 28.57 | 28.18 |
| 16          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.12 | ---   | 28.44 | 28.61 | 28.18 |
| 17          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.18 | ---   | 28.45 | 28.61 | 28.18 |
| 18          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.20 | ---   | 28.45 | 28.61 | 28.19 |
| 19          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.28 | ---   | 28.47 | 28.61 | 28.21 |
| 20          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.28 | ---   | 28.49 | 28.62 | 28.22 |
| 21          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.28 | ---   | 28.49 | 28.63 | 28.27 |
| 22          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.31 | ---   | 28.37 | 28.71 | 28.27 |
| 23          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.38 | ---   | 28.30 | 28.66 | 28.22 |
| 24          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.47 | ---   | 28.28 | 28.61 | 28.19 |
| 25          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.53 | ---   | 28.24 | 28.49 | 28.20 |
| 26          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.58 | ---   | 28.20 | 28.38 | 28.27 |
| 27          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.60 | ---   | 28.19 | 28.33 | 28.19 |
| 28          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.66 | ---   | 28.19 | 28.31 | 28.15 |
| 29          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.73 | ---   | 28.19 | 28.29 | 28.10 |
| 30          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.81 | ---   | 28.14 | 28.26 | 28.06 |
| 31          | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.86 | ---   | 28.16 | 28.28 | ---   |
| MEAN        | ---        | --- | ---                       | --- | --- | --- | ---                        | 27.18 | 27.99 | 28.29 | 28.47 | 28.21 |
| WTR YR 1997 | MEAN 28.04 |     | HIGHEST 26.63 MAY 2, 1997 |     |     |     | LOWEST 28.73 AUG. 22, 1997 |       |       |       |       |       |

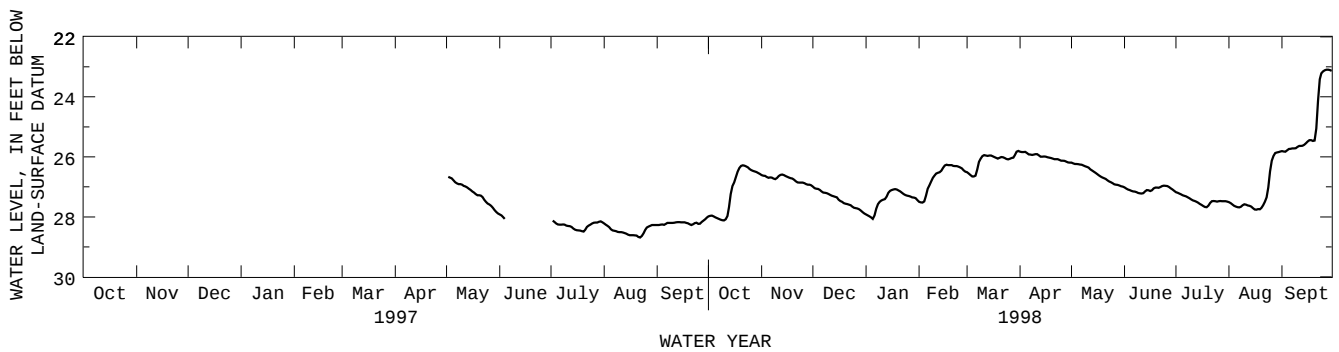
## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 27.99 | 26.59 | 26.96 | 27.91 | 27.49 | 26.50 | 25.81 | 26.19 | 26.99 | 27.16 | 27.50 | 25.81 |
| 2    | 27.98 | 26.62 | 27.03 | 27.93 | 27.51 | 26.53 | 25.84 | 26.19 | 27.04 | 27.19 | 27.52 | 25.80 |
| 3    | 27.95 | 26.63 | 27.06 | 27.97 | 27.52 | 26.58 | 25.84 | 26.24 | 27.07 | 27.21 | 27.56 | 25.84 |
| 4    | 27.97 | 26.64 | 27.07 | 28.00 | 27.52 | 26.64 | 25.84 | 26.23 | 27.10 | 27.23 | 27.61 | 25.82 |
| 5    | 28.00 | 26.70 | 27.07 | 28.04 | 27.45 | 26.67 | 25.83 | 26.24 | 27.12 | 27.27 | 27.65 | 25.74 |
| 6    | 28.03 | 26.69 | 27.13 | 28.09 | 27.14 | 26.64 | 25.92 | 26.25 | 27.14 | 27.29 | 27.67 | 25.74 |
| 7    | 28.05 | 26.68 | 27.18 | 27.82 | 26.98 | 26.61 | 25.91 | 26.26 | 27.16 | 27.31 | 27.68 | 25.72 |
| 8    | 28.08 | 26.70 | 27.20 | 27.63 | 26.92 | 26.23 | 25.94 | 26.27 | 27.16 | 27.33 | 27.69 | 25.72 |
| 9    | 28.11 | 26.75 | 27.20 | 27.52 | 26.72 | 26.10 | 25.93 | 26.30 | 27.20 | 27.37 | 27.64 | 25.72 |
| 10   | 28.11 | 26.74 | 27.22 | 27.47 | 26.67 | 26.01 | 25.91 | 26.33 | 27.21 | 27.40 | 27.58 | 25.70 |
| 11   | 28.13 | 26.67 | 27.25 | 27.43 | 26.58 | 25.94 | 25.91 | 26.33 | 27.22 | 27.44 | 27.58 | 25.64 |
| 12   | 28.03 | 26.61 | 27.29 | 27.42 | 26.54 | 25.94 | 25.91 | 26.39 | 27.23 | 27.46 | 27.61 | 25.63 |
| 13   | 27.91 | 26.59 | 27.30 | 27.40 | 26.52 | 25.97 | 25.99 | 26.44 | 27.19 | 27.48 | 27.63 | 25.64 |
| 14   | 27.44 | 26.59 | 27.32 | 27.25 | 26.51 | 25.97 | 26.00 | 26.47 | 27.11 | 27.51 | 27.64 | 25.62 |
| 15   | 27.04 | 26.63 | 27.34 | 27.15 | 26.41 | 25.94 | 25.99 | 26.51 | 27.11 | 27.55 | 27.68 | 25.58 |
| 16   | 26.91 | 26.65 | 27.36 | 27.11 | 26.32 | 25.97 | 25.99 | 26.55 | 27.12 | 27.58 | 27.74 | 25.51 |
| 17   | 26.79 | 26.68 | 27.49 | 27.10 | 26.26 | 25.99 | 26.00 | 26.59 | 27.16 | 27.62 | 27.77 | 25.46 |
| 18   | 26.56 | 26.70 | 27.46 | 27.07 | 26.27 | 26.02 | 26.02 | 26.64 | 27.07 | 27.66 | 27.75 | 25.43 |
| 19   | 26.42 | 26.72 | 27.53 | 27.08 | 26.28 | 26.05 | 26.03 | 26.67 | 27.03 | 27.68 | 27.73 | 25.46 |
| 20   | 26.32 | 26.73 | 27.56 | 27.10 | 26.27 | 26.06 | 26.05 | 26.70 | 27.02 | 27.67 | 27.76 | 25.48 |
| 21   | 26.28 | 26.79 | 27.56 | 27.14 | 26.28 | 26.01 | 26.07 | 26.72 | 27.03 | 27.58 | 27.64 | 25.43 |
| 22   | 26.28 | 26.84 | 27.59 | 27.17 | 26.32 | 26.00 | 26.08 | 26.75 | 27.03 | 27.49 | 27.58 | 24.68 |
| 23   | 26.31 | 26.86 | 27.60 | 27.22 | 26.30 | 26.02 | 26.07 | 26.81 | 26.98 | 27.47 | 27.42 | 23.57 |
| 24   | 26.33 | 26.86 | 27.63 | 27.26 | 26.31 | 26.06 | 26.09 | 26.83 | 26.96 | 27.47 | 27.28 | 23.26 |
| 25   | 26.37 | 26.85 | 27.68 | 27.29 | 26.34 | 26.08 | 26.12 | 26.86 | 26.96 | 27.49 | 26.75 | 23.17 |
| 26   | 26.43 | 26.87 | 27.71 | 27.30 | 26.36 | 26.09 | 26.13 | 26.90 | 26.97 | 27.49 | 26.22 | 23.14 |
| 27   | 26.45 | 26.89 | 27.71 | 27.31 | 26.41 | 26.04 | 26.13 | 26.93 | 26.98 | 27.47 | 26.04 | 23.09 |
| 28   | 26.48 | 26.93 | 27.73 | 27.34 | 26.49 | 26.04 | 26.14 | 26.93 | 27.03 | 27.48 | 25.90 | 23.10 |
| 29   | 26.49 | 26.93 | 27.77 | 27.36 | ---   | 26.01 | 26.18 | 26.94 | 27.07 | 27.48 | 25.85 | 23.09 |
| 30   | 26.52 | 26.93 | 27.82 | 27.36 | ---   | 25.87 | 26.19 | 26.97 | 27.11 | 27.48 | 25.85 | 23.12 |
| 31   | 26.55 | ---   | 27.87 | 27.39 | ---   | 25.79 | ---   | 26.99 | ---   | 27.48 | 25.83 | ---   |
| MEAN | 27.17 | 26.74 | 27.41 | 27.44 | 26.67 | 26.14 | 26.00 | 26.56 | 27.09 | 27.44 | 27.27 | 24.96 |

WTR YR 1998 MEAN 26.75 HIGHEST 23.08 SEPR. 27, 29, 1998 LOWEST 28.13 OCT. 10, 11, 1997



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181446066013400. Local number, CJ-TW20.

LOCATION.--Lat 18°14'46", long 66°01'34", Hydrologic Unit 21010005, 0.63 mi east of Hwy 1, 1.59 mi west of the intersection of Hwy 189 with Hwy 931, and 0.70 mi northeast of the intersection of Hwy 189 with Hwy 1. Owner: US Geological Survey, WRD, Name: CJ-TW20.

**AQUIFER.--**Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), casing 4 in (0.10 m), 0-37.0 ft (0-11.3 m), screened 25-35 ft (7.62-11.3 m). Depth 35.0 ft (11.3 m).

**INSTRUMENTATION.**--Digital water level recorder--60-minute punch.

**DATUM.**--Elevation of land-surface datum is about 187.0 ft (57.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.63 ft (1.11 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 5, 1997.

PERIOD OF RECORD.--May 5, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.19 ft (4.32 m), below land-surface datum, Sept. 22 1998; lowest water level recorded, 19.89 ft (6.06 m), below land-surface datum, July 15, 16, 17, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|
| 1    | --- | --- | --- | --- | --- | --- | --- | ---   | 19.55 | 19.78 | 19.37 | 18.23 |
| 2    | --- | --- | --- | --- | --- | --- | --- | ---   | 19.54 | 19.78 | 19.35 | 18.33 |
| 3    | --- | --- | --- | --- | --- | --- | --- | ---   | 19.53 | 19.81 | 19.36 | 18.36 |
| 4    | --- | --- | --- | --- | --- | --- | --- | ---   | 19.48 | 19.82 | 19.12 | 18.41 |
| 5    | --- | --- | --- | --- | --- | --- | --- | 19.60 | 19.53 | 19.87 | 19.05 | 18.48 |
| 6    | --- | --- | --- | --- | --- | --- | --- | 19.65 | 19.57 | 19.86 | 19.09 | 18.50 |
| 7    | --- | --- | --- | --- | --- | --- | --- | 19.69 | 19.58 | 19.86 | 19.09 | 18.35 |
| 8    | --- | --- | --- | --- | --- | --- | --- | 19.71 | 19.61 | 19.83 | 19.12 | 18.29 |
| 9    | --- | --- | --- | --- | --- | --- | --- | 19.73 | 19.66 | 19.81 | 19.16 | 18.38 |
| 10   | --- | --- | --- | --- | --- | --- | --- | 19.73 | 19.68 | 19.86 | 19.23 | 18.51 |
| 11   | --- | --- | --- | --- | --- | --- | --- | 19.74 | 19.67 | 19.86 | 19.22 | 18.62 |
| 12   | --- | --- | --- | --- | --- | --- | --- | 19.74 | 19.66 | 19.84 | 19.23 | 18.64 |
| 13   | --- | --- | --- | --- | --- | --- | --- | 19.75 | 19.69 | 19.81 | 19.25 | 18.39 |
| 14   | --- | --- | --- | --- | --- | --- | --- | 19.73 | 19.71 | 19.87 | 19.27 | 18.09 |
| 15   | --- | --- | --- | --- | --- | --- | --- | 19.70 | 19.70 | 19.89 | 19.30 | 18.02 |
| 16   | --- | --- | --- | --- | --- | --- | --- | 19.70 | 19.69 | 19.88 | 19.34 | 17.93 |
| 17   | --- | --- | --- | --- | --- | --- | --- | 19.68 | 19.72 | 19.89 | 19.34 | 17.93 |
| 18   | --- | --- | --- | --- | --- | --- | --- | 19.67 | 19.75 | 19.85 | 19.28 | 18.02 |
| 19   | --- | --- | --- | --- | --- | --- | --- | 19.66 | 19.76 | 19.85 | 19.27 | 18.08 |
| 20   | --- | --- | --- | --- | --- | --- | --- | 19.64 | 19.74 | 19.85 | 19.29 | 18.14 |
| 21   | --- | --- | --- | --- | --- | --- | --- | 19.63 | 19.74 | 19.82 | 19.33 | 18.24 |
| 22   | --- | --- | --- | --- | --- | --- | --- | 19.63 | 19.77 | 19.68 | 19.36 | 18.19 |
| 23   | --- | --- | --- | --- | --- | --- | --- | 19.66 | 19.78 | 19.56 | 18.90 | 18.18 |
| 24   | --- | --- | --- | --- | --- | --- | --- | 19.63 | 19.76 | 19.55 | 18.80 | 18.23 |
| 25   | --- | --- | --- | --- | --- | --- | --- | 19.62 | 19.76 | 19.47 | 18.39 | 18.30 |
| 26   | --- | --- | --- | --- | --- | --- | --- | 19.62 | 19.77 | 19.45 | 18.27 | 18.42 |
| 27   | --- | --- | --- | --- | --- | --- | --- | 19.62 | 19.77 | 19.46 | 18.34 | 17.96 |
| 28   | --- | --- | --- | --- | --- | --- | --- | 19.64 | 19.77 | 19.47 | 18.28 | 17.84 |
| 29   | --- | --- | --- | --- | --- | --- | --- | 19.60 | 19.79 | 19.39 | 18.11 | 17.85 |
| 30   | --- | --- | --- | --- | --- | --- | --- | 19.57 | 19.80 | 19.38 | 18.07 | 17.91 |
| 31   | --- | --- | --- | --- | --- | --- | --- | 19.57 | ---   | 19.35 | 18.15 | ---   |
| MEAN | --- | --- | --- | --- | --- | --- | --- | 19.66 | 19.68 | 19.72 | 18.99 | 18.23 |

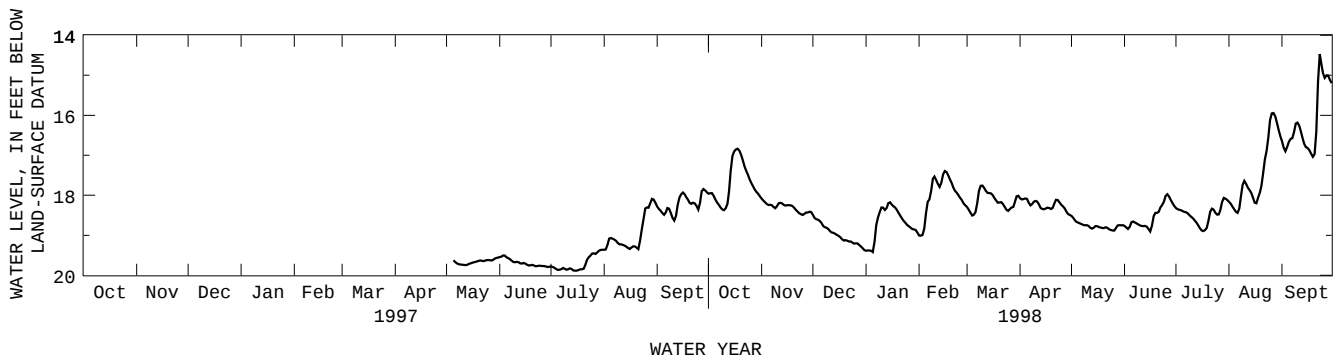
WTR YR 1997 MEAN 19.25 HIGHEST 17.76 SEPT. 28, 1997 LOWEST 19.86 JULY 15, 16, 17, 1997

## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC            | JAN          | FEB          | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|---------------|----------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 17.94      | 18.06         | 18.44          | 19.39        | 18.98        | 18.26 | 18.04 | 18.50 | 18.74 | 18.30 | 18.14 | 16.59 |
| 2           | 17.98      | 18.11         | 18.54          | 19.38        | 19.03        | 18.33 | 18.11 | 18.53 | 18.79 | 18.34 | 18.18 | 16.70 |
| 3           | 17.92      | 18.16         | 18.60          | 19.38        | 18.99        | 18.40 | 18.10 | 18.60 | 18.82 | 18.36 | 18.24 | 16.92 |
| 4           | 17.97      | 18.19         | 18.60          | 19.38        | 18.99        | 18.48 | 18.09 | 18.65 | 18.87 | 18.37 | 18.32 | 16.88 |
| 5           | 18.06      | 18.25         | 18.63          | 19.40        | 18.68        | 18.53 | 18.07 | 18.68 | 18.71 | 18.38 | 18.38 | 16.71 |
| 6           | 18.15      | 18.24         | 18.65          | 19.44        | 18.22        | 18.45 | 18.11 | 18.69 | 18.64 | 18.41 | 18.44 | 16.62 |
| 7           | 18.21      | 18.24         | 18.74          | 18.89        | 18.10        | 18.39 | 18.26 | 18.72 | 18.67 | 18.42 | 18.44 | 16.56 |
| 8           | 18.27      | 18.26         | 18.80          | 18.60        | 18.11        | 18.00 | 18.25 | 18.73 | 18.69 | 18.43 | 18.22 | 16.59 |
| 9           | 18.34      | 18.32         | 18.80          | 18.51        | 17.67        | 17.78 | 18.19 | 18.75 | 18.72 | 18.48 | 17.86 | 16.25 |
| 10          | 18.37      | 18.33         | 18.83          | 18.33        | 17.50        | 17.75 | 18.13 | 18.75 | 18.74 | 18.52 | 17.63 | 16.17 |
| 11          | 18.38      | 18.21         | 18.87          | 18.28        | 17.57        | 17.77 | 18.15 | 18.74 | 18.76 | 18.56 | 17.65 | 16.20 |
| 12          | 18.27      | 18.19         | 18.93          | 18.34        | 17.67        | 17.86 | 18.16 | 18.79 | 18.77 | 18.60 | 17.77 | 16.32 |
| 13          | 18.16      | 18.19         | 18.93          | 18.40        | 17.76        | 17.93 | 18.29 | 18.84 | 18.77 | 18.66 | 17.84 | 16.50 |
| 14          | 17.66      | 18.22         | 18.95          | 18.24        | 17.82        | 17.95 | 18.34 | 18.83 | 18.76 | 18.71 | 17.90 | 16.63 |
| 15          | 17.11      | 18.27         | 18.98          | 18.15        | 17.55        | 17.94 | 18.35 | 18.79 | 18.81 | 18.79 | 17.98 | 16.80 |
| 16          | 16.93      | 18.25         | 19.00          | 18.20        | 17.41        | 17.97 | 18.35 | 18.75 | 18.88 | 18.85 | 18.13 | 16.80 |
| 17          | 16.88      | 18.25         | 19.03          | 18.26        | 17.38        | 18.03 | 18.31 | 18.79 | 18.93 | 18.90 | 18.24 | 16.84 |
| 18          | 16.83      | 18.25         | 19.07          | 18.28        | 17.46        | 18.10 | 18.31 | 18.80 | 18.58 | 18.89 | 18.16 | 16.91 |
| 19          | 16.84      | 18.26         | 19.13          | 18.33        | 17.55        | 18.16 | 18.33 | 18.81 | 18.46 | 18.85 | 17.95 | 17.01 |
| 20          | 16.93      | 18.27         | 19.13          | 18.40        | 17.66        | 18.21 | 18.36 | 18.83 | 18.42 | 18.79 | 17.91 | 17.07 |
| 21          | 17.04      | 18.35         | 19.11          | 18.48        | 17.73        | 18.15 | 18.27 | 18.81 | 18.46 | 18.49 | 17.63 | 16.87 |
| 22          | 17.21      | 18.38         | 19.16          | 18.54        | 17.87        | 18.19 | 18.13 | 18.79 | 18.37 | 18.34 | 17.27 | 15.95 |
| 23          | 17.35      | 18.43         | 19.15          | 18.62        | 17.91        | 18.25 | 18.10 | 18.84 | 18.24 | 18.33 | 16.94 | 14.34 |
| 24          | 17.44      | 18.47         | 19.16          | 18.66        | 17.96        | 18.33 | 18.14 | 18.87 | 18.25 | 18.39 | 16.84 | 14.60 |
| 25          | 17.54      | 18.48         | 19.20          | 18.72        | 18.04        | 18.40 | 18.21 | 18.86 | 18.07 | 18.48 | 16.28 | 14.82 |
| 26          | 17.65      | 18.51         | 19.22          | 18.76        | 18.09        | 18.38 | 18.26 | 18.90 | 17.97 | 18.49 | 15.96 | 15.08 |
| 27          | 17.73      | 18.42         | 19.19          | 18.79        | 18.16        | 18.31 | 18.29 | 18.86 | 17.98 | 18.47 | 15.95 | 15.05 |
| 28          | 17.82      | 18.44         | 19.22          | 18.83        | 18.25        | 18.30 | 18.36 | 18.77 | 18.08 | 18.28 | 15.94 | 14.96 |
| 29          | 17.89      | 18.42         | 19.26          | 18.86        | ---          | 18.28 | 18.45 | 18.74 | 18.16 | 18.06 | 16.11 | 15.06 |
| 30          | 17.94      | 18.40         | 19.30          | 18.85        | ---          | 18.06 | 18.49 | 18.75 | 18.23 | 18.07 | 16.27 | 15.18 |
| 31          | 17.99      | ---           | 19.35          | 18.88        | ---          | 17.99 | ---   | 18.75 | ---   | 18.10 | 16.47 | ---   |
| MEAN        | 17.70      | 18.29         | 18.97          | 18.70        | 18.00        | 18.16 | 18.23 | 18.76 | 18.54 | 18.49 | 17.52 | 16.17 |
| WTR YR 1998 | MEAN 18.13 | HIGHEST 14.19 | SEPT. 22, 1998 | LOWEST 19.46 | JAN. 6, 1998 |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181539066014500. Local number, CJ-TW15.

LOCATION.--Lat 18°15'39", long 66°01'45", Hydrologic Unit 21010005, 0.55 mi southeast of the intersection of Hwy 1 with Hwy 30, 0.75 mi southeast of the intersection of Hwy 1 with Hwy 52, and 0.06 mi north of Hwy 796. Owner: US Geological Survey, WRD, Name: CJ-TW15.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-70.0 ft (0-21.3 m), screened 25-70 ft (7.62-21.3 m). Depth 70.0 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 167.3 ft (51.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.75 ft (1.14 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 5, 1997.

PERIOD OF RECORD.--May 5, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.93 ft (1.81 m), below land-surface datum, Oct. 14, 1997; lowest water level recorded, 9.58 ft (2.92 m), below land-surface datum, May 11, 12, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| 1    | --- | --- | --- | --- | --- | --- | --- | ---  | 7.57 | 8.05 | 7.76 | 7.11 |
| 2    | --- | --- | --- | --- | --- | --- | --- | ---  | 7.62 | 8.09 | 7.81 | 7.20 |
| 3    | --- | --- | --- | --- | --- | --- | --- | ---  | 7.67 | 8.09 | 7.84 | 7.21 |
| 4    | --- | --- | --- | --- | --- | --- | --- | ---  | 7.77 | 8.11 | 7.32 | 7.23 |
| 5    | --- | --- | --- | --- | --- | --- | --- | ---  | 7.87 | 8.15 | 7.45 | 7.25 |
| 6    | --- | --- | --- | --- | --- | --- | --- | 7.64 | 7.95 | 8.16 | 7.50 | 7.30 |
| 7    | --- | --- | --- | --- | --- | --- | --- | 7.68 | 8.00 | 8.17 | 7.55 | 7.19 |
| 8    | --- | --- | --- | --- | --- | --- | --- | 7.71 | 8.00 | 8.15 | 7.61 | 7.28 |
| 9    | --- | --- | --- | --- | --- | --- | --- | 7.70 | 8.00 | 8.13 | 7.66 | 7.32 |
| 10   | --- | --- | --- | --- | --- | --- | --- | 7.68 | 7.97 | 8.13 | 7.71 | 7.33 |
| 11   | --- | --- | --- | --- | --- | --- | --- | 7.68 | 7.94 | 8.14 | 7.69 | 7.39 |
| 12   | --- | --- | --- | --- | --- | --- | --- | 7.69 | 7.91 | 8.16 | 7.67 | 7.39 |
| 13   | --- | --- | --- | --- | --- | --- | --- | 7.73 | 7.94 | 8.16 | 7.62 | 7.03 |
| 14   | --- | --- | --- | --- | --- | --- | --- | 7.73 | 8.00 | 8.19 | 7.53 | 7.06 |
| 15   | --- | --- | --- | --- | --- | --- | --- | 7.77 | 8.04 | 8.21 | 7.53 | 7.09 |
| 16   | --- | --- | --- | --- | --- | --- | --- | 7.80 | 8.08 | 8.22 | 7.53 | 7.14 |
| 17   | --- | --- | --- | --- | --- | --- | --- | 7.76 | 8.18 | 8.16 | 7.49 | 7.16 |
| 18   | --- | --- | --- | --- | --- | --- | --- | 7.79 | 8.24 | 8.15 | 7.36 | 7.22 |
| 19   | --- | --- | --- | --- | --- | --- | --- | 7.82 | 8.22 | 8.05 | 7.46 | 7.28 |
| 20   | --- | --- | --- | --- | --- | --- | --- | 7.83 | 8.18 | 7.97 | 7.45 | 7.33 |
| 21   | --- | --- | --- | --- | --- | --- | --- | 7.79 | 8.19 | 7.94 | 7.44 | 7.35 |
| 22   | --- | --- | --- | --- | --- | --- | --- | 7.75 | 8.20 | 7.83 | 7.19 | 7.34 |
| 23   | --- | --- | --- | --- | --- | --- | --- | 7.75 | 8.19 | 7.81 | 6.84 | 7.36 |
| 24   | --- | --- | --- | --- | --- | --- | --- | 7.74 | 8.14 | 7.85 | 6.97 | 7.42 |
| 25   | --- | --- | --- | --- | --- | --- | --- | 7.68 | 8.14 | 7.85 | 6.52 | 7.48 |
| 26   | --- | --- | --- | --- | --- | --- | --- | 7.63 | 8.15 | 7.88 | 6.70 | 7.34 |
| 27   | --- | --- | --- | --- | --- | --- | --- | 7.58 | 8.14 | 7.94 | 6.83 | 6.99 |
| 28   | --- | --- | --- | --- | --- | --- | --- | 7.54 | 8.14 | 7.92 | 6.91 | 7.08 |
| 29   | --- | --- | --- | --- | --- | --- | --- | 7.47 | 8.10 | 7.92 | 6.96 | 7.13 |
| 30   | --- | --- | --- | --- | --- | --- | --- | 7.44 | 8.05 | 7.89 | 7.01 | 7.21 |
| 31   | --- | --- | --- | --- | --- | --- | --- | 7.50 | ---  | 7.73 | 7.07 | ---  |
| MEAN | --- | --- | --- | --- | --- | --- | --- | 7.69 | 8.02 | 8.04 | 7.35 | 7.24 |

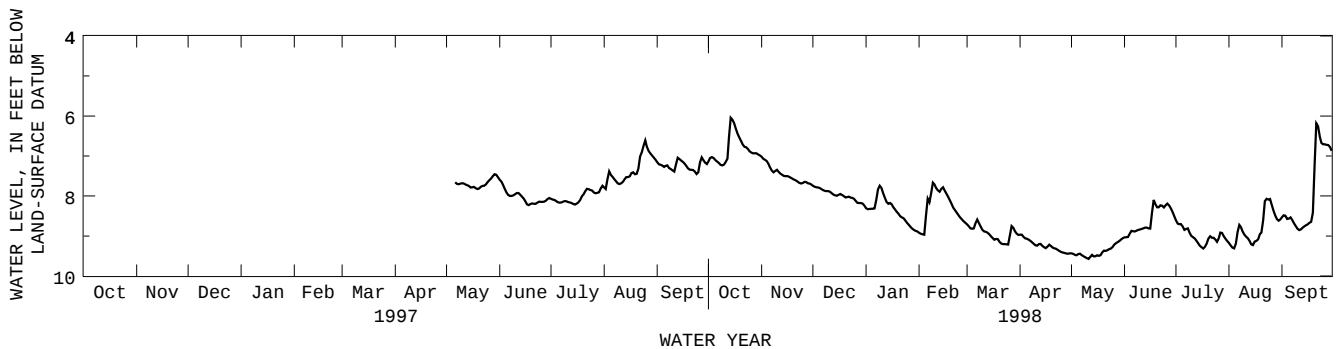
WTR YR 1997 MEAN 7.67 HIGHEST 6.51 AU. 25, 1997 LOWEST 8.24 JULY 15, 16, 1997

## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT                                                                     | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|-------------|-------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| 1           | 7.19                                                                    | 6.99 | 7.73 | 8.28 | 8.90 | 8.69 | 8.98 | 9.43 | 9.04 | 8.56 | 9.15 | 8.55 |
| 2           | 7.08                                                                    | 7.05 | 7.76 | 8.33 | 8.94 | 8.73 | 8.96 | 9.44 | 9.03 | 8.66 | 9.20 | 8.51 |
| 3           | 7.02                                                                    | 7.09 | 7.78 | 8.33 | 8.95 | 8.78 | 8.98 | 9.46 | 9.03 | 8.72 | 9.27 | 8.46 |
| 4           | 7.04                                                                    | 7.10 | 7.78 | 8.32 | 8.97 | 8.84 | 9.06 | 9.48 | 9.02 | 8.69 | 9.31 | 8.53 |
| 5           | 7.07                                                                    | 7.16 | 7.79 | 8.32 | 8.97 | 8.80 | 9.06 | 9.48 | 8.87 | 8.72 | 9.31 | 8.62 |
| 6           | 7.13                                                                    | 7.24 | 7.81 | 8.32 | 8.01 | 8.82 | 9.08 | 9.43 | 8.87 | 8.80 | 9.07 | 8.51 |
| 7           | 7.15                                                                    | 7.34 | 7.85 | 8.30 | 8.12 | 8.54 | 9.11 | 9.46 | 8.89 | 8.90 | 8.73 | 8.56 |
| 8           | 7.20                                                                    | 7.39 | 7.86 | 7.90 | 8.19 | 8.64 | 9.13 | 9.49 | 8.88 | 8.75 | 8.72 | 8.65 |
| 9           | 7.24                                                                    | 7.43 | 7.89 | 7.77 | 7.67 | 8.72 | 9.19 | 9.52 | 8.85 | 8.87 | 8.83 | 8.72 |
| 10          | 7.23                                                                    | 7.32 | 7.87 | 7.72 | 7.66 | 8.81 | 9.21 | 9.54 | 8.85 | 8.97 | 8.94 | 8.78 |
| 11          | 7.20                                                                    | 7.37 | 7.89 | 7.87 | 7.76 | 8.89 | 9.25 | 9.57 | 8.83 | 9.02 | 8.99 | 8.86 |
| 12          | 7.10                                                                    | 7.43 | 7.91 | 7.99 | 7.84 | 8.88 | 9.23 | 9.58 | 8.82 | 9.04 | 9.04 | 8.85 |
| 13          | 7.03                                                                    | 7.45 | 7.95 | 8.10 | 7.88 | 8.91 | 9.18 | 9.46 | 8.80 | 9.09 | 9.07 | 8.82 |
| 14          | 6.02                                                                    | 7.49 | 7.98 | 8.20 | 7.91 | 8.93 | 9.22 | 9.48 | 8.78 | 9.15 | 9.17 | 8.77 |
| 15          | 6.07                                                                    | 7.51 | 7.99 | 8.19 | 7.73 | 8.99 | 9.27 | 9.54 | 8.80 | 9.22 | 9.25 | 8.75 |
| 16          | 6.12                                                                    | 7.50 | 8.00 | 8.16 | 7.83 | 9.03 | 9.29 | 9.47 | 8.82 | 9.26 | 9.20 | 8.72 |
| 17          | 6.25                                                                    | 7.51 | 7.94 | 8.25 | 7.91 | 9.08 | 9.32 | 9.49 | 8.81 | 9.30 | 9.08 | 8.70 |
| 18          | 6.40                                                                    | 7.53 | 7.96 | 8.31 | 7.98 | 9.11 | 9.21 | 9.50 | 8.04 | 9.33 | 9.16 | 8.64 |
| 19          | 6.50                                                                    | 7.55 | 7.99 | 8.37 | 8.07 | 9.04 | 9.23 | 9.46 | 8.16 | 9.21 | 9.01 | 8.65 |
| 20          | 6.58                                                                    | 7.58 | 8.02 | 8.42 | 8.16 | 9.12 | 9.27 | 9.36 | 8.25 | 9.17 | 8.90 | 8.19 |
| 21          | 6.67                                                                    | 7.60 | 8.05 | 8.47 | 8.25 | 9.17 | 9.31 | 9.37 | 8.31 | 8.96 | 8.93 | 6.27 |
| 22          | 6.76                                                                    | 7.62 | 8.00 | 8.54 | 8.33 | 9.21 | 9.31 | 9.37 | 8.25 | 9.05 | 8.30 | 6.10 |
| 23          | 6.78                                                                    | 7.66 | 8.04 | 8.53 | 8.38 | 9.20 | 9.33 | 9.34 | 8.22 | 9.04 | 7.96 | 6.41 |
| 24          | 6.79                                                                    | 7.68 | 8.04 | 8.59 | 8.45 | 9.21 | 9.36 | 9.32 | 8.27 | 9.05 | 8.18 | 6.61 |
| 25          | 6.86                                                                    | 7.69 | 8.05 | 8.65 | 8.51 | 9.21 | 9.39 | 9.31 | 8.30 | 9.13 | 8.00 | 6.73 |
| 26          | 6.90                                                                    | 7.66 | 8.09 | 8.70 | 8.56 | 9.22 | 9.41 | 9.24 | 8.17 | 9.16 | 8.15 | 6.68 |
| 27          | 6.93                                                                    | 7.64 | 8.16 | 8.75 | 8.61 | 8.75 | 9.42 | 9.19 | 8.21 | 8.95 | 8.30 | 6.73 |
| 28          | 6.94                                                                    | 7.67 | 8.18 | 8.80 | 8.65 | 8.75 | 9.43 | 9.17 | 8.26 | 8.88 | 8.44 | 6.71 |
| 29          | 6.93                                                                    | 7.69 | 8.17 | 8.83 | ---  | 8.84 | 9.45 | 9.14 | 8.35 | 8.97 | 8.54 | 6.74 |
| 30          | 6.94                                                                    | 7.69 | 8.18 | 8.87 | ---  | 8.91 | 9.44 | 9.11 | 8.44 | 9.04 | 8.62 | 6.81 |
| 31          | 6.98                                                                    | ---  | 8.20 | 8.87 | ---  | 8.97 | ---  | 9.07 | ---  | 9.10 | 8.62 | ---  |
| MEAN        | 6.84                                                                    | 7.45 | 7.96 | 8.36 | 8.26 | 8.93 | 9.24 | 9.40 | 8.61 | 8.99 | 8.82 | 7.95 |
| WTR YR 1998 | MEAN 8.40    HIGHEST 5.93 OCT. 14, 1997    LOWEST 9.58 MAY 11, 12, 1998 |      |      |      |      |      |      |      |      |      |      |      |



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181550065593200. Local number, 50.

LOCATION.--Lat 18°15'50", long 65°59'32", Hydrologic Unit 21010005, 1.36 mi northwest of Gurabo plaza, 0.70 mi north of Estación Experimental Agrícola, and 2.42 mi southwest of Escuela José M. Gallardo. Owner: Gurabo Agricultural Experimental Station, Name: Gurabo.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.34 m), cased 4 in (0.10 m), 0-145 ft (0-44.2 m). Depth 145 ft (44.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 148 ft (45.1 m), above mean sea level, from topographic map.

Measuring point: Top of 12 in (0.30 m) casing, 0.80 ft (0.24 m), above land-surface datum.

REMARKS.--Recording observation well.

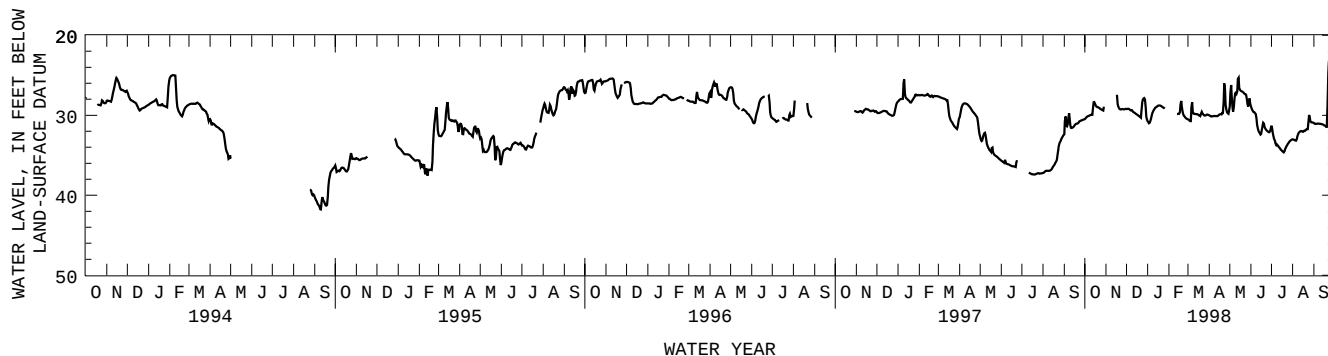
PERIOD OF RECORD.--December 1960 to March 1985, September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.6 ft (3.86 m), below land-surface datum, Sept. 9, 1975; lowest water level measured, 44.4 ft (13.5 m), below land-surface datum, June 18, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 30.50 | ---   | 29.20 | 30.68 | ---   | 30.48 | 29.99 | 29.09 | 28.73 | 31.46 | 33.02 | 30.96 |
| 2    | 30.46 | ---   | 29.21 | 30.82 | ---   | 30.54 | 30.04 | 28.63 | 29.04 | 31.15 | 33.02 | 30.99 |
| 3    | 30.34 | ---   | 29.20 | 30.93 | ---   | 30.60 | 30.07 | 25.77 | 29.28 | 31.98 | 33.04 | 31.11 |
| 4    | 30.24 | ---   | 29.19 | 31.04 | ---   | 30.68 | 30.16 | 26.67 | 29.39 | 32.52 | 33.09 | 31.05 |
| 5    | 30.17 | ---   | 29.21 | 30.81 | ---   | 30.78 | 30.15 | 28.66 | 29.62 | 32.86 | 33.15 | 31.09 |
| 6    | 30.14 | ---   | 29.26 | 30.63 | ---   | 30.67 | 30.11 | 29.36 | 29.58 | 33.11 | 33.17 | 31.05 |
| 7    | 30.09 | ---   | 29.35 | 30.14 | ---   | 27.32 | 30.13 | 29.76 | 29.68 | 33.22 | 33.20 | 31.07 |
| 8    | 30.06 | ---   | 29.42 | 29.79 | ---   | 29.42 | 30.10 | 28.18 | 29.76 | 33.85 | 32.79 | 31.01 |
| 9    | 30.00 | ---   | 29.30 | 29.61 | ---   | 29.74 | 30.09 | 27.49 | 29.91 | 33.59 | 32.47 | 31.08 |
| 10   | 29.97 | ---   | 29.44 | 29.41 | ---   | 29.83 | 30.08 | 27.02 | 30.88 | 33.69 | 32.24 | 31.05 |
| 11   | 29.94 | ---   | 29.56 | 29.28 | ---   | 29.82 | 30.11 | 27.30 | 31.47 | 33.80 | 32.14 | 31.08 |
| 12   | 29.90 | ---   | 29.62 | 29.13 | ---   | 29.84 | 30.09 | 27.30 | 31.81 | 33.92 | 32.05 | 31.08 |
| 13   | 29.96 | ---   | 29.67 | 29.03 | 29.83 | 29.85 | 30.11 | 26.72 | 32.03 | 34.07 | 31.98 | 31.08 |
| 14   | 28.44 | ---   | 29.74 | 28.98 | 29.84 | 29.86 | 30.08 | 24.20 | 32.21 | 34.13 | 31.96 | 31.14 |
| 15   | 28.29 | ---   | 29.80 | 28.93 | 29.82 | 29.88 | 30.00 | 26.41 | 32.28 | 34.28 | 32.00 | 31.17 |
| 16   | 28.41 | ---   | 29.86 | 28.84 | 29.83 | 29.89 | 29.95 | 26.74 | 32.52 | 34.37 | 32.06 | 31.20 |
| 17   | 28.71 | 26.48 | 29.93 | 28.79 | 29.82 | 29.99 | 29.87 | 26.90 | 32.13 | 34.44 | 32.10 | 31.29 |
| 18   | 28.88 | 28.38 | 29.98 | 28.78 | 29.45 | 30.05 | 29.85 | 26.97 | 31.44 | 34.54 | 31.93 | 31.30 |
| 19   | 28.94 | 28.79 | 30.05 | 28.78 | 27.96 | 30.08 | 29.89 | 27.02 | 31.10 | 34.61 | 31.94 | 31.37 |
| 20   | 28.99 | 29.03 | 30.09 | 28.80 | 28.48 | 30.13 | 29.89 | 27.06 | 30.79 | 34.65 | 31.95 | 31.36 |
| 21   | 28.98 | 29.18 | 30.15 | 28.82 | 29.32 | 29.49 | 29.56 | 27.12 | 31.32 | 34.33 | 31.83 | 31.72 |
| 22   | 29.05 | 29.26 | 30.24 | 28.88 | 29.72 | 29.65 | 29.88 | 27.17 | 31.59 | 34.13 | 31.70 | 25.80 |
| 23   | 29.10 | 29.28 | 30.33 | 28.98 | 29.96 | 29.84 | 26.74 | 27.32 | 31.73 | 33.96 | 31.76 | 23.80 |
| 24   | 29.19 | 29.27 | 28.56 | 29.02 | 30.13 | 29.89 | 25.31 | 27.36 | 31.86 | 33.79 | 31.70 | 22.87 |
| 25   | 29.24 | 29.23 | 28.17 | 29.06 | 30.24 | 30.03 | 28.22 | 27.40 | 31.95 | 33.65 | 30.22 | 22.36 |
| 26   | 29.30 | 29.22 | 27.96 | 29.15 | 30.31 | 30.05 | 29.09 | 27.52 | 32.02 | 33.52 | 29.71 | 22.07 |
| 27   | 29.33 | 29.25 | 27.85 | 29.21 | 30.41 | 30.02 | 29.48 | 28.53 | 32.09 | 33.43 | 30.72 | 21.94 |
| 28   | 29.40 | 29.27 | 27.84 | ---   | 30.45 | 29.98 | 29.67 | 28.67 | 32.13 | 33.26 | 30.81 | 21.86 |
| 29   | 29.44 | 29.24 | 28.17 | ---   | ---   | 29.90 | 29.81 | 29.12 | 32.11 | 33.19 | 30.88 | 23.97 |
| 30   | 28.43 | 29.20 | 29.90 | ---   | ---   | 29.94 | 29.84 | 27.51 | 31.88 | 33.11 | 30.90 | 26.92 |
| 31   | ---   | ---   | 30.44 | ---   | ---   | 29.94 | ---   | 28.28 | ---   | 33.05 | 30.89 | ---   |
| MEAN | 29.46 | 28.93 | 29.38 | 29.49 | 29.72 | 29.94 | 29.61 | 27.52 | 31.08 | 33.54 | 31.95 | 28.86 |

WTR YR 1998 MEAN 30.03 HIGHEST 21.77 SEPT. 29, 1998 LOWEST 34.67 JULY 20, 1998



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

182515065594100. Local number, 222.

LOCATION.--Lat 18°25'15", long 65°59'41", Hydrologic Unit 21010005, 3.56 mi northwest of Carolina plaza, 1.21 mi northwest of Escuela Extensión El Comandante, and 0.74 mi southwest of Escuela Vistamar. Owner: US Geological Survey, WRD, Name: Campo Rico TW-1.

AQUIFER.--Surficial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m), above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.80 ft (0.24 m), above land-surface datum. Prior July 28, 1986, top of shelter floor, 3.10 ft (0.94 m), above land-surface datum.

REMARKS.--Recording observation well.

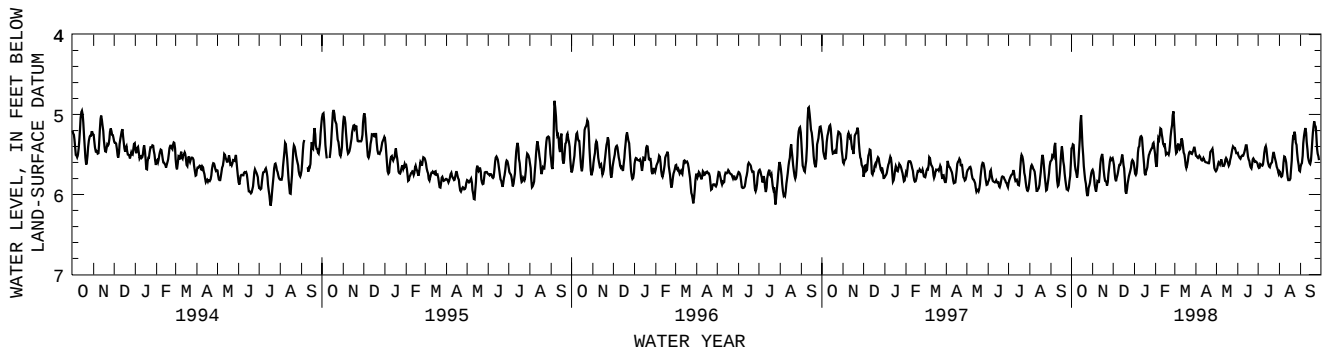
PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.33 ft (1.32 m), below land-surface datum, Sept. 6, 1995; lowest water level recorded, 7.42 ft (2.26 m), below land-surface datum, Feb. 9, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1    | 5.45 | 5.68 | 5.55 | 5.62 | 5.55 | 5.18 | 5.51 | 5.72 | 5.48 | 5.64 | 5.74 | 5.68 |
| 2    | 5.40 | 5.70 | 5.60 | 5.73 | 5.62 | 5.33 | 5.52 | 5.68 | 5.48 | 5.66 | 5.68 | 5.63 |
| 3    | 5.42 | 5.74 | 5.66 | 5.75 | 5.69 | 5.48 | 5.52 | 5.67 | 5.54 | 5.68 | 5.76 | 5.61 |
| 4    | 5.33 | 5.86 | 5.77 | 5.76 | 5.55 | 5.49 | 5.55 | 5.60 | 5.52 | 5.65 | 5.78 | 5.61 |
| 5    | 5.43 | 5.91 | 5.84 | 5.72 | 5.27 | 5.45 | 5.54 | 5.60 | 5.57 | 5.59 | 5.78 | 5.42 |
| 6    | 5.58 | 5.97 | 5.83 | 5.57 | 5.32 | 5.33 | 5.52 | 5.62 | 5.54 | 5.66 | 5.76 | 5.30 |
| 7    | 5.70 | 5.96 | 5.76 | 5.38 | 5.31 | 5.40 | 5.51 | 5.63 | 5.53 | 5.61 | 5.65 | 5.23 |
| 8    | 5.68 | 5.84 | 5.76 | 5.45 | 5.19 | 5.43 | 5.55 | 5.56 | 5.50 | 5.67 | 5.56 | 5.18 |
| 9    | 5.78 | 5.83 | 5.69 | 5.34 | 5.16 | 5.45 | 5.56 | 5.56 | 5.53 | 5.58 | 5.49 | 5.16 |
| 10   | 5.80 | 5.86 | 5.64 | 5.28 | 5.21 | 5.41 | 5.58 | 5.64 | 5.50 | 5.53 | 5.57 | 5.30 |
| 11   | 5.67 | 5.83 | 5.62 | 5.27 | 5.28 | 5.31 | 5.57 | 5.64 | 5.48 | 5.43 | 5.55 | 5.39 |
| 12   | 5.52 | 5.69 | 5.64 | 5.27 | 5.33 | 5.29 | 5.55 | 5.63 | 5.45 | 5.41 | 5.65 | 5.49 |
| 13   | 5.42 | 5.56 | 5.58 | 5.31 | 5.40 | 5.36 | 5.54 | 5.65 | 5.40 | 5.38 | 5.76 | 5.58 |
| 14   | 5.21 | 5.55 | 5.54 | 5.46 | 5.37 | 5.46 | 5.59 | 5.59 | 5.37 | 5.48 | 5.82 | 5.58 |
| 15   | 5.01 | 5.48 | 5.46 | 5.56 | 5.35 | 5.49 | 5.59 | 5.54 | 5.40 | 5.56 | 5.82 | 5.64 |
| 16   | 5.01 | 5.51 | 5.63 | 5.69 | 5.49 | 5.51 | 5.60 | 5.55 | 5.48 | 5.61 | 5.82 | 5.60 |
| 17   | 5.32 | 5.63 | 5.64 | 5.78 | 5.51 | 5.60 | 5.60 | 5.57 | 5.57 | 5.64 | 5.82 | 5.55 |
| 18   | 5.45 | 5.74 | 5.71 | 5.74 | 5.48 | 5.68 | 5.60 | 5.61 | 5.56 | 5.66 | 5.78 | 5.42 |
| 19   | 5.59 | 5.81 | 5.92 | 5.69 | 5.48 | 5.66 | 5.61 | 5.62 | 5.60 | 5.66 | 5.61 | 5.25 |
| 20   | 5.70 | 5.85 | 6.00 | 5.68 | 5.49 | 5.61 | 5.61 | 5.66 | 5.67 | 5.60 | 5.54 | 5.21 |
| 21   | 5.79 | 5.82 | 5.98 | 5.64 | 5.51 | 5.55 | 5.61 | 5.58 | 5.65 | 5.62 | 5.25 | 5.07 |
| 22   | 5.84 | 5.88 | 5.89 | 5.49 | 5.43 | 5.49 | 5.49 | 5.56 | 5.70 | 5.58 | 5.31 | 5.10 |
| 23   | 5.89 | 5.90 | 5.84 | 5.52 | 5.32 | 5.46 | 5.45 | 5.51 | 5.57 | 5.50 | 5.27 | 5.17 |
| 24   | 6.01 | 5.79 | 5.78 | 5.46 | 5.23 | 5.47 | 5.46 | 5.48 | 5.55 | 5.46 | 5.16 | 5.14 |
| 25   | 6.03 | 5.70 | 5.76 | 5.45 | 5.15 | 5.47 | 5.43 | 5.40 | 5.55 | 5.50 | 5.35 | 5.37 |
| 26   | 5.96 | 5.62 | 5.71 | 5.44 | 5.11 | 5.51 | 5.43 | 5.40 | 5.58 | 5.56 | 5.35 | 5.49 |
| 27   | 5.88 | 5.54 | 5.70 | 5.41 | 4.91 | 5.48 | 5.54 | 5.42 | 5.60 | 5.56 | 5.41 | 5.49 |
| 28   | 5.89 | 5.56 | 5.63 | 5.43 | 5.01 | 5.47 | 5.65 | 5.42 | 5.57 | 5.64 | 5.54 | 5.56 |
| 29   | 5.82 | 5.57 | 5.56 | 5.30 | ---  | 5.43 | 5.69 | 5.42 | 5.61 | 5.67 | 5.60 | 5.58 |
| 30   | 5.75 | 5.54 | 5.58 | 5.41 | ---  | 5.40 | 5.70 | 5.48 | 5.59 | 5.68 | 5.66 | ---  |
| 31   | 5.72 | ---  | 5.59 | 5.43 | ---  | 5.43 | ---  | 5.49 | ---  | 5.74 | 5.74 | ---  |
| MEAN | 5.61 | 5.73 | 5.71 | 5.52 | 5.35 | 5.45 | 5.56 | 5.56 | 5.54 | 5.59 | 5.60 | 5.41 |

WTR YR 1998 MEAN 5.55 HIGHEST 4.56 SEPT. 21, 22, 1998 LOWEST 6.4 NOW. 14, 1997



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181540065580300. Local number, CJ-TW18.

LOCATION.--Lat 18°15'40", long 65°58'03", Hydrologic Unit 21010005, 0.75 mi northeast of the intersection of Hwy 181 with Hwy 30, 0.88 mi south of the intersection of Hwy 943 with Hwy 181, and 0.01 mi west of Hwy 181. Owner: US Geological Survey, WRD, Name: CJ-TW18.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-65.0 ft (0-19.8 m), screened 25-65 ft (7.62-19.8 m). Depth 65.0 ft (19.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 164.0 ft (50.0 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.65 ft (1.11 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on June 23, 1997. Found destroyed due to construction in the area. Since then, tape down measurements only.

PERIOD OF RECORD.--June 23, 1997 to November 19, 1997. Found destroyed, temporally discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.08 ft (3.68 m), below land-surface datum, Oct. 16, 1997; lowest water level recorded, 15.81 ft (4.82 m) below land-surface datum, July 15, 16, 17, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC                   | JAN | FEB | MAR | APR | MAY          | JUN                   | JUL   | AUG   | SEP   |
|-------------|------------|---------------|-----------------------|-----|-----|-----|-----|--------------|-----------------------|-------|-------|-------|
| 1           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.74 | 15.04 | 14.37 |
| 2           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.75 | 15.07 | 14.42 |
| 3           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.76 | 15.09 | 14.42 |
| 4           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.77 | 15.10 | 14.48 |
| 5           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.78 | 15.13 | 14.53 |
| 6           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.79 | 15.16 | 14.58 |
| 7           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.78 | 15.19 | 14.62 |
| 8           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.78 | 15.22 | 14.69 |
| 9           | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.79 | 15.26 | 14.74 |
| 10          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.79 | 15.28 | 14.80 |
| 11          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.78 | 15.23 | 14.87 |
| 12          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.78 | 15.23 | 14.87 |
| 13          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.78 | 15.23 | 14.81 |
| 14          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.79 | 15.18 | 14.81 |
| 15          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.80 | 15.20 | 14.79 |
| 16          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.81 | 15.25 | 14.81 |
| 17          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.81 | 15.25 | 14.84 |
| 18          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.79 | 15.23 | 14.90 |
| 19          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.79 | 15.25 | 14.92 |
| 20          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.77 | 15.29 | 14.94 |
| 21          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.74 | 15.32 | 14.97 |
| 22          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.37 | 15.06 | 14.98 |
| 23          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.77                 | 15.23 | 14.79 | 15.00 |
| 24          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.68                 | 15.13 | 14.66 | 15.02 |
| 25          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.64                 | 15.07 | 14.34 | 15.04 |
| 26          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.64                 | 15.05 | 14.29 | 14.98 |
| 27          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.65                 | 15.04 | 14.28 | 14.82 |
| 28          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.67                 | 15.06 | 14.28 | 14.74 |
| 29          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.69                 | 15.01 | 14.29 | 14.74 |
| 30          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.72                 | 15.02 | 14.32 | 14.71 |
| 31          | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | ---                   | 15.01 | 14.35 | ---   |
| MEAN        | ---        | ---           | ---                   | --- | --- | --- | --- | ---          | 15.68                 | 15.56 | 14.96 | 14.77 |
| WTR YR 1997 | MEAN 15.15 | HIGHEST 14.28 | AUG. 27, 28, 29, 1997 |     |     |     |     | LOWEST 15.81 | JULY 15. 16, 17, 1997 |       |       |       |

## GROUND-WATER LEVELS

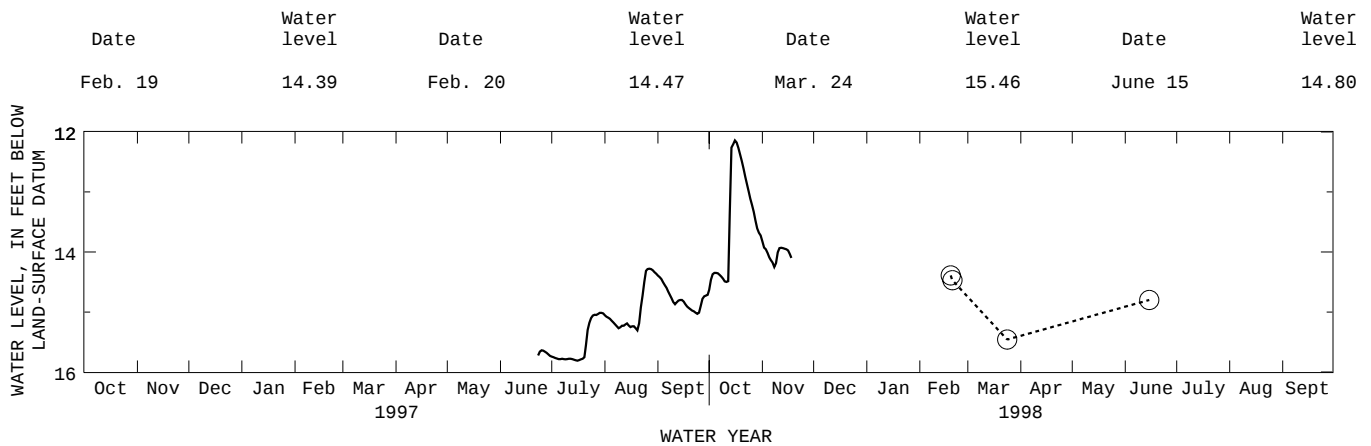
## RIO GRANDE DE LOIZA BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1    | 14.72 | 13.74 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2    | 14.54 | 13.91 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3    | 14.39 | 13.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4    | 14.35 | 13.97 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5    | 14.35 | 14.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6    | 14.35 | 14.12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7    | 14.36 | 14.15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8    | 14.40 | 14.20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9    | 14.42 | 14.30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10   | 14.47 | 14.07 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11   | 14.51 | 13.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12   | 14.49 | 13.93 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13   | 14.48 | 13.93 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14   | 12.25 | 13.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15   | 12.27 | 13.95 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16   | 12.14 | 13.96 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17   | 12.14 | 13.99 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18   | 12.21 | 14.08 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19   | 12.32 | 14.12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20   | 12.43 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21   | 12.54 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22   | 12.68 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23   | 12.82 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24   | 12.93 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25   | 13.06 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26   | 13.16 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27   | 13.27 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28   | 13.39 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29   | 13.56 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30   | 13.65 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31   | 13.71 | ---   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MEAN | 13.50 | 14.02 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

WTR YR 1998 MEAN 13.69 HIGHEST 12.08 OCT. 16, 1997 LOWEST 14.74 OCT. 1, 2, 1997

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181513065554601. Local number, CJ-TW3B.

LOCATION.--Lat 18°15'13", long 65°55'46", Hydrologic Unit 21010005, 2.86 mi east of Gurabo plaza, 3.57 mi southwest of Hwy 186 km 4.7, and 1.39 mi southwest of Hwy 185 km 15.7. Owner: US Geological Survey, WRD, Name: CJ-TW3B.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-38 ft (0-11.6 m) screened 25-35 ft (7.62 m). Depth 38.0 ft (11.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 187 ft (57.0 m), above mean sea level, from topographic map.

Measuring point: Top of casing 2.95 ft (0.90 m), above land-surface datum.

REMARKS.--Recording observation well.

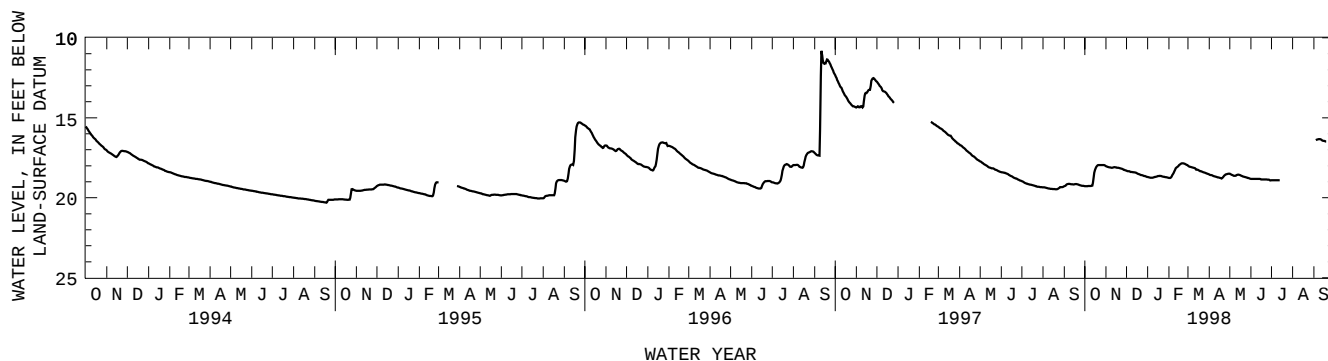
PERIOD OF RECORD.--September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.64 ft (3.24 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 20.31 ft (6.19 m), below land-surface datum, Sept. 19, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|
| 1    | 19.27 | 18.02 | 18.29 | 18.70 | 18.75 | 17.97 | 18.54 | 18.50 | 18.81 | 18.90 | --- | ---   |
| 2    | 19.27 | 18.04 | 18.31 | 18.71 | 18.76 | 18.02 | 18.56 | 18.50 | 18.82 | 18.90 | --- | ---   |
| 3    | 19.28 | 18.05 | 18.34 | 18.71 | 18.76 | 18.04 | 18.57 | 18.53 | 18.82 | 18.90 | --- | ---   |
| 4    | 19.28 | 18.07 | 18.34 | 18.73 | 18.76 | 18.06 | 18.58 | 18.55 | 18.82 | 18.90 | --- | 16.41 |
| 5    | 19.28 | 18.08 | 18.34 | 18.74 | 18.72 | 18.08 | 18.59 | 18.58 | 18.82 | 18.90 | --- | 16.39 |
| 6    | 19.27 | 18.09 | 18.35 | 18.75 | 18.63 | 18.08 | 18.60 | 18.59 | 18.82 | 18.90 | --- | 16.36 |
| 7    | 19.26 | 18.10 | 18.38 | 18.75 | 18.55 | 18.09 | 18.63 | 18.62 | 18.82 | 18.90 | --- | 16.35 |
| 8    | 19.26 | 18.11 | 18.39 | 18.75 | 18.48 | 18.11 | 18.64 | 18.63 | 18.82 | 18.90 | --- | 16.34 |
| 9    | 19.26 | 18.12 | 18.38 | 18.74 | 18.40 | 18.12 | 18.66 | 18.63 | 18.82 | 18.90 | --- | 16.34 |
| 10   | 19.26 | 18.13 | 18.39 | 18.74 | 18.30 | 18.14 | 18.67 | 18.63 | 18.82 | 18.90 | --- | 16.34 |
| 11   | 19.26 | 18.12 | 18.40 | 18.71 | 18.20 | 18.14 | 18.68 | 18.60 | 18.82 | 18.90 | --- | 16.34 |
| 12   | 19.25 | 18.10 | 18.41 | 18.70 | 18.12 | 18.16 | 18.69 | 18.57 | 18.82 | 18.90 | --- | 16.35 |
| 13   | 19.22 | 18.09 | 18.41 | 18.69 | 18.10 | 18.24 | 18.72 | 18.56 | 18.82 | 18.90 | --- | 16.39 |
| 14   | 18.92 | 18.09 | 18.42 | 18.68 | 18.07 | 18.24 | 18.72 | 18.56 | 18.82 | 18.90 | --- | 16.43 |
| 15   | 18.54 | 18.09 | 18.43 | 18.67 | 18.04 | 18.24 | 18.73 | 18.56 | 18.82 | ---   | --- | 16.44 |
| 16   | 18.34 | 18.10 | 18.45 | 18.65 | 17.97 | 18.25 | 18.74 | 18.57 | 18.85 | ---   | --- | 16.44 |
| 17   | 18.18 | 18.11 | 18.47 | 18.64 | 17.94 | 18.29 | 18.75 | 18.59 | 18.85 | ---   | --- | 16.44 |
| 18   | 18.10 | 18.13 | 18.49 | 18.64 | 17.91 | 18.30 | 18.76 | 18.62 | 18.85 | ---   | --- | 16.47 |
| 19   | 18.04 | 18.13 | 18.52 | 18.63 | 17.88 | 18.33 | 18.78 | 18.63 | 18.85 | ---   | --- | 16.48 |
| 20   | 17.98 | 18.13 | 18.53 | 18.63 | 17.85 | 18.34 | 18.80 | 18.65 | 18.85 | ---   | --- | 16.48 |
| 21   | 17.96 | 18.14 | 18.54 | 18.64 | 17.85 | 18.35 | 18.75 | 18.67 | 18.85 | ---   | --- | ---   |
| 22   | 17.95 | 18.15 | 18.57 | 18.65 | 17.85 | 18.37 | 18.69 | 18.68 | 18.85 | ---   | --- | ---   |
| 23   | 17.96 | 18.17 | 18.58 | 18.67 | 17.85 | 18.39 | 18.64 | 18.69 | 18.85 | ---   | --- | ---   |
| 24   | 17.96 | 18.17 | 18.59 | 18.68 | 17.86 | 18.40 | 18.59 | 18.70 | 18.85 | ---   | --- | ---   |
| 25   | 17.96 | 18.19 | 18.60 | 18.69 | 17.89 | 18.42 | 18.56 | 18.72 | 18.86 | ---   | --- | ---   |
| 26   | 17.96 | 18.21 | 18.62 | 18.69 | 17.91 | 18.43 | 18.54 | 18.73 | 18.87 | ---   | --- | ---   |
| 27   | 17.96 | 18.24 | 18.63 | 18.71 | 17.93 | 18.44 | 18.52 | 18.75 | 18.87 | ---   | --- | ---   |
| 28   | 17.96 | 18.26 | 18.64 | 18.71 | 17.95 | 18.47 | 18.51 | 18.76 | 18.87 | ---   | --- | ---   |
| 29   | 17.96 | 18.26 | 18.65 | 18.72 | ---   | 18.48 | 18.50 | 18.77 | 18.90 | ---   | --- | ---   |
| 30   | 17.96 | 18.29 | 18.67 | 18.73 | ---   | 18.50 | 18.50 | 18.78 | 18.92 | ---   | --- | ---   |
| 31   | 17.97 | ---   | 18.69 | 18.74 | ---   | 18.51 | ---   | 18.80 | ---   | ---   | --- | ---   |
| MEAN | 18.58 | 18.13 | 18.48 | 18.70 | 18.19 | 18.26 | 18.64 | 18.64 | 18.84 | 18.90 | --- | 16.40 |

WTR YR 1998 MEAN 18.40 HIGHEST 15.92 SEPT. 21, 1998 LOWEST 19.28 OCT. 2-5, 1997



| DAY         | OCT       | NOV          | DEC          | JAN  | FEB  | MAR  | APR         | MAY           | JUN  | JUL  | AUG  | SEP  |
|-------------|-----------|--------------|--------------|------|------|------|-------------|---------------|------|------|------|------|
| 1           | ---       | ---          | ---          | 1.68 | 1.29 | 2.04 | 3.32        | 4.38          | 5.00 | 5.50 | 5.77 | ---  |
| 2           | ---       | ---          | ---          | 1.80 | .44  | 2.08 | 3.36        | 4.41          | 5.02 | 5.53 | 5.77 | ---  |
| 3           | ---       | ---          | ---          | 1.88 | .69  | 2.16 | 3.36        | 4.44          | 5.06 | 5.55 | 5.78 | ---  |
| 4           | ---       | ---          | ---          | 1.97 | .95  | 2.23 | 3.43        | 4.47          | 5.06 | 5.55 | 5.79 | ---  |
| 5           | ---       | ---          | ---          | 2.04 | .93  | 2.28 | 3.47        | 4.53          | 5.07 | 5.58 | 5.84 | ---  |
| 6           | ---       | ---          | ---          | 2.10 | 1.18 | 2.28 | 3.50        | 4.55          | 5.10 | 5.58 | 5.84 | ---  |
| 7           | ---       | ---          | ---          | 2.15 | 1.09 | 2.32 | 3.53        | 4.58          | 5.12 | 5.59 | 5.84 | ---  |
| 8           | ---       | ---          | ---          | 2.20 | .84  | 2.35 | 3.55        | 4.59          | 5.13 | 5.59 | 5.88 | ---  |
| 9           | ---       | ---          | ---          | 2.26 | .99  | 2.43 | 3.59        | 4.64          | 5.13 | 5.60 | 5.88 | ---  |
| 10          | ---       | ---          | ---          | 2.30 | .96  | 2.45 | 3.64        | 4.64          | 5.16 | 5.63 | 5.88 | ---  |
| 11          | ---       | ---          | ---          | 2.36 | .91  | 2.53 | 3.71        | 4.67          | 5.18 | 5.63 | 5.88 | ---  |
| 12          | ---       | ---          | ---          | 2.40 | 1.09 | 2.55 | 3.74        | 4.70          | 5.20 | 5.65 | 5.90 | ---  |
| 13          | ---       | ---          | ---          | 2.45 | 1.01 | 2.59 | 3.75        | 4.72          | 5.22 | 5.66 | 5.90 | ---  |
| 14          | ---       | ---          | ---          | 2.49 | 1.17 | 2.66 | 3.81        | 4.72          | 5.22 | 5.68 | 5.91 | ---  |
| 15          | ---       | ---          | ---          | 2.52 | 1.12 | 2.68 | 3.83        | 4.73          | 5.22 | 5.69 | 5.91 | ---  |
| 16          | ---       | ---          | ---          | 2.56 | 1.35 | 2.72 | 3.86        | 4.73          | 5.23 | 5.71 | 5.96 | ---  |
| 17          | ---       | ---          | ---          | 2.59 | 1.53 | 2.74 | 3.87        | 4.78          | 5.26 | 5.71 | 5.96 | ---  |
| 18          | ---       | ---          | ---          | 2.63 | 1.66 | 2.78 | 3.92        | 4.81          | 5.28 | 5.72 | 5.96 | ---  |
| 19          | ---       | ---          | ---          | 2.67 | 1.74 | 2.80 | 3.97        | 4.84          | 5.29 | 5.72 | 5.99 | ---  |
| 20          | ---       | ---          | ---          | 2.71 | 1.83 | 2.84 | 4.02        | 4.87          | 5.29 | 5.72 | ---  | ---  |
| 21          | ---       | ---          | ---          | 2.70 | 1.86 | 2.87 | 4.02        | 4.88          | 5.32 | 5.72 | ---  | ---  |
| 22          | ---       | ---          | ---          | 2.15 | 1.56 | 2.93 | 4.08        | 4.90          | 5.34 | 5.72 | ---  | ---  |
| 23          | ---       | ---          | ---          | 1.10 | 1.42 | 2.96 | 4.12        | 4.93          | 5.35 | 5.72 | ---  | ---  |
| 24          | ---       | ---          | 2.36         | .77  | 1.51 | 3.02 | 4.14        | 4.96          | 5.35 | 5.74 | ---  | ---  |
| 25          | ---       | ---          | 2.30         | .66  | 1.57 | 3.05 | 4.19        | 4.96          | 5.38 | 5.75 | ---  | ---  |
| 26          | ---       | ---          | 2.30         | .91  | 1.72 | 3.09 | 4.23        | 4.97          | 5.43 | 5.75 | ---  | 5.61 |
| 27          | ---       | ---          | 2.31         | 1.17 | 1.84 | 3.16 | 4.26        | 4.99          | 5.43 | 5.75 | ---  | 5.42 |
| 28          | ---       | ---          | 2.28         | 1.37 | 1.93 | 3.17 | 4.28        | 4.99          | 5.43 | 5.75 | ---  | 5.35 |
| 29          | ---       | ---          | 2.19         | 1.40 | ---  | 3.25 | 4.34        | 5.00          | 5.43 | 5.75 | ---  | 5.32 |
| 30          | ---       | ---          | 1.65         | 1.52 | ---  | 3.26 | 4.35        | 5.00          | 5.47 | 5.77 | ---  | 5.27 |
| 31          | ---       | ---          | 1.60         | 1.62 | ---  | 3.30 | ---         | 5.00          | ---  | 5.77 | ---  | ---  |
| MEAN        | ---       | ---          | 2.12         | 1.97 | 1.29 | 2.70 | 3.84        | 4.75          | 5.24 | 5.67 | 5.88 | 5.39 |
| WTR YR 1997 | MEAN 3.82 | HIGHEST 0.41 | FEB. 2, 1997 |      |      |      | LOWEST 6.02 | AUG. 19, 1997 |      |      |      |      |

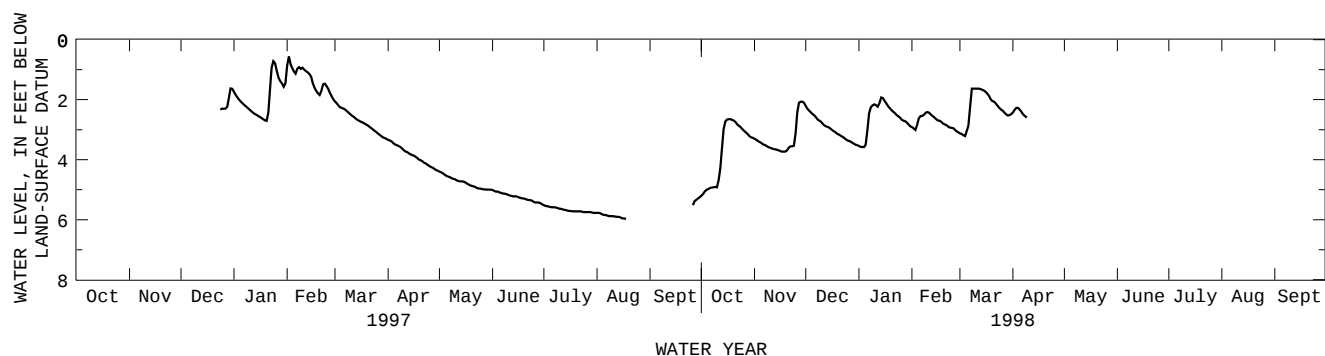
## GROUND-WATER LEVELS

## RIO HERRERA TO RIO ANTON RUIZ BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|
| 1    | 5.22 | 3.29 | 2.14 | 3.52 | 2.91 | 3.11 | 2.47 | --- | --- | --- | --- | --- |
| 2    | 5.19 | 3.32 | 2.27 | 3.57 | 2.91 | 3.13 | 2.38 | --- | --- | --- | --- | --- |
| 3    | 5.10 | 3.35 | 2.34 | 3.57 | 3.00 | 3.16 | 2.29 | --- | --- | --- | --- | --- |
| 4    | 5.02 | 3.41 | 2.40 | 3.58 | 3.01 | 3.21 | 2.25 | --- | --- | --- | --- | --- |
| 5    | 4.99 | 3.41 | 2.45 | 3.58 | 2.67 | 3.21 | 2.31 | --- | --- | --- | --- | --- |
| 6    | 4.97 | 3.47 | 2.52 | 3.42 | 2.57 | 2.89 | 2.36 | --- | --- | --- | --- | --- |
| 7    | 4.93 | 3.50 | 2.54 | 2.61 | 2.53 | 2.85 | 2.46 | --- | --- | --- | --- | --- |
| 8    | 4.93 | 3.52 | 2.64 | 2.29 | 2.55 | 1.63 | 2.53 | --- | --- | --- | --- | --- |
| 9    | 4.91 | 3.56 | 2.70 | 2.22 | 2.46 | 1.63 | 2.56 | --- | --- | --- | --- | --- |
| 10   | 4.91 | 3.59 | 2.70 | 2.16 | 2.41 | 1.63 | 2.64 | --- | --- | --- | --- | --- |
| 11   | 4.93 | 3.61 | 2.79 | 2.16 | 2.41 | 1.63 | ---  | --- | --- | --- | --- | --- |
| 12   | 4.45 | 3.64 | 2.84 | 2.20 | 2.46 | 1.63 | ---  | --- | --- | --- | --- | --- |
| 13   | 4.12 | 3.64 | 2.88 | 2.27 | 2.52 | 1.63 | ---  | --- | --- | --- | --- | --- |
| 14   | 3.21 | 3.67 | 2.90 | 1.95 | 2.56 | 1.66 | ---  | --- | --- | --- | --- | --- |
| 15   | 2.77 | 3.67 | 2.93 | 1.90 | 2.61 | 1.68 | ---  | --- | --- | --- | --- | --- |
| 16   | 2.68 | 3.70 | 2.96 | 1.99 | 2.67 | 1.71 | ---  | --- | --- | --- | --- | --- |
| 17   | 2.65 | 3.73 | 3.03 | 2.08 | 2.70 | 1.77 | ---  | --- | --- | --- | --- | --- |
| 18   | 2.65 | 3.73 | 3.05 | 2.16 | 2.70 | 1.81 | ---  | --- | --- | --- | --- | --- |
| 19   | 2.65 | 3.73 | 3.09 | 2.25 | 2.76 | 1.93 | ---  | --- | --- | --- | --- | --- |
| 20   | 2.70 | 3.73 | 3.15 | 2.31 | 2.82 | 2.04 | ---  | --- | --- | --- | --- | --- |
| 21   | 2.70 | 3.65 | 3.16 | 2.38 | 2.82 | 2.05 | ---  | --- | --- | --- | --- | --- |
| 22   | 2.80 | 3.56 | 3.21 | 2.42 | 2.86 | 2.09 | ---  | --- | --- | --- | --- | --- |
| 23   | 2.86 | 3.56 | 3.24 | 2.47 | 2.91 | 2.17 | ---  | --- | --- | --- | --- | --- |
| 24   | 2.89 | 3.54 | 3.27 | 2.55 | 2.94 | 2.23 | ---  | --- | --- | --- | --- | --- |
| 25   | 2.96 | 3.54 | 3.33 | 2.56 | 2.94 | 2.32 | ---  | --- | --- | --- | --- | --- |
| 26   | 3.01 | 2.70 | 3.37 | 2.64 | 2.95 | 2.34 | ---  | --- | --- | --- | --- | --- |
| 27   | 3.07 | 2.13 | 3.37 | 2.70 | 3.04 | 2.40 | ---  | --- | --- | --- | --- | --- |
| 28   | 3.11 | 2.07 | 3.42 | 2.70 | 3.06 | 2.46 | ---  | --- | --- | --- | --- | --- |
| 29   | 3.17 | 2.07 | 3.44 | 2.73 | ---  | 2.52 | ---  | --- | --- | --- | --- | --- |
| 30   | 3.25 | 2.07 | 3.49 | 2.79 | ---  | 2.53 | ---  | --- | --- | --- | --- | --- |
| 31   | 3.25 | ---  | 3.51 | 2.86 | ---  | 2.50 | ---  | --- | --- | --- | --- | --- |
| MEAN | 3.74 | 3.34 | 2.94 | 2.60 | 2.74 | 2.24 | 2.42 | --- | --- | --- | --- | --- |

WTR YR 1998 MEAN 2.91 HIGHEST 1.63 MAR. 8-13, 1998 LOWEST 5.22 OCT. 1, 1997



## GROUND-WATER LEVELS

## RIO HERRERA TO RIO ANTON RUIZ BASINS

182223065455900. Local number, RM-02.

LOCATION.--Lat 18°22'23", long 65°45'59", Hydrologic Unit 21010005, 0.06 mi south of Hwy 2 and 0.27 mi east of Hwy 181.

Owner: US Geological Survey, WRD, Name: Pozo Rio Mameyes No. 02.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled piezometer well, constructed in 1993 as part of a study of northeast of Puerto Rico, diameter 2 in (0.05 m), screened 13-24.0 ft (3.96-7.32 m). Depth 24.0 ft (7.32 m).

INSTRUMENTATION.--Electronic Data Logger (EDL)--60-minute interval.

DATUM.--Elevation of land surface datum is about 20.0 ft (6.10 m), above mean sea level, from topographic map.

Measuring point: On shelter floor, 6.65 ft (2.03 m), above land-surface datum.

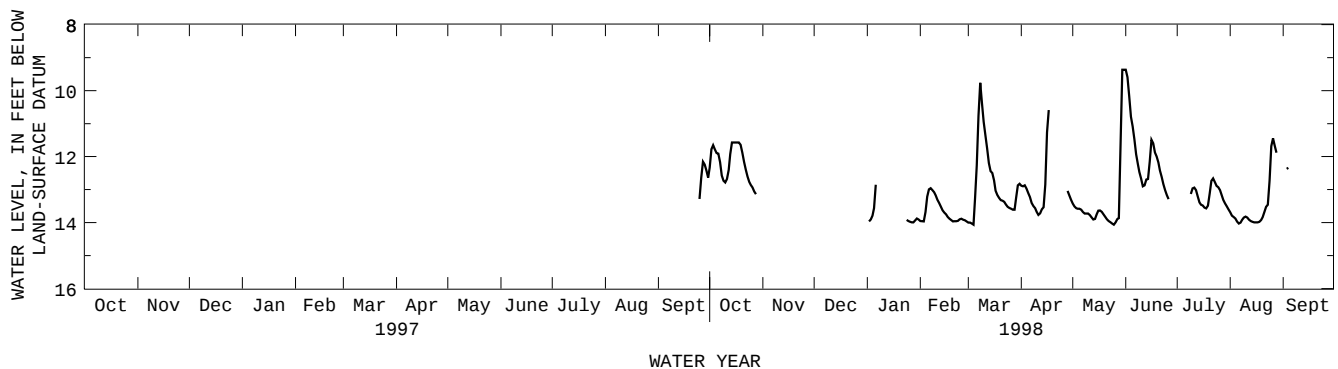
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on Sept. 25, 1997.

PERIOD OF RECORD.--September 25, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.35 ft (2.85 m), below land-surface datum, June 1, 1998; lowest water level recorded, 14.08 ft (4.29 m), below land-surface datum, May 26, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV          | DEC          | JAN          | FEB          | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|--------------|--------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 12.74      | ---          | ---          | ---          | 13.94        | 14.00 | 12.82 | 13.36 | 9.37  | ---   | 13.61 | ---   |
| 2           | 11.93      | ---          | ---          | 13.97        | 13.96        | 14.00 | 12.94 | 13.48 | 9.37  | ---   | 13.76 | ---   |
| 3           | 11.62      | ---          | ---          | 13.96        | 13.96        | 14.00 | 12.86 | 13.54 | 9.82  | ---   | 13.82 | 12.43 |
| 4           | 11.69      | ---          | ---          | 13.85        | 13.97        | 14.06 | 12.88 | 13.58 | 10.52 | ---   | 13.84 | 12.31 |
| 5           | 11.87      | ---          | ---          | 13.73        | 13.39        | 14.06 | 13.06 | 13.58 | 11.06 | ---   | 13.91 | 12.37 |
| 6           | 11.91      | ---          | ---          | 13.39        | 13.04        | 12.49 | 13.14 | 13.58 | 11.11 | ---   | 14.03 | ---   |
| 7           | 11.91      | ---          | ---          | 12.32        | 12.94        | 12.05 | 13.31 | 13.64 | 11.84 | 13.55 | 14.03 | 12.50 |
| 8           | 12.42      | ---          | ---          | ---          | 12.97        | 9.48  | 13.50 | 13.72 | 12.01 | ---   | 13.97 | ---   |
| 9           | 12.73      | ---          | ---          | ---          | 13.06        | 10.05 | 13.50 | 13.73 | 12.44 | 13.27 | 13.87 | ---   |
| 10          | 12.73      | ---          | ---          | ---          | 13.10        | 10.69 | 13.63 | 13.72 | 12.50 | 12.99 | 13.82 | ---   |
| 11          | 12.83      | ---          | ---          | ---          | 13.25        | 11.20 | 13.72 | 13.73 | 12.83 | 12.94 | 13.82 | ---   |
| 12          | 12.53      | ---          | ---          | ---          | 13.36        | 11.50 | 13.81 | 13.81 | 12.97 | 12.94 | 13.88 | ---   |
| 13          | 12.28      | ---          | ---          | ---          | 13.45        | 12.01 | 13.63 | 13.87 | 12.77 | 13.09 | 13.94 | ---   |
| 14          | 11.57      | ---          | ---          | ---          | 13.58        | 12.38 | 13.57 | 13.94 | 12.62 | 13.33 | 13.96 | ---   |
| 15          | 11.57      | ---          | ---          | ---          | 13.67        | 12.50 | 13.50 | 13.84 | 12.74 | 13.45 | 13.99 | ---   |
| 16          | 11.57      | ---          | ---          | ---          | 13.72        | 12.50 | 12.19 | 13.64 | 11.56 | 13.46 | 13.99 | ---   |
| 17          | 11.57      | ---          | ---          | ---          | 13.78        | 12.94 | 10.34 | 13.63 | 11.42 | 13.50 | 13.99 | ---   |
| 18          | 11.57      | ---          | ---          | ---          | 13.88        | 13.13 | 10.84 | 13.63 | 11.77 | 13.59 | 13.99 | ---   |
| 19          | 11.57      | ---          | ---          | ---          | 13.88        | 13.19 | ---   | 13.72 | 11.98 | 13.55 | 13.96 | ---   |
| 20          | 11.72      | ---          | ---          | ---          | 13.97        | 13.31 | ---   | 13.78 | 12.01 | 13.42 | 13.89 | ---   |
| 21          | 12.04      | ---          | ---          | ---          | 13.96        | 13.33 | ---   | 13.87 | 12.34 | 12.83 | 13.78 | ---   |
| 22          | 12.28      | ---          | ---          | ---          | 13.96        | 13.34 | ---   | 13.93 | 12.50 | 12.64 | 13.58 | ---   |
| 23          | 12.50      | ---          | ---          | ---          | 13.96        | 13.40 | ---   | 13.97 | 12.73 | 12.68 | 13.46 | ---   |
| 24          | 12.70      | ---          | ---          | 13.89        | 13.93        | 13.50 | ---   | 14.00 | 12.94 | 12.86 | 13.45 | ---   |
| 25          | 12.83      | ---          | ---          | 13.94        | 13.87        | 13.54 | ---   | 14.05 | 13.09 | 12.92 | 12.02 | ---   |
| 26          | 12.89      | ---          | ---          | 13.96        | 13.89        | 13.57 | ---   | 14.08 | 13.24 | 12.94 | 11.35 | ---   |
| 27          | 12.98      | ---          | ---          | 13.99        | 13.93        | 13.59 | ---   | 13.91 | 13.34 | 13.09 | 11.54 | ---   |
| 28          | 13.13      | ---          | ---          | 13.99        | 13.93        | 13.63 | 12.99 | 13.88 | ---   | 13.22 | 11.80 | ---   |
| 29          | 13.14      | ---          | ---          | 13.99        | ---          | 13.59 | 13.09 | 13.85 | ---   | 13.40 | 11.96 | ---   |
| 30          | ---        | ---          | ---          | 13.88        | ---          | 12.91 | 13.25 | 9.37  | ---   | 13.43 | ---   | ---   |
| 31          | ---        | ---          | ---          | 13.87        | ---          | 12.83 | ---   | 9.37  | ---   | 13.58 | ---   | ---   |
| MEAN        | 12.24      | ---          | ---          | 13.77        | 13.65        | 12.80 | 12.98 | 13.48 | 11.96 | 13.19 | 13.48 | 12.40 |
| WTR YR 1998 | MEAN 13.01 | HIGHEST 9.35 | JUNE 1, 1998 | LOWEST 14.08 | MAY 26, 1998 |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO HERRERA TO RIO ANTON RUIZ BASINS

181217065453000. Local number, ARR-1.

LOCATION.--Lat 18°12'17", long 65°45'30", Hydrologic Unit 21010005, 0.01 mi south of Hwy 927 at Km 8.0 and 0.62 mi south of Hwy 31. Owner: Carlos Arroyo, Name: Arroyo TW-1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well.

INSTRUMENTATION.--Digital water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 16.0 ft (4.87 m), above mean sea level, from topographic map.

Measuring point: Shelter floor, 4.80 ft (1.46 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Oct. 26, 1997. Well is affected by stage in nearby Rio Blanco.

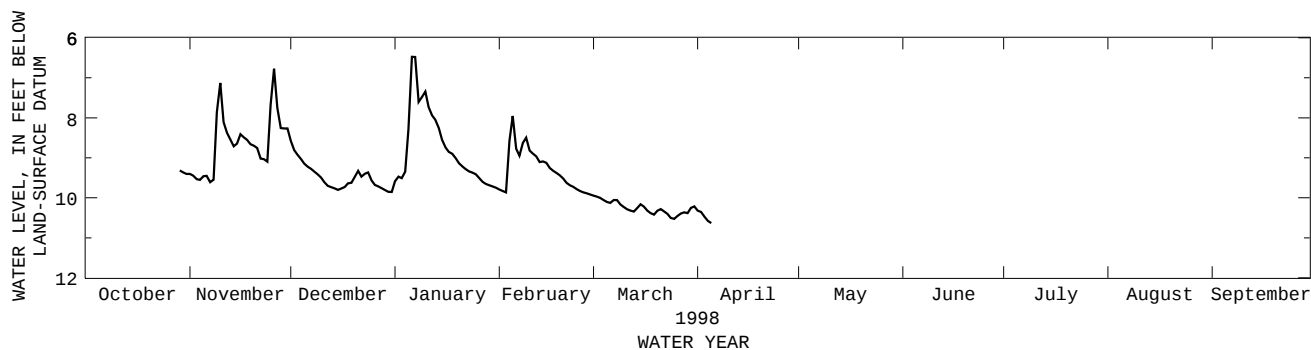
PERIOD OF RECORD.--October 26, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.95 ft (1.51 m), below land-surface datum, Jan. 7, 1998; lowest water level recorded, 10.65 ft (3.25 m), below land-surface datum, Apr. 6, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR   | APR   | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|-------|-------|-----|-----|-----|-----|-----|
| 1    | ---  | 9.42 | 8.41 | 9.84 | 9.77 | 9.93  | 10.34 | --- | --- | --- | --- | --- |
| 2    | ---  | 9.39 | 8.74 | 9.33 | 9.81 | 9.96  | 10.30 | --- | --- | --- | --- | --- |
| 3    | ---  | 9.50 | 8.88 | 9.61 | 9.85 | 9.98  | 10.41 | --- | --- | --- | --- | --- |
| 4    | ---  | 9.57 | 8.97 | 9.41 | 9.88 | 10.03 | 10.54 | --- | --- | --- | --- | --- |
| 5    | ---  | 9.53 | 9.09 | 9.28 | 7.27 | 10.08 | 10.61 | --- | --- | --- | --- | --- |
| 6    | ---  | 9.39 | 9.20 | 7.29 | 8.64 | 10.13 | 10.65 | --- | --- | --- | --- | --- |
| 7    | ---  | 9.51 | 9.24 | 5.66 | 8.91 | 10.13 | ---   | --- | --- | --- | --- | --- |
| 8    | ---  | 9.71 | 9.31 | 7.30 | 8.98 | 9.98  | ---   | --- | --- | --- | --- | --- |
| 9    | ---  | 9.38 | 9.38 | 7.91 | 8.27 | 10.13 | ---   | --- | --- | --- | --- | --- |
| 10   | ---  | 6.34 | 9.45 | 7.06 | 8.72 | 10.20 | ---   | --- | --- | --- | --- | --- |
| 11   | ---  | 7.92 | 9.54 | 7.63 | 8.92 | 10.26 | ---   | --- | --- | --- | --- | --- |
| 12   | ---  | 8.29 | 9.68 | 7.84 | 8.87 | 10.31 | ---   | --- | --- | --- | --- | --- |
| 13   | ---  | 8.46 | 9.72 | 8.04 | 9.06 | 10.33 | ---   | --- | --- | --- | --- | --- |
| 14   | ---  | 8.62 | 9.75 | 8.06 | 9.15 | 10.36 | ---   | --- | --- | --- | --- | --- |
| 15   | ---  | 8.80 | 9.78 | 8.45 | 9.03 | 10.16 | ---   | --- | --- | --- | --- | --- |
| 16   | ---  | 8.49 | 9.82 | 8.65 | 9.22 | 10.16 | ---   | --- | --- | --- | --- | --- |
| 17   | ---  | 8.33 | 9.72 | 8.83 | 9.29 | 10.28 | ---   | --- | --- | --- | --- | --- |
| 18   | ---  | 8.64 | 9.74 | 8.87 | 9.35 | 10.36 | ---   | --- | --- | --- | --- | --- |
| 19   | ---  | 8.47 | 9.54 | 8.93 | 9.41 | 10.40 | ---   | --- | --- | --- | --- | --- |
| 20   | ---  | 8.85 | 9.71 | 9.09 | 9.46 | 10.44 | ---   | --- | --- | --- | --- | --- |
| 21   | ---  | 8.55 | 9.25 | 9.18 | 9.58 | 10.21 | ---   | --- | --- | --- | --- | --- |
| 22   | ---  | 8.96 | 9.40 | 9.25 | 9.67 | 10.35 | ---   | --- | --- | --- | --- | --- |
| 23   | ---  | 9.08 | 9.54 | 9.32 | 9.70 | 10.33 | ---   | --- | --- | --- | --- | --- |
| 24   | ---  | 8.99 | 9.26 | 9.36 | 9.75 | 10.47 | ---   | --- | --- | --- | --- | --- |
| 25   | ---  | 9.20 | 9.47 | 9.38 | 9.81 | 10.53 | ---   | --- | --- | --- | --- | --- |
| 26   | ---  | 6.15 | 9.66 | 9.45 | 9.85 | 10.52 | ---   | --- | --- | --- | --- | --- |
| 27   | ---  | 7.40 | 9.69 | 9.56 | 9.88 | 10.39 | ---   | --- | --- | --- | --- | --- |
| 28   | ---  | 8.10 | 9.74 | 9.64 | 9.90 | 10.39 | ---   | --- | --- | --- | --- | --- |
| 29   | 9.29 | 8.41 | 9.78 | 9.67 | ---  | 10.34 | ---   | --- | --- | --- | --- | --- |
| 30   | 9.34 | 8.12 | 9.83 | 9.70 | ---  | 10.42 | ---   | --- | --- | --- | --- | --- |
| 31   | 9.39 | ---  | 9.87 | 9.73 | ---  | 10.09 | ---   | --- | --- | --- | --- | --- |
| MEAN | 9.34 | 8.65 | 9.46 | 8.75 | 9.29 | 10.25 | 10.47 | --- | --- | --- | --- | --- |

WTR YR 1998 MEAN 9.33 HIGHEST 4.95 JAN. 7, 1998 LOWEST 10.65 APR. 6, 1998



## GROUND-WATER LEVELS

## RIO HERRERA TO RIO ANTON RUIZ BASINS

182138065431800. Local number, RS-02.

LOCATION.--Lat 18°21'38", long 65°43'18", Hydrologic Unit 21010005, 0.87 mi southwest of Hwy 3, 0.39 mi south of the intersection of Hwy 992 with Hwy 991, 0.39 mi north of Hwy 983, and 0.07 mi east of Hwy 991. Owner: US Geological Survey, WRD, Name: Río Sabana No. 02.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-56.0 ft (0-17.1 m), screened 2.56-56.0 ft (0.78-17.1 m). Depth 56.0 ft (17.1 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 33.9 ft (10.3 m), above mean sea level, from topographic survey.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.34 ft (1.02 m), above land-surface datum.

REMARKS.--Recording observation well.

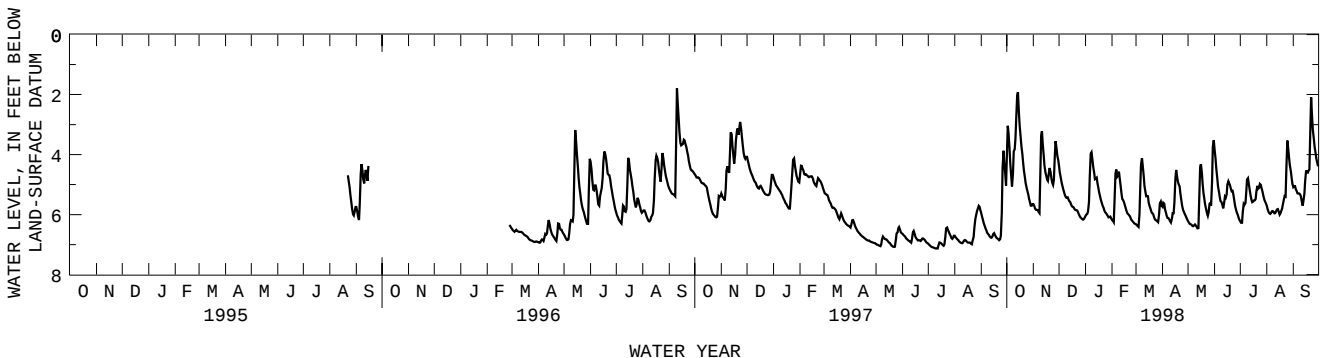
PERIOD OF RECORD.--August 22, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.91 ft (0.28 m), below land-surface datum, Oct. 14, 1997; lowest water level recorded, 7.13 ft (2.17 m), below land-surface datum, July 9-13, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1    | 5.20 | 5.64 | 4.26 | 6.08 | 6.17 | 6.31 | 5.80 | 6.20 | 3.70 | 6.20 | 5.66 | 5.05 |
| 2    | 3.06 | 5.66 | 4.50 | 6.00 | 6.19 | 6.33 | 5.68 | 6.24 | 3.96 | 6.26 | 5.74 | 5.11 |
| 3    | 3.02 | 5.76 | 4.70 | 6.00 | 6.23 | 6.38 | 5.53 | 6.30 | 4.30 | 6.28 | 5.88 | 4.99 |
| 4    | 3.53 | 5.84 | 4.84 | 5.96 | 6.27 | 6.40 | 5.75 | 6.32 | 4.62 | 6.26 | 5.94 | 5.11 |
| 5    | 4.05 | 5.85 | 5.00 | 5.83 | 4.83 | 6.42 | 5.90 | 6.32 | 4.95 | 5.58 | 5.96 | 5.19 |
| 6    | 4.53 | 5.83 | 5.10 | 5.33 | 4.43 | 5.54 | 5.98 | 6.37 | 5.17 | 5.70 | 6.00 | 5.25 |
| 7    | 4.91 | 5.87 | 5.22 | 4.15 | 4.57 | 4.64 | 6.11 | 6.39 | 5.31 | 5.64 | 5.90 | 5.33 |
| 8    | 5.21 | 5.95 | 5.32 | 3.79 | 4.92 | 4.03 | 6.11 | 6.39 | 5.51 | 5.60 | 5.88 | 5.27 |
| 9    | 4.07 | 5.95 | 5.40 | 4.05 | 4.50 | 4.21 | 6.13 | 6.33 | 5.59 | 4.92 | 5.88 | 5.33 |
| 10   | 3.73 | 3.71 | 5.46 | 4.31 | 4.64 | 4.53 | 6.20 | 6.33 | 5.57 | 4.74 | 5.93 | 5.33 |
| 11   | 3.91 | 3.01 | 5.42 | 4.49 | 4.94 | 4.89 | 6.26 | 6.39 | 5.75 | 4.84 | 5.99 | 5.47 |
| 12   | 3.01 | 3.43 | 5.44 | 4.73 | 5.16 | 5.20 | 6.27 | 6.43 | 5.84 | 5.08 | 5.91 | 5.65 |
| 13   | 2.59 | 3.83 | 5.54 | 4.91 | 5.40 | 5.30 | 5.99 | 6.48 | 5.46 | 5.28 | 5.85 | 5.75 |
| 14   | 1.47 | 4.21 | 5.56 | 4.69 | 5.54 | 5.48 | 5.92 | 6.42 | 5.34 | 5.40 | 5.81 | 5.33 |
| 15   | 2.37 | 4.52 | 5.60 | 4.85 | 5.50 | 5.28 | 5.98 | 4.60 | 5.54 | 5.60 | 5.83 | 5.25 |
| 16   | 2.85 | 4.66 | 5.70 | 5.04 | 5.66 | 5.50 | 5.19 | 4.22 | 5.12 | 5.58 | 5.97 | 4.51 |
| 17   | 3.23 | 4.74 | 5.74 | 5.20 | 5.72 | 5.71 | 4.44 | 4.42 | 4.86 | 5.56 | 6.03 | 4.55 |
| 18   | 3.59 | 4.92 | 5.74 | 5.34 | 5.84 | 5.73 | 4.58 | 4.82 | 4.92 | 5.50 | 5.89 | 4.63 |
| 19   | 3.85 | 4.84 | 5.78 | 5.46 | 5.93 | 5.87 | 4.80 | 5.14 | 4.99 | 5.54 | 5.85 | 4.57 |
| 20   | 4.13 | 4.40 | 5.84 | 5.56 | 5.99 | 5.95 | 5.00 | 5.38 | 5.03 | 5.42 | 5.73 | 4.49 |
| 21   | 4.41 | 4.50 | 5.86 | 5.68 | 5.99 | 5.96 | 4.97 | 5.59 | 5.25 | 5.02 | 5.59 | 4.51 |
| 22   | 4.64 | 4.68 | 5.84 | 5.72 | 6.05 | 6.00 | 5.15 | 5.75 | 5.19 | 5.06 | 5.41 | 1.69 |
| 23   | 4.86 | 4.88 | 5.88 | 5.82 | 6.09 | 6.14 | 5.43 | 5.89 | 5.23 | 5.22 | 5.35 | 2.49 |
| 24   | 5.04 | 4.98 | 5.94 | 5.90 | 6.18 | 6.18 | 5.61 | 5.99 | 5.45 | 5.00 | 5.45 | 3.03 |
| 25   | 5.16 | 5.04 | 6.00 | 5.94 | 6.20 | 6.19 | 5.79 | 6.09 | 5.63 | 4.96 | 3.49 | 3.33 |
| 26   | 5.26 | 4.66 | 6.08 | 5.96 | 6.24 | 6.21 | 5.89 | 5.77 | 5.79 | 5.06 | 3.57 | 3.61 |
| 27   | 5.42 | 3.46 | 6.10 | 6.03 | 6.27 | 6.24 | 5.93 | 5.51 | 5.90 | 5.18 | 3.95 | 3.85 |
| 28   | 5.54 | 3.64 | 6.14 | 6.07 | 6.31 | 6.26 | 6.01 | 5.72 | 5.96 | 5.30 | 4.25 | 4.03 |
| 29   | 5.66 | 3.94 | 6.16 | 6.11 | ---  | 5.73 | 6.06 | 5.68 | 6.06 | 5.44 | 4.45 | 4.23 |
| 30   | 5.74 | 4.12 | 6.18 | 6.05 | ---  | 5.53 | 6.14 | 4.14 | 6.14 | 5.56 | 4.63 | 4.33 |
| 31   | 5.66 | ---  | 6.12 | 6.09 | ---  | 5.60 | ---  | 3.34 | ---  | 5.58 | 4.87 | ---  |
| MEAN | 4.18 | 4.75 | 5.56 | 5.39 | 5.63 | 5.67 | 5.69 | 5.71 | 5.27 | 5.43 | 5.44 | 4.58 |

WTR YR 1998 MEAN 5.27 HIGHEST 0.91 OCT. 14, 1997 LOWEST 6.48 MAY 13, 14, 1998



## GROUND-WATER LEVELS

## RIO HERRERA TO RIO ANTON RUIZ BASINS

182131065241100. Local number, RP-04.

LOCATION.--Lat. 18°21'31", long. 65°24'11", Hydrologic Unit 21010005, 1.39 mi southeast of the intersection of Hwy 992 with Hwy 3, 0.40 mi southeast of the intersection of Hwy 983 with Hwy 3, 0.12 mi northwest of the intersection with Hwy 940 with Hwy 983, and 0.03 mi southwest of Hwy 983. Owner: US Geological Survey, WRD, Name: Río Pitahaya No. 04.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-39.0 ft (0-11.9 m), screened 4.00-39.0 ft (1.20-11.9 m). Depth 39.0 ft (11.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 82.1 ft (25.0 m), above mean sea level, from topographic survey.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 4.18 ft (1.27 m), above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

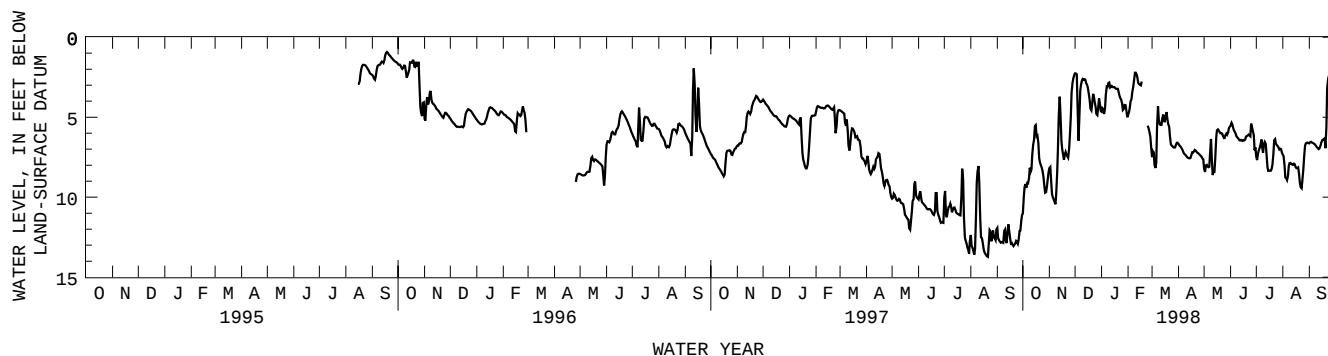
PERIOD OF RECORD.--August 15, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.91 ft (0.28 m), below land-surface datum, Sept. 18, 1995; lowest water level recorded, 14.05 ft (4.28 m), below land-surface datum, Aug. 21, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 1    | 11.65 | 8.26  | 2.27 | 4.62 | 5.11 | 7.29 | 6.62 | 7.66 | 5.59 | 6.93 | 7.27 | 6.65 |
| 2    | 10.40 | 8.11  | 2.23 | 4.70 | 4.64 | 7.70 | 6.72 | 8.77 | 5.47 | 8.05 | 7.41 | 6.62 |
| 3    | 9.57  | 8.11  | 2.30 | 4.16 | 4.72 | 6.54 | 6.79 | 8.08 | 5.23 | 7.32 | 7.46 | 6.51 |
| 4    | 9.15  | 9.72  | 2.34 | 4.84 | 4.08 | 7.85 | 6.85 | 7.96 | 5.66 | 7.21 | 8.60 | 6.56 |
| 5    | 9.22  | 9.92  | 6.31 | 4.77 | 3.94 | 8.17 | 6.93 | 8.00 | 5.75 | 6.92 | 8.91 | 6.60 |
| 6    | 9.63  | 10.06 | 6.63 | 4.14 | 3.78 | 8.18 | 7.03 | 8.17 | 5.91 | 6.88 | 8.73 | 6.62 |
| 7    | 8.58  | 10.24 | 3.65 | 3.09 | 3.09 | 7.44 | 7.15 | 8.09 | 5.98 | 6.53 | 9.12 | 6.66 |
| 8    | 9.69  | 10.36 | 3.05 | 3.09 | 3.11 | 3.71 | 7.30 | 8.10 | 6.11 | 6.26 | 8.22 | 6.68 |
| 9    | 7.98  | 10.53 | 2.87 | 3.12 | 2.34 | 4.93 | 7.32 | 6.47 | 6.29 | 7.61 | 7.90 | 6.78 |
| 10   | 8.34  | 8.94  | 2.52 | 2.60 | 2.10 | 5.37 | 7.37 | 6.25 | 6.26 | 6.83 | 7.84 | 6.84 |
| 11   | 8.46  | 7.89  | 2.68 | 3.06 | 2.33 | 5.52 | 7.45 | 8.83 | 6.38 | 6.48 | 7.88 | 6.93 |
| 12   | 8.07  | 5.85  | 2.63 | 3.22 | 2.35 | 5.45 | 7.52 | 8.40 | 6.46 | 6.61 | 7.93 | 6.94 |
| 13   | 6.62  | 3.97  | 2.62 | 2.97 | 2.77 | 5.51 | 7.55 | 8.36 | 6.45 | 6.71 | 7.98 | 7.05 |
| 14   | 6.77  | 3.48  | 2.65 | 3.12 | 2.93 | 4.68 | 7.56 | 8.45 | 6.40 | 7.85 | 7.99 | 6.84 |
| 15   | 6.09  | 6.10  | 3.12 | 3.12 | 2.95 | 4.99 | 7.59 | 6.71 | 6.50 | 8.37 | 7.82 | 6.74 |
| 16   | 5.02  | 6.91  | 2.82 | 3.12 | 3.00 | 5.24 | 7.50 | 5.89 | 6.46 | 8.34 | 8.06 | 6.46 |
| 17   | 5.97  | 7.09  | 3.55 | 3.13 | 3.03 | 5.39 | 7.20 | 5.74 | 6.40 | 8.35 | 8.19 | 6.42 |
| 18   | 6.44  | 7.63  | 3.46 | 3.22 | 2.52 | 4.46 | 7.20 | 5.78 | 6.49 | 8.36 | 8.18 | 6.40 |
| 19   | 5.88  | 7.69  | 4.39 | 3.23 | ---  | 4.90 | 7.23 | 5.86 | 6.29 | 8.31 | 8.17 | 6.33 |
| 20   | 7.40  | 7.03  | 4.55 | 3.23 | ---  | 5.34 | 7.06 | 5.98 | 6.15 | 8.13 | 8.10 | 6.32 |
| 21   | 7.70  | 7.33  | 4.59 | 3.23 | ---  | 5.51 | 7.04 | 6.02 | 6.20 | 7.80 | 8.89 | 7.56 |
| 22   | 7.95  | 7.41  | 3.74 | 3.64 | ---  | 5.67 | 7.11 | 5.96 | 6.08 | 6.76 | 9.32 | 3.66 |
| 23   | 8.05  | 7.49  | 3.33 | 3.74 | ---  | 6.66 | 7.20 | 6.08 | 6.10 | 6.13 | 9.43 | 2.74 |
| 24   | 8.22  | 7.57  | 4.09 | 3.88 | 5.45 | 6.73 | 7.24 | 6.24 | 6.16 | 6.61 | 9.46 | 2.47 |
| 25   | 8.56  | 6.34  | 3.98 | 3.91 | 5.62 | 6.80 | 7.26 | 6.37 | 6.23 | 6.71 | 8.36 | 2.37 |
| 26   | 8.84  | 5.98  | 4.74 | 4.40 | 5.75 | 6.86 | 7.35 | 6.22 | 4.57 | 6.78 | 8.10 | 2.31 |
| 27   | 9.78  | 3.88  | 4.87 | 4.70 | 6.05 | 6.89 | 7.36 | 5.97 | 6.73 | 6.83 | 6.88 | 2.26 |
| 28   | 9.67  | 2.98  | 4.88 | 4.25 | 6.39 | 6.92 | 7.44 | 6.08 | 4.97 | 6.96 | 6.66 | 2.25 |
| 29   | 9.69  | 2.69  | 3.94 | 4.23 | ---  | 6.85 | 7.52 | 6.11 | 7.31 | 7.07 | 6.62 | 2.26 |
| 30   | 9.06  | 2.44  | 3.71 | 4.26 | ---  | 6.62 | 7.62 | 5.83 | 6.82 | 6.87 | 6.57 | 2.22 |
| 31   | 8.62  | ---   | 4.61 | 4.89 | ---  | 6.59 | ---  | 5.58 | ---  | 7.12 | 6.61 | ---  |
| MEAN | 8.29  | 7.07  | 3.65 | 3.73 | 3.83 | 6.15 | 7.24 | 6.90 | 6.11 | 7.22 | 8.02 | 5.43 |

WTR YR 1998 MEAN 6.18 HIGHEST 2.08 FEB. 10, 1998 LOWEST 12.18 OCT. 1, 2, 1997



## GROUND-WATER LEVELS

## RIO HERRERA TO RIO ANTON RUIZ BASINS

181823065401900. Local number, RF-04.

LOCATION.--Lat 18°18'23", long 65°40'19", Hydrologic Unit 2101005, 1.72 mi southwest of the intersection of Hwy 3 with Hwy 976, 1.44 mi west of Hwy 3, 1.33 mi northwest of Hwy 982, and 0.49 mi south of Hwy 976. Owner: US Geological Survey, WRD, Name: Rio Fajardo No. 04.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m) 0-40.0 ft (0-12.2 m), screened 20-40 ft (6.1-12.2 m). Depth 40.0 ft (12.2 m).

INSTRUMENTATION.--Electronic water level logger--60-minute punch.

DATUM.--Elevation of land-surface datum is 86.3 ft (26.3 m), above mean sea level, from topographic survey.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.50 ft (1.07 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on May 22, 1998.

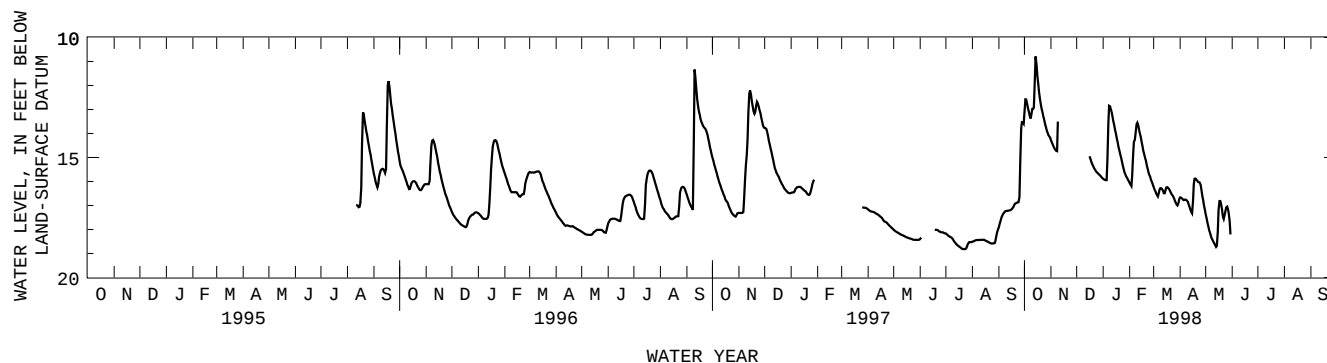
PERIOD OF RECORD.--August 31, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.70 ft (3.26 m), below land-surface datum, Oct. 14, 15, 1997; lowest water level recorded, 18.82 ft (5.74 m), below land-surface datum, July 21-25, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|
| 1    | 13.63 | 14.22 | ---   | 15.88 | 16.02 | 16.17 | 16.67 | 17.28 | --- | --- | --- | --- |
| 2    | 12.67 | 14.34 | ---   | 15.90 | 16.11 | 16.29 | 16.66 | 17.46 | --- | --- | --- | --- |
| 3    | 12.48 | 14.41 | ---   | 15.93 | 16.17 | 16.36 | 16.69 | 17.63 | --- | --- | --- | --- |
| 4    | 12.68 | 14.51 | ---   | 15.94 | 16.22 | 16.46 | 16.72 | 17.80 | --- | --- | --- | --- |
| 5    | 12.86 | 14.59 | ---   | 15.94 | 15.35 | 16.54 | 16.76 | 17.96 | --- | --- | --- | --- |
| 6    | 13.01 | 14.64 | ---   | 15.94 | 14.45 | 16.59 | 16.79 | 18.10 | --- | --- | --- | --- |
| 7    | 13.18 | 14.70 | ---   | 14.30 | 14.26 | 16.65 | 16.75 | 18.21 | --- | --- | --- | --- |
| 8    | 13.32 | 14.74 | ---   | 12.87 | 14.26 | 16.37 | 16.75 | 18.32 | --- | --- | --- | --- |
| 9    | 13.44 | 14.73 | ---   | 12.83 | 13.71 | 16.28 | 16.78 | 18.41 | --- | --- | --- | --- |
| 10   | 13.00 | 12.27 | ---   | 12.92 | 13.52 | 16.28 | 16.81 | 18.47 | --- | --- | --- | --- |
| 11   | 12.95 | ---   | ---   | 13.06 | 13.58 | 16.30 | 16.88 | 18.55 | --- | --- | --- | --- |
| 12   | 13.01 | ---   | ---   | 13.22 | 13.76 | 16.34 | 17.01 | 18.61 | --- | --- | --- | --- |
| 13   | 12.83 | ---   | ---   | 13.41 | 13.93 | 16.44 | 17.12 | 18.68 | --- | --- | --- | --- |
| 14   | 10.70 | ---   | ---   | 13.58 | 14.06 | 16.53 | 17.21 | 18.77 | --- | --- | --- | --- |
| 15   | 10.88 | ---   | ---   | 13.76 | 14.25 | 16.44 | 17.33 | 18.61 | --- | --- | --- | --- |
| 16   | 11.37 | ---   | 14.93 | 13.95 | 14.43 | 16.27 | 17.33 | 17.56 | --- | --- | --- | --- |
| 17   | 11.80 | ---   | 14.98 | 14.11 | 14.64 | 16.23 | 16.31 | 16.84 | --- | --- | --- | --- |
| 18   | 12.09 | ---   | 15.10 | 14.29 | 14.80 | 16.25 | 15.91 | 16.80 | --- | --- | --- | --- |
| 19   | 12.45 | ---   | 15.23 | 14.48 | 14.94 | 16.28 | 15.86 | 16.83 | --- | --- | --- | --- |
| 20   | 12.68 | ---   | 15.30 | 14.66 | 15.07 | 16.34 | 15.90 | 17.04 | --- | --- | --- | --- |
| 21   | 12.87 | ---   | 15.38 | 14.80 | 15.22 | 16.42 | 15.94 | 17.28 | --- | --- | --- | --- |
| 22   | 13.04 | ---   | 15.46 | 14.94 | 15.42 | 16.49 | 16.00 | 17.60 | --- | --- | --- | --- |
| 23   | 13.20 | ---   | 15.51 | 15.10 | 15.54 | 16.56 | 16.03 | 17.52 | --- | --- | --- | --- |
| 24   | 13.36 | ---   | 15.56 | 15.25 | 15.69 | 16.59 | 16.03 | 17.31 | --- | --- | --- | --- |
| 25   | 13.51 | ---   | 15.62 | 15.41 | 15.75 | 16.67 | 16.06 | 17.13 | --- | --- | --- | --- |
| 26   | 13.68 | ---   | 15.65 | 15.57 | 15.87 | 16.77 | 16.25 | 17.03 | --- | --- | --- | --- |
| 27   | 13.80 | ---   | 15.68 | 15.66 | 15.98 | 16.85 | 16.47 | 17.06 | --- | --- | --- | --- |
| 28   | 13.92 | ---   | 15.73 | 15.76 | 16.06 | 16.93 | 16.68 | 17.25 | --- | --- | --- | --- |
| 29   | 14.03 | ---   | 15.75 | 15.82 | ---   | 17.00 | 16.89 | 17.40 | --- | --- | --- | --- |
| 30   | 14.12 | ---   | 15.80 | 15.89 | ---   | 17.00 | 17.09 | 17.95 | --- | --- | --- | --- |
| 31   | 14.13 | ---   | 15.84 | 15.96 | ---   | 16.81 | ---   | 18.46 | --- | --- | --- | --- |
| MEAN | 12.93 | 14.31 | 15.47 | 14.75 | 14.97 | 16.50 | 16.59 | 17.74 | --- | --- | --- | --- |

WTR YR 1998 MEAN 15.51 HIGHEST 10.70 OCT. 14, 15, 1997 LOWEST 18.81 MAY 15, 1998



## GROUND-WATER LEVELS

## RIO HERRERA TO RIO ANTON RUIZ BASINS

181917065382701. Local number, RF-12.

LOCATION.--Lat 18°19'17", long 65°38'27", Hydrologic Unit 2101005, 1.20 mi northwest of Punta Barrancas, 0.81 mi east of Hwy 3, 0.82 mi south of Hwy 195, and 0.61 mi east of Hwy 194. Owner: US Geological Survey, WRD, Name: Rio Fajardo No. 12.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-34.0 ft (0-10.4 m), screened 3.75-34.0 ft (1.14-10.4 m). Depth 34.0 ft (10.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 13.7 ft (4.18 m), above mean sea level, from topographic survey.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 4.16 ft (1.27 m), above land-surface datum.

REMARKS.--Recording observation well.

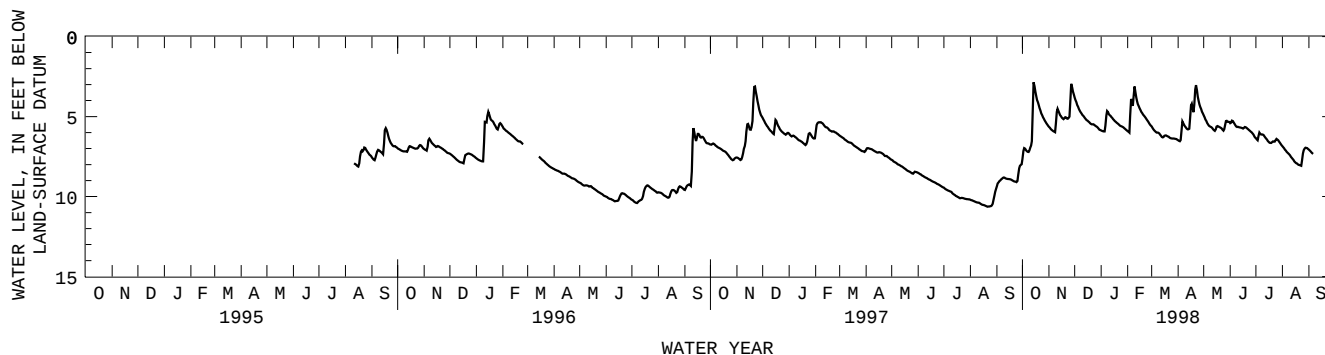
PERIOD OF RECORD.--August 11, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.71 ft (0.83 m), below land-surface datum, Oct. 14, 1997; lowest water level recorded, 10.64 ft (3.24 m), below land-surface datum, Aug. 21, 22, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1    | 7.97 | 5.61 | 3.73 | 5.86 | 5.89 | 5.58 | 6.47 | 4.87 | 5.37 | 6.32 | 6.81 | 7.05 |
| 2    | 7.34 | 5.66 | 3.91 | 5.88 | 5.93 | 5.65 | 6.50 | 4.97 | 5.46 | 6.38 | 6.89 | 7.09 |
| 3    | 6.97 | 5.74 | 4.02 | 5.90 | 5.97 | 5.76 | 6.53 | 5.13 | 5.28 | 6.45 | 6.94 | 7.14 |
| 4    | 6.97 | 5.81 | 4.20 | 5.93 | 6.02 | 5.83 | 6.55 | 5.23 | 5.24 | 6.50 | 7.03 | 7.21 |
| 5    | 7.05 | 5.85 | 4.34 | 5.93 | 3.90 | 5.88 | 6.38 | 5.34 | 5.32 | 5.97 | 7.10 | 7.26 |
| 6    | 7.14 | 5.89 | 4.45 | 5.92 | 3.91 | 5.94 | 5.27 | 5.45 | 5.41 | 6.04 | 7.16 | 7.32 |
| 7    | 7.18 | 5.93 | 4.59 | 5.21 | 4.18 | 5.98 | 5.33 | 5.53 | 5.51 | 6.10 | 7.23 | 7.35 |
| 8    | 7.21 | 5.96 | 4.69 | 4.65 | 4.49 | 6.01 | 5.46 | 5.60 | 5.58 | 6.14 | 7.29 | ---  |
| 9    | 7.22 | 5.99 | 4.76 | 4.66 | 3.00 | 5.99 | 5.58 | 5.62 | 5.66 | 6.10 | 7.33 | ---  |
| 10   | 7.04 | 4.94 | 4.86 | 4.79 | 3.23 | 6.04 | 5.63 | 5.65 | 5.64 | 6.13 | 7.38 | ---  |
| 11   | 6.82 | 4.46 | 4.92 | 4.91 | 3.66 | 6.09 | 5.72 | 5.68 | 5.65 | 6.19 | 7.48 | ---  |
| 12   | 6.80 | 4.56 | 4.98 | 4.93 | 3.96 | 6.17 | 5.78 | 5.76 | 5.67 | 6.27 | 7.54 | ---  |
| 13   | 6.29 | 4.71 | 5.05 | 4.99 | 4.14 | 6.25 | 5.81 | 5.83 | 5.69 | 6.35 | 7.62 | ---  |
| 14   | 2.74 | 4.86 | 5.13 | 5.06 | 4.30 | 6.30 | 5.78 | 5.88 | 5.69 | 6.39 | 7.67 | ---  |
| 15   | 2.97 | 4.95 | 5.19 | 5.12 | 4.42 | 6.31 | 5.75 | 5.91 | 5.70 | 6.50 | 7.76 | ---  |
| 16   | 3.25 | 5.02 | 5.24 | 5.19 | 4.54 | 6.24 | 4.50 | 5.68 | 5.76 | 6.56 | 7.83 | ---  |
| 17   | 3.60 | 5.10 | 5.28 | 5.25 | 4.65 | 6.18 | 4.12 | 5.58 | 5.73 | 6.62 | 7.89 | ---  |
| 18   | 3.87 | 5.15 | 5.32 | 5.30 | 4.75 | 6.17 | 4.29 | 5.60 | 5.66 | 6.65 | 7.92 | ---  |
| 19   | 4.04 | 5.16 | 5.38 | 5.35 | 4.83 | 6.20 | 4.60 | 5.63 | 5.65 | 6.65 | 7.95 | ---  |
| 20   | 4.20 | 5.05 | 5.44 | 5.41 | 4.91 | 6.23 | 4.85 | 5.66 | 5.67 | 6.64 | 8.01 | ---  |
| 21   | 4.37 | 5.04 | 5.47 | 5.44 | 4.97 | 6.24 | 3.67 | 5.69 | 5.72 | 6.56 | 8.02 | ---  |
| 22   | 4.55 | 5.08 | 5.49 | 5.48 | 5.05 | 6.29 | 2.92 | 5.72 | 5.77 | 6.55 | 8.04 | ---  |
| 23   | 4.72 | 5.16 | 5.47 | 5.56 | 5.13 | 6.34 | 3.16 | 5.77 | 5.82 | 6.57 | 8.07 | ---  |
| 24   | 4.87 | 5.12 | 5.49 | 5.58 | 5.20 | 6.35 | 3.57 | 5.86 | 5.87 | 6.56 | 8.09 | ---  |
| 25   | 4.98 | 5.03 | 5.55 | 5.60 | 5.27 | 6.36 | 3.91 | 5.91 | 5.91 | 6.40 | 7.44 | ---  |
| 26   | 5.10 | 4.97 | 5.59 | 5.63 | 5.37 | 6.38 | 4.17 | 5.69 | 5.96 | 6.40 | 7.18 | ---  |
| 27   | 5.19 | 2.84 | 5.62 | 5.66 | 5.44 | 6.36 | 4.33 | 5.33 | 6.02 | 6.46 | 7.03 | ---  |
| 28   | 5.29 | 3.06 | 5.66 | 5.69 | 5.54 | 6.38 | 4.45 | 5.24 | 6.08 | 6.51 | 6.95 | ---  |
| 29   | 5.39 | 3.31 | 5.72 | 5.76 | ---  | 6.39 | 4.62 | 5.30 | 6.16 | 6.60 | 6.95 | ---  |
| 30   | 5.47 | 3.55 | 5.80 | 5.79 | ---  | 6.39 | 4.76 | 5.35 | 6.27 | 6.67 | 6.96 | ---  |
| 31   | 5.55 | ---  | 5.83 | 5.84 | ---  | 6.42 | ---  | 5.31 | ---  | 6.74 | 6.99 | ---  |
| MEAN | 5.55 | 4.99 | 5.07 | 5.43 | 4.74 | 6.15 | 5.02 | 5.54 | 5.70 | 6.42 | 7.44 | 7.20 |

WTR YR 1998 MEAN 5.68 HIGHEST 2.71 OCT. 14, 1997 LOWEST 8.09 AUG. 23, 24, 1998



## GROUND-WATER LEVELS

## RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS

180358065503700. Local number, YDO-1.

LOCATION.--Lat 18°03'58", long 65°50'37", Hydrologic Unit 21010004, 2.01 mi east of Central Roig, 1.37 mi north of Yabucoa Sun Oil Refinery, and 0.19 mi east of Hwy 53. Owner: US Geological Survey, WRD, Name: Yabucoa Deep Observation.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled piezometer well, constructed in 1993 as part of study of Valle de Yabucoa, diameter 2 in (0.05 m), screened in brackish water, 320-340 ft (97.5-104 m). Depth 350 ft (107 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 2.00 ft (0.61 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 7.30 ft (2.22 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on September 16, 1997.

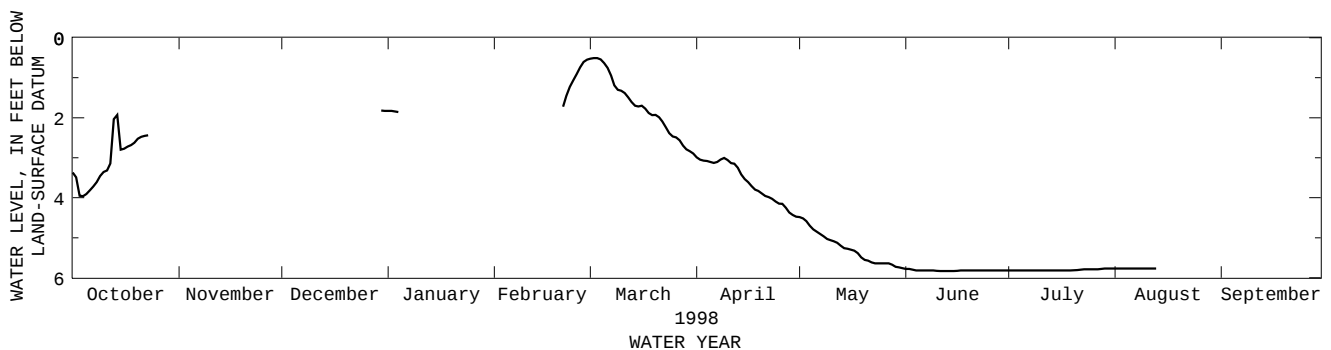
PERIOD OF RECORD.--September 16, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.51 ft (0.15 m), below land-surface datum, Mar. 2, 3, 4, 1998; lowest water level recorded, 5.83 ft (1.78 m), below land-surface datum, June 10-17, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP |
|------|------|-----|------|------|------|------|------|------|------|------|------|-----|
| 1    | 3.69 | --- | ---  | 1.83 | ---  | .54  | 2.94 | 4.48 | 5.78 | 5.82 | 5.77 | --- |
| 2    | 3.05 | --- | ---  | 1.83 | ---  | .51  | 3.04 | 4.49 | 5.78 | 5.82 | 5.77 | --- |
| 3    | 3.93 | --- | ---  | 1.83 | ---  | .51  | 3.06 | 4.54 | 5.78 | 5.82 | 5.77 | --- |
| 4    | 3.97 | --- | ---  | 1.86 | ---  | .51  | 3.08 | 4.63 | 5.82 | 5.82 | 5.77 | --- |
| 5    | 3.95 | --- | ---  | 1.86 | ---  | .57  | 3.08 | 4.77 | 5.82 | 5.82 | 5.77 | --- |
| 6    | 3.86 | --- | ---  | ---  | ---  | .70  | 3.13 | 4.81 | 5.82 | 5.82 | 5.77 | --- |
| 7    | 3.77 | --- | ---  | ---  | ---  | .81  | 3.13 | 4.89 | 5.82 | 5.82 | 5.77 | --- |
| 8    | 3.67 | --- | ---  | ---  | ---  | 1.08 | 3.08 | 4.92 | 5.82 | 5.82 | 5.77 | --- |
| 9    | 3.55 | --- | ---  | ---  | ---  | 1.30 | 3.01 | 5.01 | 5.82 | 5.82 | 5.77 | --- |
| 10   | 3.36 | --- | ---  | ---  | ---  | 1.30 | 3.00 | 5.05 | 5.82 | 5.82 | 5.77 | --- |
| 11   | 3.35 | --- | ---  | ---  | ---  | 1.35 | 3.12 | 5.07 | 5.83 | 5.82 | 5.77 | --- |
| 12   | 3.28 | --- | ---  | ---  | ---  | 1.41 | 3.15 | 5.11 | 5.83 | 5.82 | 5.77 | --- |
| 13   | 3.01 | --- | ---  | ---  | ---  | 1.57 | 3.15 | 5.14 | 5.83 | 5.82 | 5.77 | --- |
| 14   | 1.06 | --- | ---  | ---  | ---  | 1.65 | 3.35 | 5.26 | 5.83 | 5.82 | 5.77 | --- |
| 15   | 2.80 | --- | ---  | ---  | ---  | 1.75 | 3.49 | 5.26 | 5.83 | 5.82 | ---  | --- |
| 16   | 2.80 | --- | ---  | ---  | ---  | 1.69 | 3.58 | 5.29 | 5.83 | 5.82 | ---  | --- |
| 17   | 2.75 | --- | ---  | ---  | ---  | 1.71 | 3.64 | 5.31 | 5.82 | 5.82 | ---  | --- |
| 18   | 2.69 | --- | ---  | ---  | ---  | 1.83 | 3.78 | 5.34 | 5.82 | 5.82 | ---  | --- |
| 19   | 2.68 | --- | ---  | ---  | ---  | 1.93 | 3.81 | 5.43 | 5.82 | 5.82 | ---  | --- |
| 20   | 2.57 | --- | ---  | ---  | ---  | 1.94 | 3.85 | 5.55 | 5.82 | 5.82 | ---  | --- |
| 21   | 2.48 | --- | ---  | ---  | 1.86 | 1.92 | 3.94 | 5.56 | 5.82 | 5.81 | ---  | --- |
| 22   | 2.47 | --- | ---  | ---  | 1.59 | 2.05 | 3.97 | 5.59 | 5.82 | 5.81 | ---  | --- |
| 23   | 2.44 | --- | ---  | ---  | 1.32 | 2.14 | 4.00 | 5.64 | 5.82 | 5.79 | ---  | --- |
| 24   | 2.44 | --- | ---  | ---  | 1.14 | 2.33 | 4.05 | 5.64 | 5.82 | 5.79 | ---  | --- |
| 25   | ---  | --- | ---  | ---  | .99  | 2.44 | 4.14 | 5.64 | 5.82 | 5.79 | ---  | --- |
| 26   | ---  | --- | ---  | ---  | .82  | 2.49 | 4.15 | 5.64 | 5.82 | 5.79 | ---  | --- |
| 27   | ---  | --- | ---  | ---  | .66  | 2.49 | 4.15 | 5.64 | 5.82 | 5.79 | ---  | --- |
| 28   | ---  | --- | ---  | ---  | .55  | 2.64 | 4.35 | 5.64 | 5.82 | 5.79 | ---  | --- |
| 29   | ---  | --- | ---  | ---  | ---  | 2.76 | 4.39 | 5.71 | 5.82 | 5.77 | ---  | --- |
| 30   | ---  | --- | 1.81 | ---  | ---  | 2.82 | 4.47 | 5.74 | 5.82 | 5.77 | ---  | --- |
| 31   | ---  | --- | 1.83 | ---  | ---  | 2.85 | ---  | 5.74 | ---  | 5.77 | ---  | --- |
| MEAN | 3.07 | --- | 1.82 | 1.84 | 1.12 | 1.66 | 3.57 | 5.24 | 5.82 | 5.81 | 5.77 | --- |

WTR YR 1998 MEAN 4.14 HIGHEST .51 MAR. 2, 3, 4, 1998 LOWEST 5.83 JUNE 10-17, 1998



## GROUND-WATER LEVELS

## RIO HUMACAO TO QUEBRADA AGUAS VERDES

180415065513900. Local number, 96.

LOCATION.--Lat 18°04'15", long 65°51'39", Hydrologic Unit 21010005, 2.44 mi northwest of Escuela Eugenio María de Hostos 4.67 mi southwest of Escuela Segunda Unidad Luciano, and 3.93 mi southwest of Escuela Asunción López. Owner: PR Aqueduct and Sewer Authority, Name: USGS TW-2 or Yabucoa 7.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 16 in (0.41 m), cased 0-10 ft (0-3.05 m), diameter 6 in (0.15 m), cased about 0-183 ft (0-55.8 m), perforated 56-81 ft (17.1-24.7 m), 102-123 ft, (31.1-37.5 m), 144-181 ft (43.9-55.2 m). Depth 181 ft (55.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 25 ft (7.62 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 4.00 ft (1.22 m), above land-surface datum.

REMARKS.--Recording observation well.

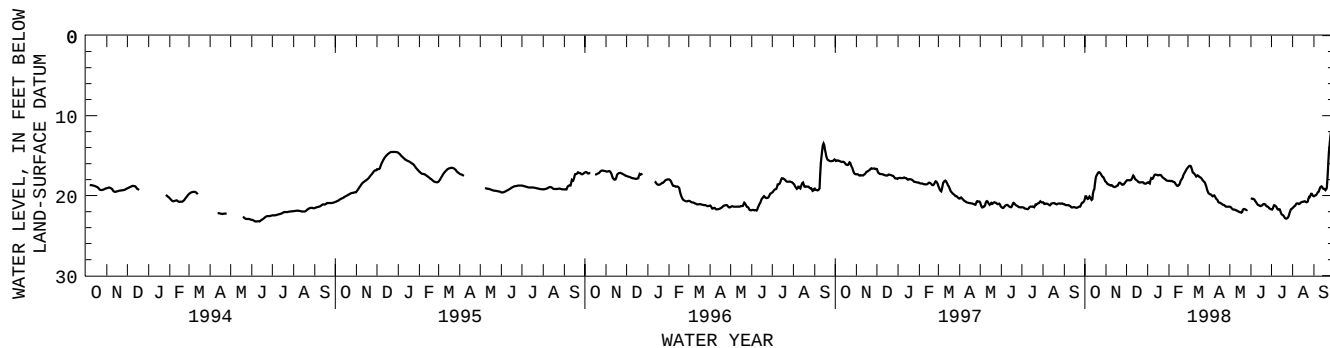
PERIOD OF RECORD.--April 25, 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.67 ft (2.95 m), below land-surface datum, Sept. 30, 1998; lowest water level recorded, 28.29 ft (8.62 m) below land-surface datum, Sept. 20, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 20.64 | 18.25 | 18.18 | 18.38 | 18.18 | 16.52 | 19.75 | 21.39 | 20.33 | 21.71 | 21.59 | 20.10 |
| 2    | 20.15 | 18.34 | 18.09 | 18.33 | 18.16 | 16.41 | 19.82 | 21.39 | 20.30 | 21.73 | 21.52 | 20.09 |
| 3    | 20.05 | 18.49 | 18.06 | 18.36 | 18.14 | 16.32 | 19.85 | 21.43 | 20.43 | 21.78 | 21.41 | 19.99 |
| 4    | 20.12 | 18.55 | 18.06 | 18.46 | 18.18 | 16.26 | 19.83 | 21.56 | 20.41 | 21.44 | 21.33 | 19.95 |
| 5    | 20.39 | 18.62 | 18.06 | 18.52 | 18.20 | 16.27 | 19.95 | 21.66 | 20.41 | 21.19 | 21.30 | 19.93 |
| 6    | 20.46 | 18.64 | 18.08 | 17.79 | 18.16 | 16.39 | 20.06 | 21.73 | 20.42 | 21.19 | 21.10 | 19.76 |
| 7    | 20.36 | 18.67 | 18.13 | 17.86 | 18.23 | 16.68 | 20.12 | 21.74 | 20.56 | 21.27 | 21.01 | 19.58 |
| 8    | 20.09 | 18.72 | 18.03 | 17.96 | 18.29 | 17.06 | 19.97 | 21.73 | 20.72 | 21.37 | 20.96 | 19.52 |
| 9    | 20.13 | 18.76 | 17.96 | 17.85 | 18.28 | 17.17 | 19.97 | 21.77 | 20.82 | 21.42 | 20.98 | 19.52 |
| 10   | 20.38 | 18.63 | 17.77 | 17.68 | 18.35 | 17.16 | 20.09 | 21.83 | 20.97 | 21.68 | 21.04 | 19.07 |
| 11   | 20.52 | 18.79 | 17.49 | 17.48 | 18.51 | 17.34 | 20.31 | 21.84 | 21.09 | 21.77 | 21.07 | 18.93 |
| 12   | 20.56 | 18.87 | 17.50 | 17.39 | 18.63 | 17.38 | 20.43 | 21.84 | 21.21 | 21.74 | 21.00 | 18.90 |
| 13   | 20.32 | 18.89 | 17.75 | 17.36 | 18.73 | 17.63 | 20.47 | 21.96 | 21.18 | 21.66 | 20.90 | 18.79 |
| 14   | 19.16 | 18.95 | 17.97 | 17.38 | 18.81 | 17.59 | 20.67 | 21.98 | 21.24 | 21.78 | 20.82 | 18.99 |
| 15   | 19.49 | 18.92 | 18.00 | 17.40 | 18.75 | 17.50 | 20.83 | 22.01 | 21.32 | 22.11 | 20.80 | 19.17 |
| 16   | 18.96 | 18.87 | 18.07 | 17.46 | 18.68 | 17.45 | 20.89 | 22.08 | 21.29 | 22.27 | 20.77 | 19.14 |
| 17   | 17.86 | 18.79 | 18.13 | 17.47 | 18.61 | 17.61 | 20.89 | 22.09 | 21.24 | 22.40 | 20.76 | 19.18 |
| 18   | 17.59 | 18.75 | 18.23 | 17.45 | 18.31 | 17.64 | 20.93 | 22.09 | 21.22 | 22.45 | 20.74 | 19.31 |
| 19   | 17.43 | 18.76 | 18.29 | 17.40 | 18.09 | 17.69 | 20.99 | 22.19 | 21.09 | 22.43 | 20.70 | 19.31 |
| 20   | 17.29 | 18.46 | 18.32 | 17.43 | 17.97 | 17.79 | 21.04 | 21.92 | 21.03 | 22.68 | 20.74 | 19.10 |
| 21   | 17.13 | 18.37 | 18.38 | 17.42 | 17.89 | 17.79 | 21.12 | 21.71 | 21.06 | 22.79 | 20.81 | 18.96 |
| 22   | 17.06 | 18.38 | 18.33 | 17.57 | 17.65 | 18.01 | 21.15 | 21.66 | 21.08 | 22.85 | 20.84 | 16.39 |
| 23   | 17.08 | 18.46 | 18.34 | 17.69 | 17.39 | 18.07 | 21.17 | 21.68 | 21.17 | 22.89 | 20.78 | 15.13 |
| 24   | 17.17 | 18.54 | 18.34 | 17.77 | 17.19 | 18.19 | 21.22 | 21.72 | 21.29 | 22.84 | 20.71 | 14.00 |
| 25   | 17.27 | 18.63 | 18.33 | 17.83 | 17.08 | 18.28 | 21.35 | 21.77 | 21.36 | 22.82 | 20.11 | 13.10 |
| 26   | 17.48 | 18.67 | 18.33 | 17.89 | 16.89 | 18.36 | 21.39 | 21.82 | 21.38 | 22.67 | 20.22 | 12.41 |
| 27   | 17.59 | 18.60 | 18.44 | 17.95 | 16.76 | 18.50 | 21.38 | 21.80 | 21.46 | 22.49 | 20.14 | 11.60 |
| 28   | 17.68 | 18.55 | 18.50 | 18.02 | 16.62 | 18.87 | 21.41 | 21.80 | 21.57 | 22.22 | 19.86 | 10.78 |
| 29   | 17.70 | 18.42 | 18.51 | 18.10 | ---   | 19.16 | 21.38 | ---   | 21.65 | 21.84 | 19.68 | 10.18 |
| 30   | 17.94 | 18.29 | 18.51 | 18.14 | ---   | 19.41 | 21.39 | ---   | 21.66 | 21.71 | 19.89 | 9.78  |
| 31   | 18.16 | ---   | 18.45 | 18.16 | ---   | 19.66 | ---   | ---   | ---   | 21.65 | 19.99 | ---   |
| MEAN | 18.85 | 18.62 | 18.15 | 17.80 | 18.03 | 17.62 | 20.66 | 21.79 | 21.03 | 22.03 | 20.76 | 17.36 |

WTR YR 1998 MEAN 19.38 HIGHEST 9.67 SEPT. 30, 1998 LOWEST 22.90 JULY 23, 1998



| DAY         | OCT  | NOV   | DEC     | JAN   | FEB          | MAR    | APR   | MAY            | JUN   | JUL   | AUG   | SEP   |
|-------------|------|-------|---------|-------|--------------|--------|-------|----------------|-------|-------|-------|-------|
| 1           | ---  | ---   | ---     | 25.62 | 24.87        | 25.20  | 25.70 | 25.10          | 25.05 | 24.71 | 25.82 | 26.25 |
| 2           | ---  | ---   | ---     | 25.64 | 24.64        | 25.25  | 25.71 | 25.20          | 25.10 | 24.73 | 25.88 | 26.33 |
| 3           | ---  | ---   | ---     | 25.63 | 24.55        | 25.26  | 25.66 | 25.27          | 25.01 | 24.75 | 25.81 | 26.37 |
| 4           | ---  | ---   | ---     | 25.51 | 24.57        | 25.28  | 25.64 | 25.31          | 25.07 | 24.82 | 25.67 | 26.45 |
| 5           | ---  | ---   | ---     | 25.29 | 24.68        | 25.27  | 25.64 | 25.34          | 25.15 | 24.91 | 25.55 | 26.53 |
| 6           | ---  | ---   | ---     | 25.13 | 24.35        | 25.34  | 25.62 | 25.37          | 25.22 | 24.98 | 25.44 | 26.61 |
| 7           | ---  | ---   | ---     | 25.01 | 24.43        | 25.39  | 25.59 | 25.38          | 25.24 | 25.01 | 25.33 | 26.69 |
| 8           | ---  | ---   | ---     | 24.79 | 24.52        | 25.41  | 25.59 | 25.53          | 25.30 | 25.02 | 25.28 | 26.76 |
| 9           | ---  | ---   | ---     | 24.75 | 24.62        | 25.44  | 25.61 | 25.60          | 25.35 | 25.05 | 25.23 | 26.86 |
| 10          | ---  | ---   | ---     | 24.92 | 24.70        | 25.49  | 25.65 | 25.62          | 25.38 | 25.08 | 25.08 | 26.94 |
| 11          | ---  | ---   | 25.89   | 25.03 | 24.75        | 25.52  | 25.63 | 25.70          | 25.39 | 25.13 | 24.90 | 26.99 |
| 12          | ---  | ---   | 25.88   | 25.07 | 24.83        | 25.53  | 25.59 | 25.66          | 25.38 | 25.15 | 24.77 | 27.04 |
| 13          | ---  | ---   | 25.86   | 25.13 | 24.91        | 25.51  | 25.51 | 25.67          | 25.37 | 25.21 | 24.88 | 27.04 |
| 14          | ---  | ---   | 25.83   | 25.18 | 24.95        | 25.46  | 25.34 | 25.60          | 25.36 | 25.26 | 24.97 | 27.03 |
| 15          | ---  | ---   | 25.81   | 25.16 | 25.02        | 25.40  | 25.20 | 25.45          | 25.35 | 25.28 | 25.04 | 26.80 |
| 16          | ---  | ---   | 25.79   | 25.05 | 25.08        | 25.38  | 25.13 | 25.40          | 25.32 | 25.29 | 25.10 | 26.62 |
| 17          | ---  | ---   | 25.81   | 25.02 | 25.13        | 25.39  | 25.07 | 25.34          | 25.26 | 25.31 | 25.21 | 26.65 |
| 18          | ---  | ---   | 25.84   | 25.00 | 25.19        | 25.36  | 25.09 | 25.32          | 25.29 | 25.36 | 25.28 | 26.72 |
| 19          | ---  | ---   | 25.77   | 25.01 | 25.24        | 25.41  | 25.01 | 25.29          | 25.20 | 25.38 | 25.41 | 26.78 |
| 20          | ---  | ---   | 25.66   | 24.98 | 25.28        | 25.48  | 25.03 | 25.23          | 25.06 | 25.40 | 25.54 | 26.87 |
| 21          | ---  | ---   | 25.51   | 25.00 | 25.21        | 25.50  | 25.08 | 25.12          | 25.03 | 25.36 | 25.65 | 26.89 |
| 22          | ---  | ---   | 25.47   | 25.02 | 25.08        | 25.55  | 25.05 | 25.05          | 25.01 | 25.36 | 25.64 | 26.55 |
| 23          | ---  | ---   | 25.45   | 25.03 | 25.14        | 25.58  | 25.00 | 25.03          | 25.00 | 25.39 | 25.53 | 26.54 |
| 24          | ---  | ---   | 25.54   | 25.08 | 25.15        | 25.60  | 24.92 | 25.02          | 24.95 | 25.41 | 25.63 | 26.60 |
| 25          | ---  | ---   | 25.58   | 25.10 | 25.09        | 25.62  | 24.87 | 25.03          | 24.93 | 25.44 | 25.71 | 25.54 |
| 26          | ---  | ---   | 25.60   | 25.15 | 25.19        | 25.64  | 24.91 | 25.13          | 24.82 | 25.51 | 25.76 | 25.43 |
| 27          | ---  | ---   | 25.61   | 24.99 | 25.18        | 25.66  | 24.89 | 25.22          | 24.73 | 25.57 | 25.82 | 25.43 |
| 28          | ---  | ---   | 25.61   | 25.17 | 25.14        | 25.69  | 24.95 | 24.79          | 24.75 | 25.59 | 25.90 | 24.95 |
| 29          | ---  | ---   | 25.61   | 25.12 | ---          | 25.67  | 24.99 | 24.74          | 24.68 | 25.64 | 25.98 | 25.04 |
| 30          | ---  | ---   | 25.61   | 25.13 | ---          | 25.70  | 25.05 | 24.81          | 24.72 | 25.70 | 26.07 | 25.30 |
| 31          | ---  | ---   | 25.60   | 25.02 | ---          | 25.70  | ---   | 24.94          | ---   | 25.76 | 26.17 | ---   |
| MEAN        | ---  | ---   | 25.68   | 25.12 | 24.91        | 25.47  | 25.29 | 25.27          | 25.12 | 25.24 | 25.49 | 26.42 |
| WTR YR 1997 | MEAN | 25.39 | HIGHEST | 24.34 | FEB. 6, 1997 | LOWEST | 27.05 | SEPT. 13, 1997 |       |       |       |       |

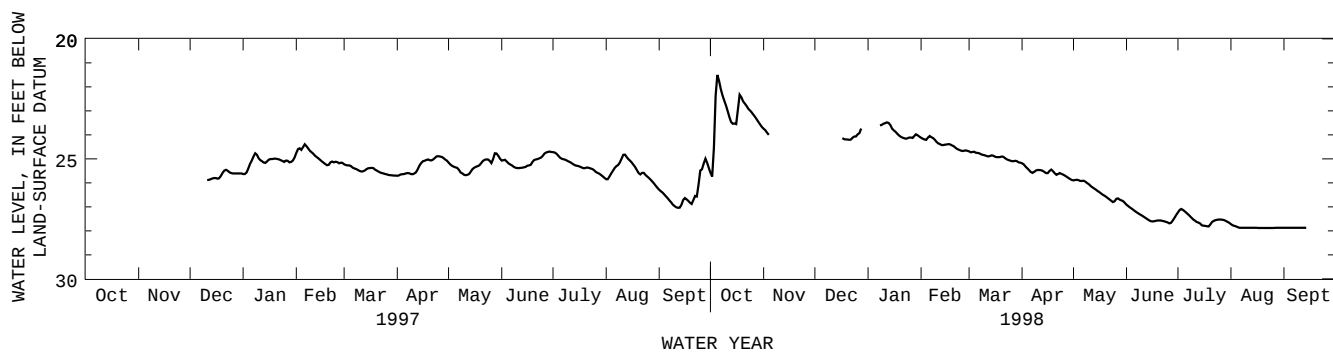
## GROUND-WATER LEVELS

## RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 25.49 | 23.73 | ---   | ---   | 24.10 | 24.67 | 25.17 | 25.90 | 26.88 | 27.29 | 27.69 | 27.87 |
| 2    | 25.66 | 23.76 | ---   | ---   | 24.14 | 24.71 | 25.19 | 25.89 | 26.94 | 27.18 | 27.75 | 27.87 |
| 3    | 25.81 | 23.86 | ---   | ---   | 24.18 | 24.74 | 25.28 | 25.87 | 27.00 | 27.07 | 27.78 | 27.87 |
| 4    | 23.27 | 23.96 | ---   | ---   | 24.21 | 24.68 | 25.36 | 25.87 | 27.05 | 27.10 | 27.80 | 27.87 |
| 5    | 21.45 | 24.04 | ---   | ---   | 24.20 | 24.73 | 25.43 | 25.91 | 27.10 | 27.15 | 27.83 | 27.87 |
| 6    | 21.56 | ---   | ---   | ---   | 24.02 | 24.76 | 25.50 | 25.93 | 27.16 | 27.21 | 27.87 | 27.87 |
| 7    | 21.94 | ---   | ---   | ---   | 24.07 | 24.74 | 25.59 | 25.91 | 27.21 | 27.28 | 27.87 | 27.87 |
| 8    | 22.25 | ---   | ---   | 23.57 | 24.12 | 24.79 | 25.58 | 25.92 | 27.26 | 27.35 | 27.87 | 27.87 |
| 9    | 22.47 | ---   | ---   | 23.65 | 24.16 | 24.82 | 25.51 | 25.98 | 27.30 | 27.42 | 27.87 | 27.87 |
| 10   | 22.68 | ---   | ---   | 23.52 | 24.25 | 24.84 | 25.47 | 26.03 | 27.34 | 27.50 | 27.87 | 27.87 |
| 11   | 22.87 | ---   | ---   | 23.55 | 24.33 | 24.86 | 25.46 | 26.09 | 27.38 | 27.55 | 27.87 | 27.87 |
| 12   | 23.16 | ---   | ---   | 23.47 | 24.37 | 24.89 | 25.47 | 26.16 | 27.43 | 27.60 | 27.87 | 27.87 |
| 13   | 23.36 | ---   | ---   | 23.49 | 24.40 | 24.90 | 25.48 | 26.21 | 27.48 | 27.66 | 27.87 | 27.87 |
| 14   | 23.55 | ---   | ---   | 23.51 | 24.45 | 24.87 | 25.51 | 26.25 | 27.53 | 27.65 | 27.87 | 27.87 |
| 15   | 23.52 | ---   | ---   | 23.68 | 24.40 | 24.84 | 25.57 | 26.31 | 27.57 | 27.75 | 27.87 | 27.87 |
| 16   | 23.54 | ---   | ---   | 23.80 | 24.41 | 24.88 | 25.62 | 26.36 | 27.61 | 27.78 | 27.87 | ---   |
| 17   | 23.57 | ---   | 24.11 | 23.82 | 24.39 | 24.93 | 25.56 | 26.40 | 27.60 | 27.79 | 27.88 | ---   |
| 18   | 22.31 | ---   | 24.16 | 23.91 | 24.38 | 24.93 | 25.44 | 26.46 | 27.60 | 27.80 | 27.88 | ---   |
| 19   | 22.34 | ---   | 24.19 | 23.98 | 24.42 | 24.93 | 25.46 | 26.51 | 27.57 | 27.82 | 27.88 | ---   |
| 20   | 22.52 | ---   | 24.19 | 24.05 | 24.46 | 24.92 | 25.56 | 26.55 | 27.56 | 27.81 | 27.88 | ---   |
| 21   | 22.68 | ---   | 24.20 | 24.09 | 24.49 | 24.88 | 25.64 | 26.60 | 27.57 | 27.65 | 27.88 | ---   |
| 22   | 22.72 | ---   | 24.22 | 24.13 | 24.57 | 24.95 | 25.68 | 26.67 | 27.57 | 27.59 | 27.88 | ---   |
| 23   | 22.86 | ---   | 24.17 | 24.15 | 24.60 | 24.98 | 25.59 | 26.71 | 27.59 | 27.57 | 27.88 | ---   |
| 24   | 22.96 | ---   | 24.05 | 24.17 | 24.63 | 25.05 | 25.60 | 26.78 | 27.61 | 27.54 | 27.88 | ---   |
| 25   | 23.01 | ---   | 24.10 | 24.12 | 24.67 | 25.05 | 25.64 | 26.82 | 27.63 | 27.53 | 27.88 | ---   |
| 26   | 23.11 | ---   | 24.03 | 24.10 | 24.68 | 25.10 | 25.67 | 26.71 | 27.67 | 27.53 | 27.88 | ---   |
| 27   | 23.20 | ---   | 23.93 | 24.12 | 24.64 | 25.10 | 25.72 | 26.62 | 27.70 | 27.53 | 27.88 | ---   |
| 28   | 23.29 | ---   | 23.93 | 24.14 | 24.66 | 25.10 | 25.77 | 26.68 | 27.62 | 27.54 | 27.87 | ---   |
| 29   | 23.41 | ---   | 23.55 | 23.97 | ---   | 25.06 | 25.82 | 26.71 | 27.52 | 27.56 | 27.87 | ---   |
| 30   | 23.52 | ---   | ---   | 23.99 | ---   | 25.14 | 25.86 | 26.74 | 27.39 | 27.60 | 27.87 | ---   |
| 31   | 23.62 | ---   | ---   | 24.04 | ---   | 25.15 | ---   | 26.78 | ---   | 27.64 | 27.87 | ---   |
| MEAN | 23.15 | 23.87 | 24.06 | 23.88 | 24.37 | 24.90 | 25.54 | 26.33 | 27.41 | 27.52 | 27.86 | 27.87 |

WTR YR 1998 MEAN 25.72 HIGHEST 21.39 OCT. 5, 1997 LOWEST 16-28, 1998



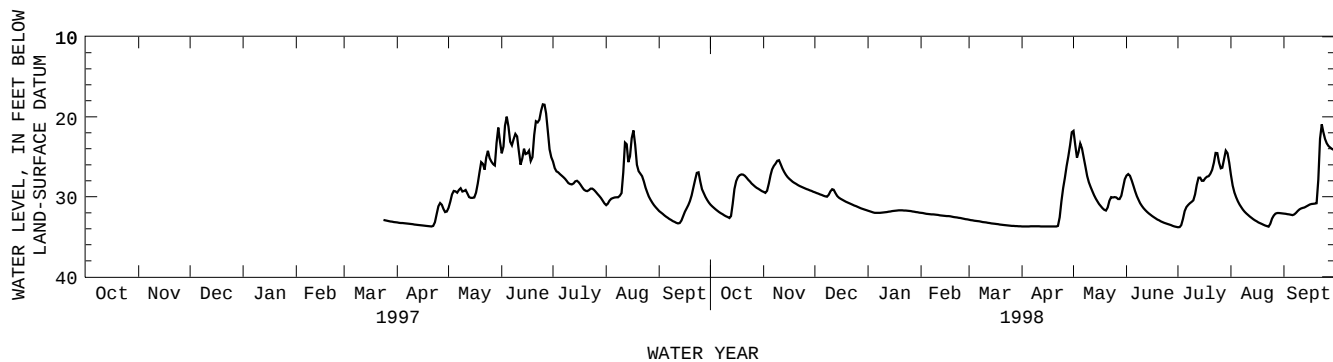
| DAY         | OCT        | NOV           | DEC           | JAN          | FEB               | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|---------------|---------------|--------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| 1           | ---        | ---           | ---           | ---          | ---               | ---   | 33.19 | 31.70 | 24.01 | 25.16 | 30.99 | 31.68 |
| 2           | ---        | ---           | ---           | ---          | ---               | ---   | 33.23 | 31.08 | 25.11 | 26.03 | 31.09 | 31.88 |
| 3           | ---        | ---           | ---           | ---          | ---               | ---   | 33.26 | 30.16 | 22.34 | 26.79 | 30.67 | 32.05 |
| 4           | ---        | ---           | ---           | ---          | ---               | ---   | 33.28 | 29.26 | 19.90 | 26.87 | 30.30 | 32.23 |
| 5           | ---        | ---           | ---           | ---          | ---               | ---   | 33.30 | 29.27 | 20.07 | 27.04 | 30.19 | 32.41 |
| 6           | ---        | ---           | ---           | ---          | ---               | ---   | 33.33 | 29.39 | 22.41 | 27.26 | 30.13 | 32.56 |
| 7           | ---        | ---           | ---           | ---          | ---               | ---   | 33.35 | 29.61 | 23.85 | 27.43 | 30.07 | 32.71 |
| 8           | ---        | ---           | ---           | ---          | ---               | ---   | 33.37 | 28.68 | 23.29 | 27.65 | 30.08 | 32.83 |
| 9           | ---        | ---           | ---           | ---          | ---               | ---   | 33.39 | 29.20 | 22.27 | 27.85 | 30.06 | 32.97 |
| 10          | ---        | ---           | ---           | ---          | ---               | ---   | 33.42 | 29.48 | 22.04 | 28.16 | 29.69 | 33.09 |
| 11          | ---        | ---           | ---           | ---          | ---               | ---   | 33.45 | 29.06 | 22.89 | 28.40 | 29.37 | 33.20 |
| 12          | ---        | ---           | ---           | ---          | ---               | ---   | 33.48 | 29.24 | 25.73 | 28.43 | 24.58 | 33.30 |
| 13          | ---        | ---           | ---           | ---          | ---               | ---   | 33.50 | 29.92 | 26.22 | 28.46 | 21.88 | 33.36 |
| 14          | ---        | ---           | ---           | ---          | ---               | ---   | 33.52 | 30.18 | 24.22 | 28.21 | 24.98 | 33.22 |
| 15          | ---        | ---           | ---           | ---          | ---               | ---   | 33.55 | 30.11 | 23.75 | 27.95 | 26.36 | 32.73 |
| 16          | ---        | ---           | ---           | ---          | ---               | ---   | 33.58 | 30.14 | 25.60 | 28.05 | 23.54 | 32.08 |
| 17          | ---        | ---           | ---           | ---          | ---               | ---   | 33.60 | 30.04 | 23.54 | 28.32 | 21.78 | 31.67 |
| 18          | ---        | ---           | ---           | ---          | ---               | ---   | 33.63 | 28.92 | 24.92 | 28.64 | 21.64 | 31.24 |
| 19          | ---        | ---           | ---           | ---          | ---               | ---   | 33.66 | 27.81 | 26.15 | 28.98 | 25.40 | 30.79 |
| 20          | ---        | ---           | ---           | ---          | ---               | ---   | 33.67 | 26.11 | 23.93 | 29.21 | 26.62 | 30.30 |
| 21          | ---        | ---           | ---           | ---          | ---               | ---   | 33.69 | 25.22 | 20.67 | 29.29 | 26.99 | 29.35 |
| 22          | ---        | ---           | ---           | ---          | ---               | ---   | 33.72 | 26.57 | 20.46 | 29.28 | 27.22 | 28.38 |
| 23          | ---        | ---           | ---           | ---          | ---               | ---   | 33.58 | 26.64 | 20.97 | 29.07 | 27.61 | 27.45 |
| 24          | ---        | ---           | ---           | ---          | ---               | 32.88 | 32.80 | 23.62 | 19.77 | 28.92 | 28.53 | 26.58 |
| 25          | ---        | ---           | ---           | ---          | ---               | 32.93 | 31.56 | 24.88 | 18.70 | 29.05 | 29.20 | 27.32 |
| 26          | ---        | ---           | ---           | ---          | ---               | 32.97 | 30.84 | 25.45 | 18.22 | 29.25 | 29.75 | 28.85 |
| 27          | ---        | ---           | ---           | ---          | ---               | 33.01 | 30.74 | 25.75 | 18.78 | 29.53 | 30.19 | 29.26 |
| 28          | ---        | ---           | ---           | ---          | ---               | 33.06 | 31.25 | 26.05 | 20.39 | 29.80 | 30.57 | 29.81 |
| 29          | ---        | ---           | ---           | ---          | ---               | 33.10 | 31.85 | 26.13 | 23.19 | 29.97 | 30.91 | 30.23 |
| 30          | ---        | ---           | ---           | ---          | ---               | 33.14 | 31.99 | 20.44 | 24.93 | 30.33 | 31.20 | 30.58 |
| 31          | ---        | ---           | ---           | ---          | ---               | 33.17 | ---   | 22.25 | ---   | 30.67 | 31.44 | ---   |
| MEAN        | ---        | ---           | ---           | ---          | ---               | 33.03 | 33.03 | 27.82 | 22.61 | 28.39 | 28.16 | 31.14 |
| WTR YR 1997 | MEAN 28.71 | HIGHEST 18.19 | JUNE 26, 1997 | LOWEST 33.72 | APR. 22, 23, 1997 |       |       |       |       |       |       |       |

## GROUND-WATER LEVELS

## RIO HUMACAO TO QUEBRADA AGUAS VERDES--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV                          | DEC                       | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|------------------------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 30.87      | 29.34                        | 29.41                     | 31.72 | 31.99 | 32.84 | 33.70 | 21.29 | 27.47 | 33.79 | 26.44 | 32.08 |
| 2           | 31.10      | 29.46                        | 29.48                     | 31.79 | 32.02 | 32.89 | 33.71 | 22.23 | 27.22 | 33.84 | 28.10 | 32.11 |
| 3           | 31.28      | 29.58                        | 29.58                     | 31.86 | 32.06 | 32.93 | 33.71 | 24.80 | 27.10 | 33.73 | 29.12 | 32.15 |
| 4           | 31.48      | 28.93                        | 29.65                     | 31.92 | 32.10 | 32.97 | 33.71 | 25.43 | 27.63 | 33.37 | 29.81 | 32.19 |
| 5           | 31.66      | 27.77                        | 29.74                     | 31.98 | 32.14 | 33.00 | 33.71 | 23.43 | 28.28 | 32.18 | 30.33 | 32.23 |
| 6           | 31.83      | 26.83                        | 29.82                     | 32.02 | 32.17 | 33.03 | 33.70 | 23.28 | 28.98 | 31.42 | 30.81 | 32.28 |
| 7           | 31.98      | 26.33                        | 29.91                     | 32.01 | 32.19 | 33.05 | 33.69 | 24.59 | 29.64 | 31.16 | 31.16 | 32.30 |
| 8           | 32.11      | 25.98                        | 30.00                     | 32.02 | 32.20 | 33.10 | 33.69 | 25.58 | 30.19 | 30.89 | 31.48 | 32.10 |
| 9           | 32.24      | 25.75                        | 29.99                     | 32.01 | 32.21 | 33.14 | 33.69 | 26.89 | 30.62 | 30.71 | 31.74 | 31.90 |
| 10          | 32.39      | 25.24                        | 29.52                     | 31.97 | 32.23 | 33.17 | 33.69 | 27.89 | 30.99 | 30.57 | 31.97 | 31.64 |
| 11          | 32.48      | 25.63                        | 29.14                     | 31.95 | 32.25 | 33.20 | 33.69 | 28.50 | 31.30 | 30.32 | 32.17 | 31.50 |
| 12          | 32.60      | 26.23                        | 28.96                     | 31.92 | 32.29 | 33.23 | 33.70 | 29.03 | 31.57 | 29.09 | 32.38 | 31.41 |
| 13          | 32.69      | 26.71                        | 29.29                     | 31.89 | 32.33 | 33.27 | 33.70 | 29.58 | 31.79 | 27.91 | 32.55 | 31.37 |
| 14          | 32.12      | 27.08                        | 29.76                     | 31.85 | 32.36 | 33.30 | 33.70 | 30.03 | 31.99 | 27.33 | 32.72 | 31.28 |
| 15          | 29.66      | 27.41                        | 30.02                     | 31.81 | 32.38 | 33.34 | 33.70 | 30.43 | 32.16 | 27.90 | 32.88 | 31.14 |
| 16          | 28.41      | 27.67                        | 30.20                     | 31.78 | 32.40 | 33.37 | 33.70 | 30.76 | 32.35 | 28.12 | 33.01 | 31.03 |
| 17          | 27.70      | 27.87                        | 30.32                     | 31.75 | 32.42 | 33.39 | 33.70 | 31.05 | 32.50 | 27.86 | 33.14 | 30.94 |
| 18          | 27.37      | 28.05                        | 30.43                     | 31.73 | 32.43 | 33.42 | 33.70 | 31.31 | 32.64 | 27.53 | 33.26 | 30.89 |
| 19          | 27.25      | 28.20                        | 30.56                     | 31.71 | 32.47 | 33.44 | 33.71 | 31.54 | 32.78 | 27.47 | 33.36 | 30.86 |
| 20          | 27.19      | 28.32                        | 30.66                     | 31.70 | 32.51 | 33.49 | 33.71 | 31.71 | 32.90 | 27.37 | 33.45 | 30.83 |
| 21          | 27.26      | 28.46                        | 30.76                     | 31.70 | 32.54 | 33.52 | 33.71 | 31.75 | 33.01 | 26.85 | 33.55 | 30.79 |
| 22          | 27.48      | 28.59                        | 30.87                     | 31.70 | 32.57 | 33.54 | 33.71 | 30.92 | 33.11 | 26.40 | 33.64 | 24.97 |
| 23          | 27.75      | 28.70                        | 30.96                     | 31.72 | 32.61 | 33.56 | 33.57 | 30.05 | 33.22 | 25.07 | 33.71 | 20.51 |
| 24          | 27.99      | 28.80                        | 31.04                     | 31.74 | 32.64 | 33.58 | 31.57 | 30.04 | 33.30 | 23.99 | 33.77 | 21.39 |
| 25          | 28.22      | 28.88                        | 31.14                     | 31.76 | 32.69 | 33.61 | 29.55 | 30.14 | 33.37 | 25.08 | 32.97 | 22.40 |
| 26          | 28.44      | 28.99                        | 31.22                     | 31.79 | 32.73 | 33.62 | 28.26 | 29.96 | 33.44 | 26.35 | 32.49 | 23.13 |
| 27          | 28.63      | 29.06                        | 31.31                     | 31.81 | 32.77 | 33.64 | 27.00 | 30.24 | 33.52 | 26.52 | 32.19 | 23.52 |
| 28          | 28.80      | 29.16                        | 31.40                     | 31.85 | 32.81 | 33.66 | 25.34 | 30.34 | 33.59 | 26.23 | 32.04 | 23.77 |
| 29          | 28.96      | 29.24                        | 31.49                     | 31.89 | ---   | 33.67 | 24.55 | 30.23 | 33.67 | 24.41 | 32.02 | 23.93 |
| 30          | 29.08      | 29.31                        | 31.57                     | 31.92 | ---   | 33.68 | 22.59 | 29.52 | 33.73 | 24.04 | 32.03 | 24.08 |
| 31          | 29.23      | ---                          | 31.63                     | 31.96 | ---   | 33.69 | ---   | 28.14 | ---   | 25.07 | 32.06 | ---   |
| MEAN        | 29.88      | 27.92                        | 30.32                     | 31.85 | 32.38 | 33.33 | 32.13 | 28.41 | 31.47 | 28.47 | 31.95 | 29.02 |
| WTR YR 1998 | MEAN 30.58 | HIGHEST 20.51 SEPT. 23, 1998 | LOWEST 33.85 JULY 2, 1998 |       |       |       |       |       |       |       |       |       |



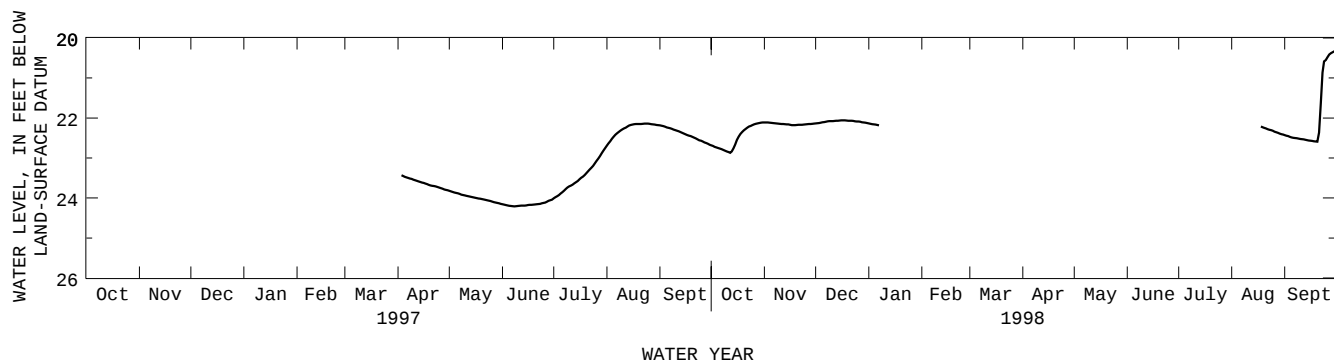
[illegible]

## GROUND-WATER LEVELS

## RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY                                                                            | OCT   | NOV   | DEC   | JAN   | FEB | MAR | APR | MAY | JUN | JUL | AUG   | SEP   |
|--------------------------------------------------------------------------------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|-------|-------|
| 1                                                                              | 22.68 | 22.11 | 22.14 | 22.13 | --- | --- | --- | --- | --- | --- | ---   | 22.42 |
| 2                                                                              | 22.69 | 22.11 | 22.13 | 22.14 | --- | --- | --- | --- | --- | --- | ---   | 22.44 |
| 3                                                                              | 22.71 | 22.11 | 22.13 | 22.15 | --- | --- | --- | --- | --- | --- | ---   | 22.45 |
| 4                                                                              | 22.73 | 22.11 | 22.12 | 22.16 | --- | --- | --- | --- | --- | --- | ---   | 22.46 |
| 5                                                                              | 22.74 | 22.12 | 22.11 | 22.16 | --- | --- | --- | --- | --- | --- | ---   | 22.48 |
| 6                                                                              | 22.76 | 22.12 | 22.10 | 22.17 | --- | --- | --- | --- | --- | --- | ---   | 22.49 |
| 7                                                                              | 22.77 | 22.13 | 22.10 | 22.18 | --- | --- | --- | --- | --- | --- | ---   | 22.50 |
| 8                                                                              | 22.79 | 22.13 | 22.09 | 22.19 | --- | --- | --- | --- | --- | --- | ---   | 22.50 |
| 9                                                                              | 22.81 | 22.14 | 22.08 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.51 |
| 10                                                                             | 22.83 | 22.14 | 22.08 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.52 |
| 11                                                                             | 22.84 | 22.15 | 22.08 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.53 |
| 12                                                                             | 22.86 | 22.15 | 22.08 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.53 |
| 13                                                                             | 22.88 | 22.15 | 22.07 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.54 |
| 14                                                                             | 22.79 | 22.16 | 22.07 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.55 |
| 15                                                                             | 22.73 | 22.16 | 22.07 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.56 |
| 16                                                                             | 22.60 | 22.16 | 22.06 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.57 |
| 17                                                                             | 22.50 | 22.18 | 22.06 | ---   | --- | --- | --- | --- | --- | --- | ---   | 22.57 |
| 18                                                                             | 22.43 | 22.18 | 22.06 | ---   | --- | --- | --- | --- | --- | --- | 22.21 | 22.58 |
| 19                                                                             | 22.37 | 22.18 | 22.06 | ---   | --- | --- | --- | --- | --- | --- | 22.22 | 22.58 |
| 20                                                                             | 22.33 | 22.18 | 22.07 | ---   | --- | --- | --- | --- | --- | --- | 22.24 | 22.59 |
| 21                                                                             | 22.29 | 22.17 | 22.07 | ---   | --- | --- | --- | --- | --- | --- | 22.25 | 22.59 |
| 22                                                                             | 22.26 | 22.17 | 22.07 | ---   | --- | --- | --- | --- | --- | --- | 22.27 | 22.14 |
| 23                                                                             | 22.22 | 22.17 | 22.07 | ---   | --- | --- | --- | --- | --- | --- | 22.29 | 21.14 |
| 24                                                                             | 22.21 | 22.17 | 22.08 | ---   | --- | --- | --- | --- | --- | --- | 22.30 | 20.59 |
| 25                                                                             | 22.19 | 22.16 | 22.09 | ---   | --- | --- | --- | --- | --- | --- | 22.31 | 20.58 |
| 26                                                                             | 22.17 | 22.16 | 22.09 | ---   | --- | --- | --- | --- | --- | --- | 22.33 | 20.52 |
| 27                                                                             | 22.15 | 22.15 | 22.09 | ---   | --- | --- | --- | --- | --- | --- | 22.35 | 20.44 |
| 28                                                                             | 22.14 | 22.15 | 22.10 | ---   | --- | --- | --- | --- | --- | --- | 22.36 | 20.39 |
| 29                                                                             | 22.13 | 22.15 | 22.11 | ---   | --- | --- | --- | --- | --- | --- | 22.38 | 20.37 |
| 30                                                                             | 22.12 | 22.14 | 22.11 | ---   | --- | --- | --- | --- | --- | --- | 22.40 | 20.34 |
| 31                                                                             | 22.11 | ---   | 22.12 | ---   | --- | --- | --- | --- | --- | --- | 22.41 | ---   |
| MEAN                                                                           | 22.51 | 22.15 | 22.09 | 22.16 | --- | --- | --- | --- | --- | --- | 22.31 | 21.98 |
| WTR YR 1998 MEAN 22.20 HIGHEST 20.33 SEPT> 30, 1998 LOWEST 22.88 OCT. 13, 1997 |       |       |       |       |     |     |     |     |     |     |       |       |



## GROUND-WATER LEVELS

## RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS

175719066085500. Local number, P-13

LOCATION.--Lat 17°57'19", long 66°08'55", Hydrologic Unit 2101004, 1.0 mi east of the intersection of Hwy 3 with Hwy 707, 0.28 mi south of Hwy 3, and 0.25 mi northwest of the Phillips Petroleum oil refinery. Owner: Phillips Petroleum, Name: Phillips Petroleum No. 13.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well.

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 33.0 ft (10.1 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.21 ft (0.98 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998. Sampling performed on June 7, 1996 by private company.

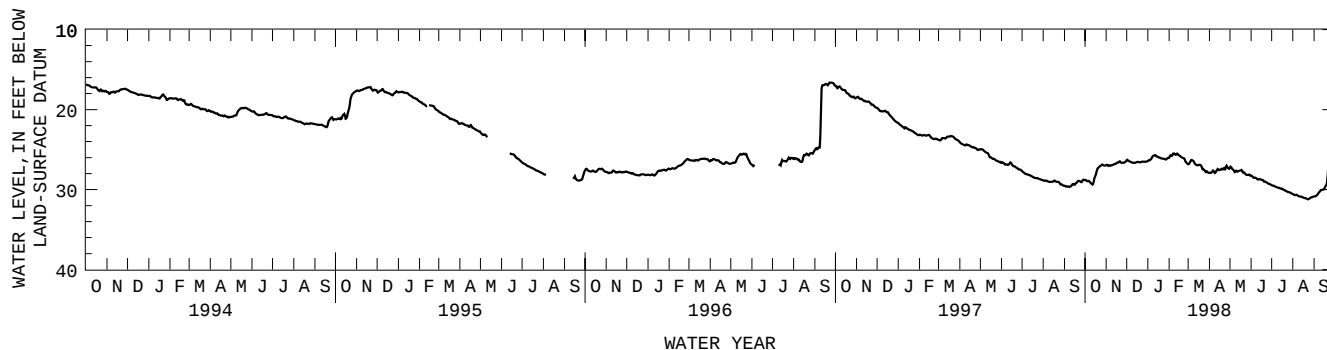
PERIOD OF RECORD.--September 25, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.47 ft (4.41 m), below land-surface datum, Mar. 22, 24, 1993; lowest water level recorded, 31.22 ft (9.52 m), below land-surface datum, Aug. 24, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 28.80 | 26.99 | 26.45 | 26.48 | 26.06 | 26.77 | 27.92 | 27.36 | 28.28 | 29.42 | 30.52 | 30.87 |
| 2    | 28.78 | 26.92 | 26.19 | 26.39 | 26.01 | 26.90 | 27.87 | 27.12 | 28.22 | 29.46 | 30.58 | 30.84 |
| 3    | 28.81 | 26.86 | 26.36 | 26.30 | 25.66 | 26.72 | 27.90 | 27.17 | 28.34 | 29.51 | 30.63 | 30.86 |
| 4    | 28.91 | 27.04 | 26.40 | 26.34 | 25.78 | 26.68 | 27.93 | 27.30 | 28.44 | 29.50 | 30.67 | 30.81 |
| 5    | 28.97 | 27.04 | 26.44 | 26.29 | 25.79 | 26.35 | 27.85 | 27.42 | 28.50 | 29.53 | 30.70 | 30.74 |
| 6    | 28.93 | 26.93 | 26.48 | 26.22 | 25.78 | 26.28 | 27.69 | 27.51 | 28.55 | 29.59 | 30.62 | 30.66 |
| 7    | 28.91 | 27.01 | 26.53 | 26.09 | 25.62 | 26.31 | 27.56 | 27.55 | 28.48 | 29.62 | 30.64 | 30.58 |
| 8    | 28.95 | 27.03 | 26.56 | 25.89 | 25.39 | 26.40 | 27.71 | 27.80 | 28.52 | 29.67 | 30.70 | 30.41 |
| 9    | 29.07 | 26.96 | 26.61 | 25.79 | 25.56 | 26.40 | 27.94 | 27.83 | 28.57 | 29.71 | 30.79 | 30.31 |
| 10   | 29.17 | 26.95 | 26.62 | 25.74 | 25.57 | 26.54 | 27.92 | 27.67 | 28.64 | 29.72 | 30.83 | 30.27 |
| 11   | 29.26 | 26.94 | 26.65 | 25.74 | 25.60 | 26.74 | 27.81 | 27.62 | 28.73 | 29.77 | 30.84 | 30.09 |
| 12   | 29.33 | 26.87 | 26.67 | 25.67 | 25.68 | 26.80 | 27.62 | 27.80 | 28.77 | 29.76 | 30.86 | 30.06 |
| 13   | 29.42 | 26.84 | 26.66 | 25.73 | 25.50 | 26.92 | 27.48 | 27.73 | 28.68 | 29.81 | 30.88 | 30.02 |
| 14   | 29.17 | 26.77 | 26.63 | 25.89 | 25.53 | 26.94 | 27.39 | 27.70 | 28.68 | 29.85 | 30.90 | 30.01 |
| 15   | 28.65 | 26.81 | 26.62 | 25.86 | 25.63 | 26.96 | 27.59 | 27.63 | 28.72 | 29.90 | 30.93 | 30.02 |
| 16   | 28.45 | 26.73 | 26.56 | 25.88 | 25.76 | 26.99 | 27.55 | 27.63 | 28.76 | 29.87 | 30.97 | 29.97 |
| 17   | 28.19 | 26.67 | 26.56 | 25.97 | 25.75 | 26.86 | 27.49 | 27.61 | 28.78 | 29.89 | 31.00 | 29.76 |
| 18   | 27.95 | 26.60 | 26.49 | 25.99 | 25.82 | 26.95 | 27.57 | 27.56 | 28.79 | 29.96 | 31.04 | 29.63 |
| 19   | 27.58 | 26.60 | 26.57 | 25.98 | 25.90 | 26.88 | 27.36 | 27.55 | 28.83 | 30.03 | 31.06 | 29.45 |
| 20   | 27.34 | 26.61 | 26.57 | 26.08 | 25.97 | 26.97 | 27.42 | 27.77 | 28.96 | 30.04 | 31.09 | 29.36 |
| 21   | 27.27 | 26.42 | 26.58 | 26.09 | 26.02 | 27.05 | 27.51 | 27.92 | 29.05 | 30.11 | 31.10 | 28.99 |
| 22   | 27.20 | 26.53 | 26.57 | 26.12 | 26.04 | 27.48 | 27.33 | 27.80 | 28.97 | 30.16 | 31.13 | 27.36 |
| 23   | 27.13 | 26.62 | 26.53 | 26.13 | 26.07 | 27.41 | 27.31 | 27.92 | 29.06 | 30.20 | 31.19 | 26.00 |
| 24   | 27.02 | 26.64 | 26.50 | 26.13 | 26.14 | 27.45 | 27.63 | 28.07 | 29.10 | 30.24 | 31.22 | 25.12 |
| 25   | 27.03 | 26.63 | 26.51 | 26.15 | 26.39 | 27.57 | 27.33 | 28.13 | 29.14 | 30.28 | 31.17 | 24.32 |
| 26   | 26.89 | 26.64 | 26.51 | 26.20 | 26.58 | 27.62 | 27.10 | 28.16 | 29.23 | 30.31 | 31.10 | 23.70 |
| 27   | 26.83 | 26.66 | 26.51 | 26.20 | 26.59 | 27.87 | 26.94 | 28.18 | 29.28 | 30.32 | 31.02 | 23.16 |
| 28   | 26.97 | 26.59 | 26.51 | 26.27 | 26.77 | 27.76 | 27.30 | 28.16 | 29.30 | 30.36 | 30.98 | ---   |
| 29   | 26.95 | 26.57 | 26.50 | 26.16 | ---   | 27.68 | 27.33 | 28.14 | 29.31 | 30.40 | 30.98 | 22.86 |
| 30   | 27.01 | 26.50 | 26.50 | 26.04 | ---   | 27.86 | 27.42 | 28.11 | 29.37 | 30.46 | 30.94 | 22.71 |
| 31   | 26.98 | ---   | 26.47 | 26.07 | ---   | 27.88 | ---   | 28.23 | ---   | 30.50 | 30.89 | ---   |
| MEAN | 28.13 | 26.77 | 26.53 | 26.06 | 25.89 | 27.03 | 27.56 | 27.75 | 28.80 | 29.93 | 30.90 | 28.58 |

WTR YR 1998 MEAN 27.84 HIGHEST 22.69 SEPT. 30, 1998 LOWEST 31.22 AUG. 24, 1998



## GROUND-WATER LEVELS

## RIO HUMACAO TO QUEBRADA AGUAS VERDES

175858066100200. Local number, 6.

LOCATION.--Lat 17°58'58", long 66°10'02", Hydrologic Unit 21010004, 4.23 mi northeast of Central Aguirre Church, 4.08 mi northeast of Colegio del Perpetuo Socorro Church, and 1.77 mi northwest of Hwy 3 km 144.2. Owner: Doctor Bruno, Name: Juana 5.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 173 ft (52.74 m) reported, 110 ft (33.54 m) measured.

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 127 ft (38.7 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m), above land-surface datum. After Aug. 7, 1981, top of 16 in (0.41 m) casing, 1.55 ft (0.47 m), above land-surface datum.

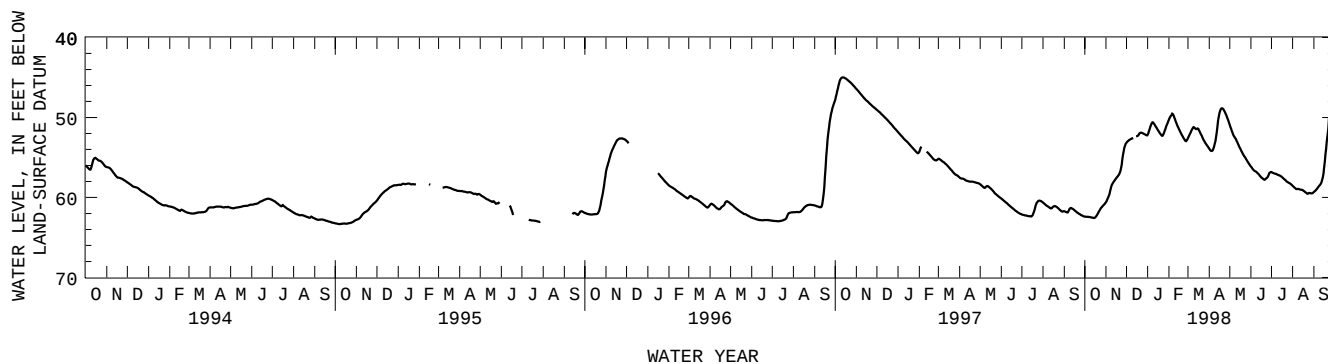
REMARKS.--Recording observation well. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998.

PERIOD OF RECORD.--November 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.20 ft (7.99 m), below land-surface datum, Dec. 10, 1979; lowest water level recorded, 65.95 ft (20.1 m), below land-surface datum, June 2, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC            | JAN          | FEB           | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|---------------|----------------|--------------|---------------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 62.38      | 60.66         | 53.20          | 52.23        | 50.37         | 52.65 | 53.83 | 50.81 | 56.08 | 56.83 | 58.50 | 59.36 |
| 2           | 62.39      | 60.50         | 53.09          | 52.09        | 50.17         | 52.48 | 53.95 | 51.06 | 56.20 | 56.84 | 58.58 | 59.28 |
| 3           | 62.41      | 60.33         | 53.00          | 51.81        | 49.99         | 52.31 | 54.08 | 51.31 | 56.32 | 56.89 | 58.66 | 59.21 |
| 4           | 62.41      | 60.14         | 52.92          | 51.55        | 49.84         | 52.14 | 54.17 | 51.55 | 56.44 | 56.94 | 58.75 | 59.13 |
| 5           | 62.41      | 59.96         | 52.86          | 51.28        | 49.76         | 51.91 | 54.21 | 51.80 | 56.55 | 56.98 | 58.83 | 59.04 |
| 6           | 62.42      | 59.75         | 52.79          | 51.04        | 49.56         | 51.73 | 54.18 | 52.02 | 56.63 | 57.00 | 58.90 | 58.92 |
| 7           | 62.43      | 59.46         | 52.75          | 50.79        | 49.51         | 51.55 | 54.04 | 52.23 | 56.67 | 57.02 | 58.96 | 58.81 |
| 8           | 62.44      | 59.07         | 52.70          | 50.62        | 49.68         | 51.40 | 53.80 | 52.38 | 56.72 | 57.04 | 58.96 | 58.69 |
| 9           | 62.46      | 58.72         | 52.65          | 50.59        | 49.89         | 51.26 | 53.51 | 52.51 | 56.79 | 57.08 | 58.93 | 58.58 |
| 10          | 62.48      | 58.46         | 52.62          | 50.68        | 50.13         | 51.18 | 53.19 | 52.63 | 56.86 | 57.14 | 58.92 | 58.49 |
| 11          | 62.49      | 58.28         | 52.58          | 50.80        | 50.37         | 51.28 | 52.78 | 52.81 | 56.95 | 57.17 | 58.96 | 58.39 |
| 12          | 62.51      | 58.13         | 52.56          | 50.95        | 50.60         | 51.40 | 52.21 | 52.99 | 57.03 | 57.21 | 59.00 | 58.24 |
| 13          | 62.53      | 58.01         | ---            | 51.10        | 50.82         | 51.47 | 51.49 | 53.18 | 57.12 | 57.24 | 59.04 | 58.03 |
| 14          | 62.54      | 57.89         | ---            | 51.24        | 51.03         | 51.45 | 50.66 | 53.37 | 57.22 | 57.27 | 59.03 | 57.75 |
| 15          | 62.57      | 57.77         | 52.35          | 51.38        | 51.23         | 51.39 | 50.07 | 53.56 | 57.33 | 57.33 | 59.04 | 57.32 |
| 16          | 62.54      | 57.65         | 52.33          | 51.53        | 51.41         | 51.34 | 49.63 | 53.74 | 57.42 | 57.39 | 59.08 | 56.71 |
| 17          | 62.47      | 57.53         | 52.32          | 51.66        | 51.59         | 51.50 | 49.29 | 53.93 | 57.51 | 57.45 | 59.14 | 55.94 |
| 18          | 62.38      | 57.42         | 52.31          | 51.78        | 51.77         | 51.66 | 49.04 | 54.09 | 57.59 | 57.53 | 59.19 | 55.06 |
| 19          | 62.26      | 57.32         | 52.23          | 51.91        | 51.95         | 51.85 | 48.88 | 54.26 | 57.66 | 57.62 | 59.25 | 54.21 |
| 20          | 62.11      | 57.20         | 52.05          | 52.03        | 52.10         | 52.03 | 48.83 | 54.43 | 57.72 | 57.70 | 59.33 | 53.41 |
| 21          | 61.95      | 57.06         | 51.94          | 52.15        | 52.27         | 52.21 | 48.86 | 54.59 | 57.78 | 57.78 | 59.40 | 52.60 |
| 22          | 61.79      | 56.86         | 51.90          | 52.25        | 52.42         | 52.38 | 48.95 | 54.74 | 57.79 | 57.85 | 59.48 | 51.86 |
| 23          | 61.64      | 56.59         | 51.90          | 52.31        | 52.56         | 52.57 | 49.09 | 54.87 | 57.66 | 57.93 | 59.55 | 50.92 |
| 24          | 61.50      | 56.20         | 51.93          | 52.20        | 52.72         | 52.75 | 49.25 | 55.01 | 57.60 | 58.01 | 59.54 | 49.75 |
| 25          | 61.36      | 55.61         | 51.96          | 52.00        | 52.87         | 52.92 | 49.43 | 55.15 | 57.52 | 58.08 | 59.45 | 48.63 |
| 26          | 61.24      | 54.92         | 52.01          | 51.78        | 52.96         | 53.07 | 49.62 | 55.29 | 57.45 | 58.12 | 59.44 | 47.64 |
| 27          | 61.14      | 54.34         | 52.04          | 51.54        | 52.95         | 53.21 | 49.82 | 55.43 | 57.25 | 58.16 | 59.46 | 46.73 |
| 28          | 61.04      | 53.91         | 52.09          | 51.29        | 52.83         | 53.35 | 50.05 | 55.56 | 57.01 | 58.22 | 59.49 | 45.91 |
| 29          | 60.95      | 53.60         | 52.14          | 51.05        | ---           | 53.47 | 50.32 | 55.70 | 56.88 | 58.27 | 59.50 | 45.18 |
| 30          | 60.87      | 53.36         | 52.20          | 50.80        | ---           | 53.58 | 50.56 | 55.82 | 56.84 | 58.34 | 59.49 | 44.54 |
| 31          | 60.77      | ---           | 52.25          | 50.61        | ---           | 53.70 | ---   | 55.96 | ---   | 58.42 | 59.43 | ---   |
| MEAN        | 62.03      | 57.56         | 52.40          | 51.45        | 51.19         | 52.17 | 51.26 | 53.64 | 57.09 | 57.51 | 59.14 | 54.61 |
| WTR YR 1998 | MEAN 55.05 | HIGHEST 44.28 | SEPT. 30, 1998 | LOWEST 62.57 | OCT. 15, 1997 |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180002066132200. Local number, HW-TW-01.

LOCATION.--Lat 18°00'02", long 66°13'22", Hydrologic Unit 21010004, 3.30 mi southwest of Cerro Guaraco, 8.71 mi southwest of Cayey plaza, and 2.80 mi southeast of Hwy 1 km 82.3 on Rabo del Buey. Owner: US Geological Survey, WRD, Name: HW-TW-01.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-39.5 ft (0-12.0 m), cased 4 in (0.10 m), 0-38.2 ft (0-11.6 m), screened 32-37.0 ft (9.75-11.3 m). Depth 39.5 ft (12.0 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 190 ft (58.0 m), above mean sea level.

Measuring point: Hole on side of 4 in (0.10 m) casing, 2.84 ft (0.87 m), above land-surface datum. Prior October 13, 1988, top of shelter floor, 3.48 ft (1.06 m), above land-surface datum.

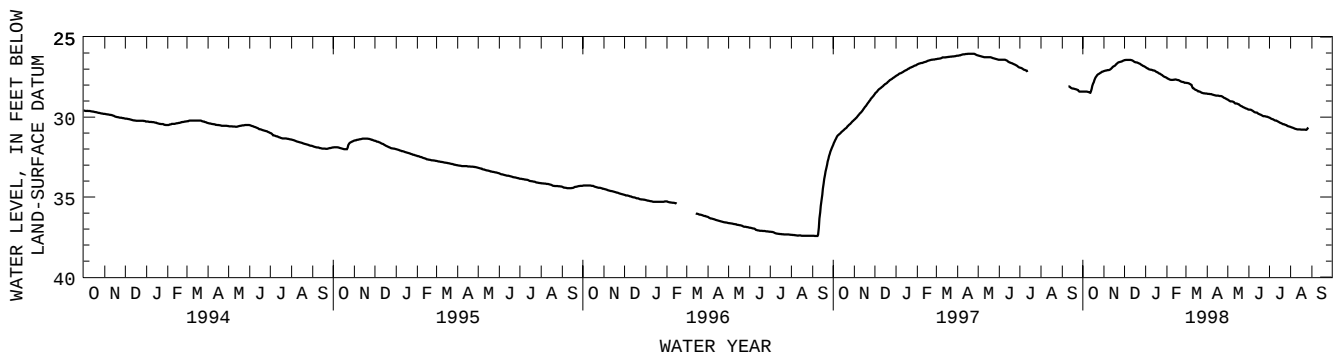
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 10, 1998.

PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.34 ft (5.89 m), below land-surface datum, Dec. 18, 1990 to Jan. 26, 1991; lowest water level recorded, 37.45 ft (11.4 m), below land-surface datum, Sept. 10, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC     | JAN      | FEB          | MAR      | APR      | MAY   | JUN   | JUL   | AUG   | SEP |
|-------------|------------|---------------|---------|----------|--------------|----------|----------|-------|-------|-------|-------|-----|
| 1           | 28.41      | 27.14         | 26.45   | 26.87    | 27.54        | 27.86    | 28.53    | 28.90 | 29.53 | 30.03 | 30.61 | --- |
| 2           | 28.41      | 27.12         | 26.44   | 26.89    | 27.58        | 27.86    | 28.55    | 28.92 | 29.54 | 30.04 | 30.63 | --- |
| 3           | 28.41      | 27.11         | 26.43   | 26.94    | 27.60        | 27.87    | 28.55    | 28.96 | 29.54 | 30.07 | 30.64 | --- |
| 4           | 28.41      | 27.09         | 26.43   | 26.95    | 27.62        | 27.86    | 28.55    | 28.98 | 29.54 | 30.10 | 30.66 | --- |
| 5           | 28.41      | 27.09         | 26.43   | 26.97    | 27.64        | 27.89    | 28.56    | 29.01 | 29.55 | 30.12 | 30.68 | --- |
| 6           | 28.41      | 27.08         | 26.43   | 27.01    | 27.66        | 27.90    | 28.56    | 29.02 | 29.59 | 30.13 | 30.70 | --- |
| 7           | 28.41      | 27.06         | 26.43   | 27.02    | 27.68        | 27.93    | 28.56    | 29.02 | 29.61 | 30.14 | 30.71 | --- |
| 8           | 28.41      | 27.06         | 26.43   | 27.03    | 27.68        | 27.96    | 28.58    | 29.02 | 29.63 | 30.18 | 30.73 | --- |
| 9           | 28.43      | 27.06         | 26.43   | 27.04    | 27.68        | 27.97    | 28.59    | 29.04 | 29.68 | 30.20 | 30.75 | --- |
| 10          | 28.44      | 27.04         | 26.43   | 27.05    | 27.68        | 28.00    | 28.60    | 29.05 | 29.70 | 30.22 | 30.75 | --- |
| 11          | 28.45      | 27.01         | 26.43   | 27.06    | 27.67        | 28.19    | 28.62    | 29.08 | 29.71 | 30.22 | 30.77 | --- |
| 12          | 28.48      | 26.97         | 26.44   | 27.08    | 27.67        | 28.19    | 28.64    | 29.15 | 29.72 | 30.23 | 30.77 | --- |
| 13          | 28.48      | 26.94         | 26.47   | 27.09    | 27.66        | 28.22    | 28.64    | 29.15 | 29.72 | 30.26 | 30.77 | --- |
| 14          | 28.32      | 26.88         | 26.49   | 27.09    | 27.65        | 28.27    | 28.65    | 29.15 | 29.73 | 30.28 | 30.77 | --- |
| 15          | 28.16      | 26.85         | 26.51   | 27.11    | 27.65        | 28.28    | 28.66    | 29.16 | 29.79 | 30.31 | 30.77 | --- |
| 16          | 27.97      | 26.83         | 26.56   | 27.14    | 27.67        | 28.31    | 28.66    | 29.17 | 29.81 | 30.33 | 30.78 | --- |
| 17          | 27.86      | 26.80         | 26.56   | 27.17    | 27.68        | 28.32    | 28.66    | 29.20 | 29.82 | 30.35 | 30.78 | --- |
| 18          | 27.77      | 26.77         | 26.58   | 27.19    | 27.69        | 28.35    | 28.67    | 29.21 | 29.84 | 30.37 | 30.78 | --- |
| 19          | 27.62      | 26.71         | 26.59   | 27.21    | 27.69        | 28.38    | 28.68    | 29.26 | 29.86 | 30.39 | 30.78 | --- |
| 20          | 27.55      | 26.67         | 26.59   | 27.23    | 27.73        | 28.40    | 28.68    | 29.29 | 29.88 | 30.42 | 30.78 | --- |
| 21          | 27.47      | 26.64         | 26.61   | 27.27    | 27.75        | 28.40    | 28.68    | 29.31 | 29.91 | 30.44 | 30.78 | --- |
| 22          | 27.42      | 26.60         | 26.63   | 27.28    | 27.77        | 28.42    | 28.69    | 29.32 | 29.94 | 30.45 | 30.78 | --- |
| 23          | 27.36      | 26.58         | 26.65   | 27.31    | 27.79        | 28.44    | 28.71    | 29.35 | 29.94 | 30.45 | 30.79 | --- |
| 24          | 27.33      | 26.57         | 26.67   | 27.34    | 27.80        | 28.46    | 28.74    | 29.38 | 29.94 | 30.48 | 30.80 | --- |
| 25          | 27.31      | 26.56         | 26.70   | 27.36    | 27.81        | 28.49    | 28.76    | 29.40 | 29.95 | 30.49 | 30.80 | --- |
| 26          | 27.27      | 26.54         | 26.73   | 27.40    | 27.81        | 28.50    | 28.79    | 29.41 | 29.96 | 30.50 | 30.73 | --- |
| 27          | 27.24      | 26.53         | 26.75   | 27.43    | 27.85        | 28.52    | 28.81    | 29.44 | 29.97 | 30.52 | 30.68 | --- |
| 28          | 27.22      | 26.51         | 26.78   | 27.46    | 27.85        | 28.52    | 28.83    | 29.46 | 29.98 | 30.56 | 30.64 | --- |
| 29          | 27.19      | 26.49         | 26.81   | 27.48    | ---          | 28.52    | 28.86    | 29.47 | 29.99 | 30.57 | ---   | --- |
| 30          | 27.16      | 26.47         | 26.82   | 27.50    | ---          | 28.53    | 28.88    | 29.49 | 30.01 | 30.59 | ---   | --- |
| 31          | 27.15      | ---           | 26.84   | 27.52    | ---          | 28.53    | ---      | 29.51 | ---   | 30.60 | ---   | --- |
| MEAN        | 27.90      | 26.83         | 26.57   | 27.18    | 27.70        | 28.24    | 28.66    | 29.20 | 29.78 | 30.32 | 30.74 | --- |
| WTR YR 1998 | MEAN 28.45 | HIGHEST 26.43 | DEC. 3- | 12, 1997 | LOWEST 30.80 | AUG. 24, | 25, 1998 |       |       |       |       |     |



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180001066122002. Local number, HW-TW-03C.

LOCATION.--Lat 18°00'01", long 66°12'20", Hydrologic Unit 21010004, 8.27 mi southwest of Cayey plaza, 2.38 mi southwest of Cerro Garau, and 3.45 mi southeast of Hwy 1 km 82.3. Owner: US Geological Survey, WRD, Name: HW-TW-03C.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-220 ft (0-67.0 m), cased 4 in (0.10 m), 0-150 ft (0-45.7 m), open hole 150-220 ft (45.7-67.0 m). Depth 220 ft (67.0 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 270 ft (82.6 m), above mean sea level.

Measuring point: Top of shelter floor, 3.32 ft (1.01 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998. Aquifer test performed during May 24, 25, 26, 1989.

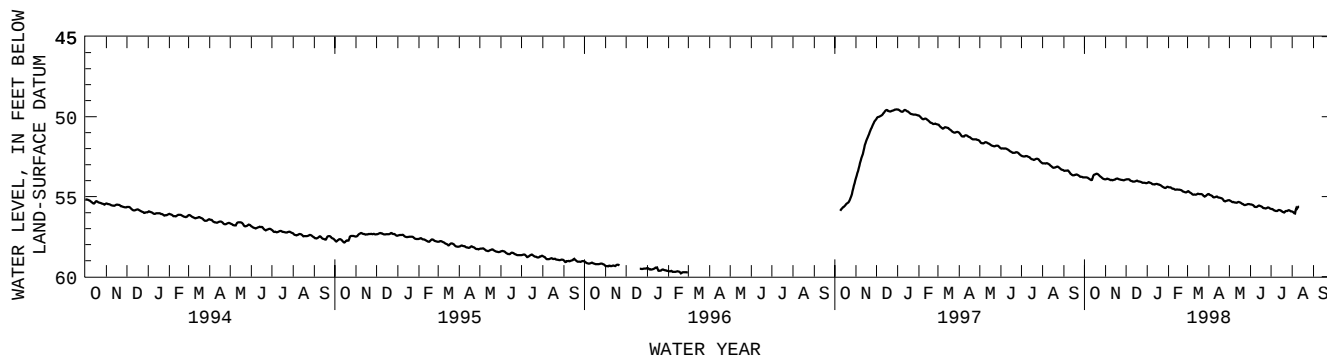
PERIOD OF RECORD.--December 15, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.29 ft (8.01 m), below land-surface datum, Dec. 15, 1990; lowest water level recorded, 59.82 ft (18.2 m), below land-surface datum, Mar. 1, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 1    | 53.80 | 53.91 | 53.93 | 54.16 | 54.40 | 54.68 | 54.82 | 55.22 | 55.48 | 55.76 | 55.92 | --- |
| 2    | 53.79 | 53.91 | 53.92 | 54.14 | 54.42 | 54.66 | 54.85 | 55.24 | 55.49 | 55.77 | 55.94 | --- |
| 3    | 53.79 | 53.90 | 53.91 | 54.10 | 54.42 | 54.66 | 54.89 | 55.26 | 55.49 | 55.77 | 55.96 | --- |
| 4    | 53.80 | 53.87 | 53.91 | 54.10 | 54.43 | 54.72 | 54.90 | 55.29 | 55.52 | 55.79 | 56.03 | --- |
| 5    | 53.80 | 53.90 | 53.92 | 54.11 | 54.42 | 54.74 | 54.92 | 55.31 | 55.53 | 55.83 | 56.05 | --- |
| 6    | 53.81 | 53.91 | 53.92 | 54.15 | 54.46 | 54.77 | 54.94 | 55.35 | 55.55 | 55.86 | 56.06 | --- |
| 7    | 53.84 | 53.92 | 53.97 | 54.15 | 54.49 | 54.79 | 54.99 | 55.33 | 55.63 | 55.87 | 55.63 | --- |
| 8    | 53.87 | 53.93 | 54.01 | 54.19 | 54.51 | 54.83 | 55.04 | 55.34 | 55.63 | 55.89 | 55.78 | --- |
| 9    | 53.90 | 53.99 | 54.02 | 54.22 | 54.51 | 54.87 | 55.05 | 55.36 | 55.65 | 55.90 | 55.72 | --- |
| 10   | 53.92 | 53.94 | 54.03 | 54.24 | 54.53 | 54.89 | 55.04 | 55.37 | 55.65 | 55.90 | 55.64 | --- |
| 11   | 53.97 | 53.97 | 54.05 | 54.21 | 54.57 | 54.85 | 55.03 | 55.37 | 55.63 | 55.88 | 55.63 | --- |
| 12   | 53.95 | 53.98 | 54.06 | 54.24 | 54.57 | 54.88 | 55.00 | 55.38 | 55.61 | 55.85 | 55.63 | --- |
| 13   | 53.96 | 53.95 | 54.06 | 54.23 | 54.57 | 54.88 | 54.99 | 55.38 | 55.57 | 55.83 | ---   | --- |
| 14   | 53.75 | 53.95 | 54.05 | 54.21 | 54.54 | 54.87 | 54.99 | 55.34 | 55.55 | 55.84 | ---   | --- |
| 15   | 53.65 | 53.94 | 54.04 | 54.21 | 54.56 | 54.85 | 55.07 | 55.32 | 55.58 | 55.85 | ---   | --- |
| 16   | 53.62 | 53.91 | 54.02 | 54.21 | 54.56 | 54.82 | 55.05 | 55.34 | 55.59 | 55.88 | ---   | --- |
| 17   | 53.61 | 53.88 | 54.00 | 54.23 | 54.56 | 54.82 | 55.06 | 55.36 | 55.61 | 55.90 | ---   | --- |
| 18   | 53.59 | 53.87 | 54.01 | 54.24 | 54.58 | 54.83 | 55.08 | 55.38 | 55.62 | 55.93 | ---   | --- |
| 19   | 53.56 | 53.87 | 54.04 | 54.25 | 54.58 | 54.84 | 55.08 | 55.41 | 55.67 | 55.97 | ---   | --- |
| 20   | 53.58 | 53.89 | 54.05 | 54.27 | 54.59 | 54.84 | 55.10 | 55.44 | 55.71 | 55.97 | ---   | --- |
| 21   | 53.58 | 53.91 | 54.04 | 54.29 | 54.61 | 54.83 | 55.12 | 55.46 | 55.73 | 56.01 | ---   | --- |
| 22   | 53.62 | 53.92 | 54.07 | 54.32 | 54.66 | 54.84 | 55.16 | 55.48 | 55.71 | 55.92 | ---   | --- |
| 23   | 53.67 | 53.93 | 54.07 | 54.36 | 54.68 | 54.87 | 55.24 | 55.51 | 55.74 | 55.90 | ---   | --- |
| 24   | 53.71 | 53.95 | 54.09 | 54.38 | 54.69 | 54.91 | 55.27 | 55.53 | 55.74 | 55.90 | ---   | --- |
| 25   | 53.74 | 53.95 | 54.12 | 54.41 | 54.73 | 54.95 | 55.29 | 55.52 | 55.71 | 55.90 | ---   | --- |
| 26   | 53.79 | 53.96 | 54.14 | 54.43 | 54.72 | 55.00 | 55.29 | 55.51 | 55.69 | 55.88 | ---   | --- |
| 27   | 53.81 | 53.97 | 54.13 | 54.46 | 54.74 | 54.98 | 55.26 | 55.50 | 55.68 | 55.84 | ---   | --- |
| 28   | 53.86 | 53.99 | 54.13 | 54.46 | 54.73 | 54.96 | 55.26 | 55.48 | 55.68 | 55.85 | ---   | --- |
| 29   | 53.88 | 53.96 | 54.14 | 54.44 | ---   | 54.92 | 55.24 | 55.46 | 55.71 | 55.88 | ---   | --- |
| 30   | 53.90 | 53.94 | 54.16 | 54.40 | ---   | 54.87 | 55.22 | 55.46 | 55.74 | 55.91 | ---   | --- |
| 31   | 53.91 | ---   | 54.16 | 54.37 | ---   | 54.85 | ---   | 55.47 | ---   | 55.92 | ---   | --- |
| MEAN | 53.78 | 53.93 | 54.04 | 54.26 | 54.57 | 54.84 | 55.07 | 55.39 | 55.63 | 55.88 | 55.83 | --- |

WTR YR 1998 MEAN 54.78 HIGHEST 53.45 OCT. 15, 16, 1997 LOWEST 56.13 AUG. 7, 1998



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175947066130601. Local number, HW-TW5B.

LOCATION.--Lat 17°59'47", long 66°13'06", Hydrologic Unit 21010004, 2.70 mi northeast of Central Aguirre Church, 6.16 mi northwest of Escuela de Guayama, and 2.70 mi northeast of Hwy 3 km 151.3. Owner: US Geological Survey, WRD, Name: HW-TW-5B.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-52.0 ft (0-15.8 m), cased 4 in (0.10 m), 0-51.0 ft (0-15.5 m), screened 41-46 ft (12.5-14.0 m). Depth 52.0 ft (15.8 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 145 ft (44.2 m), above mean sea level.

Measuring point: Hole on side of casing, 3.00 ft (0.91 m), above land-surface datum. Prior October 13, 1989 top of shelter floor, 3.47 ft (1.06 m), above land-surface datum.

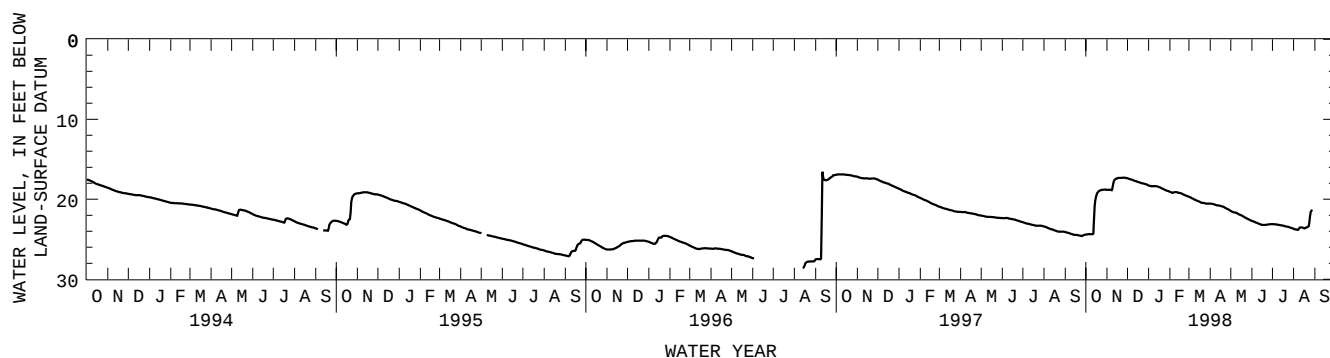
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998.

PERIOD OF RECORD.--April 13, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.93 ft (1.81 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 28.55 ft (8.70 m), below land-surface datum, Aug. 14, 15, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY                                                                          | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1                                                                            | 24.41 | 18.81 | 17.37 | 18.26 | 19.06 | 19.67 | 20.55 | 21.43 | 22.69 | 23.12 | 23.68 | ---   |
| 2                                                                            | 24.41 | 18.81 | 17.39 | 18.30 | 19.09 | 19.71 | 20.55 | 21.48 | 22.72 | 23.12 | 23.71 | ---   |
| 3                                                                            | 24.39 | 18.81 | 17.43 | 18.33 | 19.11 | 19.75 | 20.56 | 21.54 | 22.75 | 23.12 | 23.74 | ---   |
| 4                                                                            | 24.38 | 18.81 | 17.45 | 18.33 | 19.16 | 19.77 | 20.56 | 21.57 | 22.78 | 23.12 | 23.76 | ---   |
| 5                                                                            | 24.37 | 18.82 | 17.48 | 18.34 | 19.19 | 19.84 | 20.58 | 21.62 | 22.82 | 23.13 | 23.78 | ---   |
| 6                                                                            | 24.37 | 18.82 | 17.50 | 18.39 | 19.19 | 19.88 | 20.59 | 21.65 | 22.84 | 23.14 | 23.80 | ---   |
| 7                                                                            | 24.37 | 18.82 | 17.54 | 18.36 | 19.14 | 19.91 | 20.62 | 21.65 | 22.89 | 23.15 | 23.82 | ---   |
| 8                                                                            | 24.37 | 18.84 | 17.56 | 18.35 | 19.12 | 19.96 | 20.65 | 21.66 | 22.93 | 23.16 | 23.85 | ---   |
| 9                                                                            | 24.37 | 18.87 | 17.59 | 18.35 | 19.10 | 20.01 | 20.68 | 21.69 | 22.96 | 23.18 | 23.70 | ---   |
| 10                                                                           | 24.37 | 18.45 | 17.62 | 18.35 | 19.11 | 20.05 | 20.73 | 21.71 | 22.99 | 23.20 | 23.57 | ---   |
| 11                                                                           | 24.37 | 17.86 | 17.65 | 18.35 | 19.11 | 20.10 | 20.75 | 21.75 | 23.04 | 23.21 | 23.53 | ---   |
| 12                                                                           | 24.35 | 17.62 | 17.69 | 18.36 | 19.13 | 20.13 | 20.76 | 21.83 | 23.07 | 23.22 | 23.53 | ---   |
| 13                                                                           | 24.28 | 17.55 | 17.73 | 18.38 | 19.15 | 20.17 | 20.78 | 21.87 | 23.10 | 23.24 | 23.53 | ---   |
| 14                                                                           | 21.28 | 17.47 | 17.75 | 18.38 | 19.19 | 20.22 | 20.79 | 21.89 | 23.14 | 23.25 | 23.53 | ---   |
| 15                                                                           | 20.40 | 17.43 | 17.77 | 18.42 | 19.19 | 20.25 | 20.80 | 21.93 | 23.18 | 23.27 | 23.54 | ---   |
| 16                                                                           | 19.91 | 17.40 | 17.81 | 18.45 | 19.21 | 20.28 | 20.81 | 21.97 | 23.21 | 23.28 | 23.58 | ---   |
| 17                                                                           | 19.49 | 17.36 | 17.84 | 18.49 | 19.23 | 20.30 | 20.83 | 22.01 | 23.21 | 23.30 | 23.64 | ---   |
| 18                                                                           | 19.27 | 17.34 | 17.86 | 18.51 | 19.26 | 20.34 | 20.86 | 22.04 | 23.21 | 23.31 | 23.64 | ---   |
| 19                                                                           | 19.12 | 17.34 | 17.90 | 18.54 | 19.29 | 20.40 | 20.88 | 22.10 | 23.21 | 23.35 | 23.56 | ---   |
| 20                                                                           | 19.02 | 17.32 | 17.92 | 18.59 | 19.34 | 20.44 | 20.92 | 22.15 | 23.21 | 23.38 | 23.53 | ---   |
| 21                                                                           | 18.97 | 17.32 | 17.96 | 18.66 | 19.40 | 20.44 | 20.96 | 22.19 | 23.21 | 23.39 | 23.49 | ---   |
| 22                                                                           | 18.92 | 17.32 | 17.99 | 18.67 | 19.43 | 20.46 | 21.00 | 22.24 | 23.20 | 23.40 | 23.49 | 6.09  |
| 23                                                                           | 18.90 | 17.32 | 18.00 | 18.73 | 19.47 | 20.46 | 21.04 | 22.32 | 23.19 | 23.43 | 23.37 | ---   |
| 24                                                                           | 18.85 | 17.32 | 18.01 | 18.76 | 19.51 | 20.49 | 21.09 | 22.36 | 23.17 | 23.44 | 23.32 | ---   |
| 25                                                                           | 18.83 | 17.31 | 18.03 | 18.82 | 19.54 | 20.52 | 21.15 | 22.40 | 23.15 | 23.46 | 22.47 | 9.00  |
| 26                                                                           | 18.80 | 17.31 | 18.05 | 18.85 | 19.58 | 20.54 | 21.19 | 22.45 | 23.14 | 23.48 | 21.70 | 9.70  |
| 27                                                                           | 18.81 | 17.31 | 18.08 | 18.89 | 19.61 | 20.54 | 21.22 | 22.49 | 23.13 | 23.53 | 21.50 | 10.26 |
| 28                                                                           | 18.80 | 17.32 | 18.11 | 18.92 | 19.64 | 20.54 | 21.28 | 22.52 | 23.12 | 23.55 | 21.39 | 10.67 |
| 29                                                                           | 18.80 | 17.34 | 18.13 | 18.94 | ---   | 20.54 | 21.32 | 22.55 | 23.12 | 23.58 | 21.17 | 11.02 |
| 30                                                                           | 18.80 | 17.35 | 18.18 | 18.96 | ---   | 20.54 | 21.38 | 22.61 | 23.12 | 23.60 | ---   | 11.32 |
| 31                                                                           | 18.80 | ---   | 18.21 | 19.02 | ---   | 20.54 | ---   | 22.65 | ---   | 23.64 | ---   | ---   |
| MEAN                                                                         | 21.37 | 17.86 | 17.79 | 18.55 | 19.27 | 20.22 | 20.86 | 22.01 | 23.05 | 23.31 | 23.27 | 9.72  |
| WTR YR 1998 MEAN 20.46 HIGHEST 5.93 SEPT. 22, 1998 LOWEST 24.43 OCT. 1, 1997 |       |       |       |       |       |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175957066123400. Local number, HW-TW-13.

LOCATION.--Lat 17°59'57", long 66°12'34", Hydrologic Unit 21010004, 3.11 northeast of Central Aguirre Church, 5.76 mi northwest of Escuela de Guayama, and 2.03 mi northeast of Hwy 3 km 151.3. Owner: US Geological Survey, WRD, Name: HW-TW-13.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-69.0 ft (0-21.0 m), cased 4 in (0.10 m), 0-69.0 ft (0-21.0 m), screened 4.0-69 ft (1.22-21.0 m). Depth 69.0 ft (21.0 m).

INSTRUMENTATION.--Electronic water level logger--60-minute punch.

DATUM.--Elevation of land-surface datum is about 203 ft (61.9 m), above mean sea level.

Measuring point: Hole on side of casing, 2.33 ft (0.71 m), above land-surface datum. Prior October 14, 1988, top of shelter floor, 3.47 ft (1.06 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on July 22, 1998

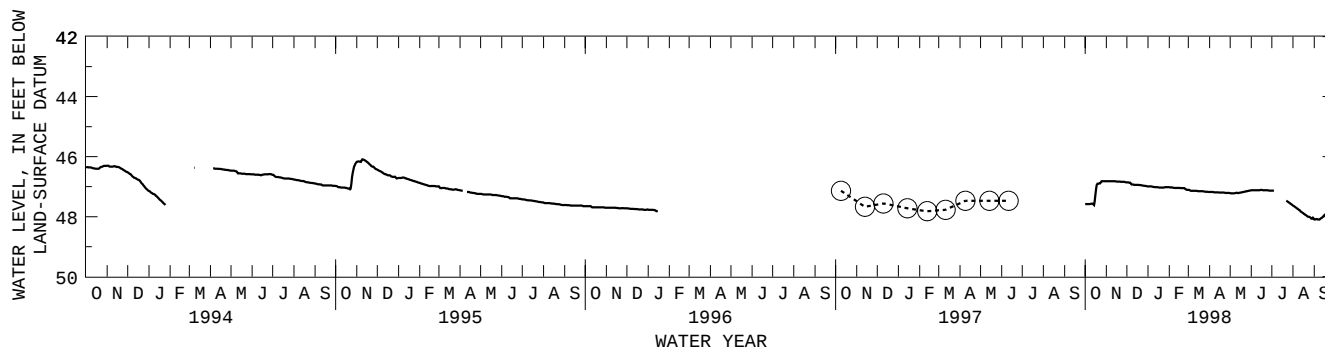
PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.39 ft (10.5 m), below land-surface datum, Oct. 27, 1990; lowest water level recorded, 48.12 ft (14.7 m), below land-surface datum, Sept. 3, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 47.58 | 46.82 | 46.86 | 46.99 | 47.02 | 47.11 | 47.18 | 47.21 | 47.12 | 47.13 | 47.62 | 48.09 |
| 2    | 47.58 | 46.82 | 46.86 | 46.99 | 47.02 | 47.11 | 47.18 | 47.22 | 47.12 | 47.13 | 47.64 | 48.09 |
| 3    | 47.58 | 46.82 | 46.86 | 46.99 | 47.03 | 47.11 | 47.18 | 47.22 | 47.12 | 47.13 | 47.65 | 48.10 |
| 4    | 47.58 | 46.82 | 46.86 | 46.99 | 47.03 | 47.13 | 47.18 | 47.22 | 47.12 | 47.13 | 47.67 | 48.09 |
| 5    | 47.58 | 46.82 | 46.87 | 46.99 | 47.02 | 47.14 | 47.18 | 47.22 | 47.12 | 47.13 | 47.69 | 48.07 |
| 6    | 47.58 | 46.82 | 46.87 | 46.99 | 47.03 | 47.14 | 47.18 | 47.23 | 47.12 | ---   | 47.70 | 48.09 |
| 7    | 47.58 | 46.82 | 46.87 | 47.00 | 47.03 | 47.14 | 47.18 | 47.22 | 47.12 | ---   | 47.72 | 48.09 |
| 8    | 47.58 | 46.82 | 46.93 | 47.00 | 47.04 | 47.14 | 47.19 | 47.22 | 47.12 | ---   | 47.74 | 48.09 |
| 9    | 47.58 | 46.82 | 46.93 | 47.01 | 47.04 | 47.14 | 47.19 | 47.21 | 47.12 | ---   | 47.75 | 48.11 |
| 10   | 47.57 | 46.82 | 46.93 | 47.01 | 47.04 | 47.14 | 47.19 | 47.21 | 47.12 | ---   | 47.77 | 48.08 |
| 11   | 47.57 | 46.82 | 46.93 | 47.01 | 47.04 | 47.14 | 47.19 | 47.21 | 47.12 | ---   | 47.79 | 48.06 |
| 12   | 47.57 | 46.82 | 46.94 | 47.02 | 47.04 | 47.14 | 47.19 | 47.20 | 47.12 | ---   | 47.80 | 48.05 |
| 13   | 47.57 | 46.82 | 46.94 | 47.02 | 47.04 | 47.14 | 47.19 | 47.22 | 47.12 | ---   | 47.83 | 48.03 |
| 14   | 47.61 | 46.82 | 46.94 | 47.02 | 47.04 | 47.14 | 47.19 | 47.21 | 47.12 | ---   | 47.85 | 48.01 |
| 15   | 47.61 | 46.82 | 46.94 | 47.02 | 47.04 | 47.15 | 47.19 | 47.21 | 47.11 | ---   | 47.86 | 47.98 |
| 16   | 47.41 | 46.83 | 46.94 | 47.02 | 47.04 | 47.15 | 47.20 | 47.20 | 47.11 | ---   | 47.88 | 47.96 |
| 17   | 47.14 | 46.83 | 46.94 | 47.03 | 47.04 | 47.15 | 47.20 | 47.20 | 47.11 | ---   | 47.90 | 47.93 |
| 18   | 46.99 | 46.83 | 46.94 | 47.03 | 47.05 | 47.15 | 47.20 | 47.19 | 47.12 | ---   | 47.91 | 47.92 |
| 19   | 46.90 | 46.83 | 46.94 | 47.03 | 47.05 | 47.15 | 47.20 | 47.19 | 47.12 | ---   | 47.93 | 47.91 |
| 20   | 46.90 | 46.83 | 46.95 | 47.03 | 47.05 | 47.15 | 47.20 | 47.18 | 47.12 | ---   | 47.95 | 47.89 |
| 21   | 46.90 | 46.83 | 46.95 | 47.03 | 47.05 | 47.15 | 47.20 | 47.18 | 47.12 | ---   | 47.96 | 47.87 |
| 22   | 46.89 | 46.84 | 46.95 | 47.03 | 47.05 | 47.15 | 47.20 | 47.17 | 47.12 | 47.48 | 47.98 | 42.65 |
| 23   | 46.89 | 46.84 | 46.96 | 47.03 | 47.05 | 47.16 | 47.20 | 47.17 | 47.12 | 47.47 | 48.00 | 43.53 |
| 24   | 46.89 | 46.84 | 46.96 | 47.03 | 47.05 | 47.16 | 47.21 | 47.16 | 47.12 | 47.49 | 48.01 | 46.31 |
| 25   | 46.82 | 46.84 | 46.96 | 47.03 | 47.09 | 47.16 | 47.21 | 47.16 | 47.12 | 47.50 | 48.00 | 46.89 |
| 26   | 46.82 | 46.84 | 46.97 | 47.02 | 47.09 | 47.17 | 47.21 | 47.15 | 47.12 | 47.52 | 48.02 | 46.88 |
| 27   | 46.82 | 46.84 | 46.97 | 47.02 | 47.10 | 47.17 | 47.21 | 47.15 | 47.13 | 47.54 | 48.03 | 46.88 |
| 28   | 46.82 | 46.84 | 46.97 | 47.02 | 47.11 | 47.17 | 47.21 | 47.14 | 47.13 | 47.55 | 48.05 | 46.88 |
| 29   | 46.82 | 46.85 | 46.98 | 47.02 | ---   | 47.17 | 47.21 | 47.14 | 47.13 | 47.57 | 48.08 | 46.88 |
| 30   | 46.82 | 46.85 | 46.98 | 47.02 | ---   | 47.17 | 47.21 | 47.13 | 47.13 | 47.59 | 48.05 | 46.88 |
| 31   | 46.82 | ---   | 46.99 | 47.02 | ---   | 47.18 | ---   | 47.13 | ---   | 47.60 | 48.02 | ---   |
| MEAN | 47.24 | 46.83 | 46.93 | 47.01 | 47.05 | 47.15 | 47.19 | 47.19 | 47.12 | 47.40 | 47.87 | 47.41 |

WTR YR 1998 MEAN 47.19 HIGHEST 41.61 SEPT. 22, 1998 LOWEST 48.12 SEPT. 3, 1998



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175809066133100. Local number, CQ-1.

LOCATION.--Lat 17°58'09", long 66°13'31", Hydrologic Unit 21010004, 0.49 mi southwest of the intersection of Hwy 706 with Hwy 3, 0.30 mi south of Hwy 3, and 0.12 mi east of Hwy 705. Owner: PR Land Authority, Name: Coqui Btr 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in (0.46 m). Depth 199 ft (60.7 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 16.4 ft (5.00 m), above mean sea level, from topographic map.

Measuring point: Hole in the side of the 18 in (0.46 m) casing, 1.33 ft (0.41 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on March 6, 1997.

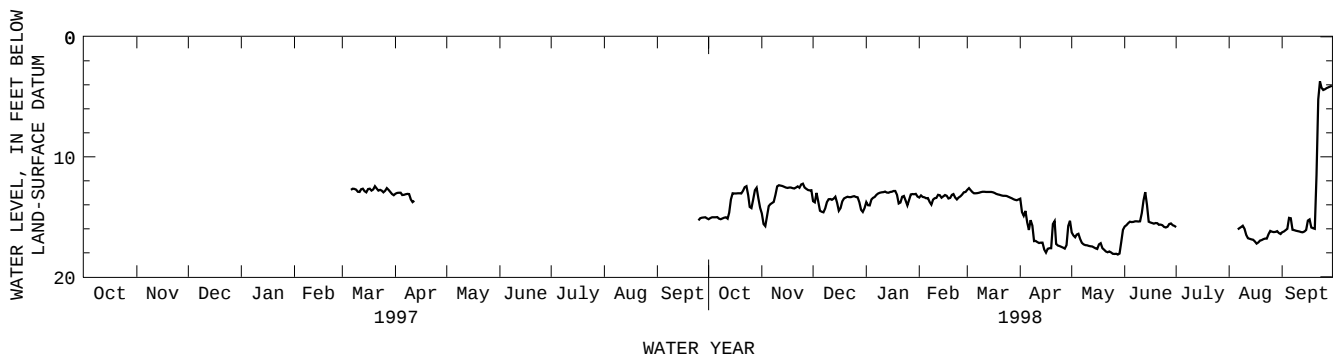
PERIOD OF RECORD.--March 6, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.30 ft (1.00 m), below land-surface datum, Sept. 22, 23, 1998; lowest water level recorded, 18.64 ft (5.68 m), below land-surface datum, May 29, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 15.26 | 14.08 | 12.79 | 13.92 | 13.53 | 13.02 | 13.42 | 16.13 | 15.88 | 15.81 | ---   | 16.32 |
| 2    | 15.15 | 15.35 | 14.61 | 13.64 | 13.24 | 12.48 | 13.57 | 16.47 | 15.74 | 15.90 | ---   | 16.26 |
| 3    | 15.05 | 15.86 | 12.96 | 14.43 | 13.20 | 12.73 | 15.66 | 16.64 | 15.65 | ---   | ---   | 16.19 |
| 4    | 15.02 | 15.68 | 13.05 | 13.66 | 13.50 | 12.83 | 14.16 | 16.76 | 15.41 | ---   | ---   | 16.02 |
| 5    | 15.05 | 14.24 | 14.43 | 13.44 | 13.25 | 13.05 | 14.85 | 16.19 | 15.42 | ---   | ---   | 15.99 |
| 6    | 15.02 | 13.98 | 14.55 | 13.42 | 13.67 | 13.03 | 16.02 | 16.63 | 15.47 | ---   | 16.16 | 14.17 |
| 7    | 15.02 | 13.91 | 14.60 | 13.28 | 13.22 | 13.04 | 16.18 | 17.08 | 15.39 | ---   | 15.94 | 16.07 |
| 8    | 15.27 | 13.80 | 14.66 | 13.06 | 14.31 | 13.02 | 14.38 | 17.24 | 15.36 | ---   | 15.93 | 16.09 |
| 9    | 15.13 | 13.72 | 13.94 | 13.04 | 13.65 | 12.98 | 17.07 | 17.36 | 15.40 | ---   | 15.77 | 16.12 |
| 10   | 15.14 | 12.62 | 13.60 | 12.96 | 13.48 | 12.90 | 16.97 | 17.35 | 15.38 | ---   | 15.72 | 16.19 |
| 11   | 15.00 | 12.32 | 13.47 | 12.95 | 13.44 | 12.92 | 17.05 | 17.39 | 15.36 | ---   | 16.27 | 16.21 |
| 12   | 15.07 | 12.40 | 13.58 | 12.93 | 13.40 | 12.92 | 17.15 | 17.46 | 14.01 | ---   | 16.75 | 16.24 |
| 13   | 15.23 | 12.41 | 13.59 | 12.87 | 12.95 | 12.94 | 17.21 | 17.46 | 13.27 | ---   | 16.82 | 16.29 |
| 14   | 14.08 | 12.46 | 13.38 | 13.08 | 13.44 | 12.93 | 17.09 | 17.50 | 12.62 | ---   | 16.86 | 16.29 |
| 15   | 13.02 | 12.53 | 13.28 | 12.89 | 13.37 | 12.92 | 17.20 | 17.61 | 15.37 | ---   | 16.90 | 16.16 |
| 16   | 13.06 | 12.58 | 14.38 | 12.96 | 13.23 | 12.94 | 18.25 | 17.65 | 15.45 | ---   | 16.92 | 16.03 |
| 17   | 13.05 | 12.60 | 14.62 | 12.85 | 13.15 | 12.97 | 17.72 | 17.71 | 15.50 | ---   | 17.20 | 14.58 |
| 18   | 13.05 | 12.53 | 13.91 | 12.85 | 13.35 | 13.05 | 17.62 | 16.88 | 15.54 | ---   | 17.27 | 15.85 |
| 19   | 13.04 | 12.59 | 13.52 | 12.84 | 13.58 | 13.11 | 17.61 | 17.52 | 15.59 | ---   | 16.99 | 15.92 |
| 20   | 13.05 | 12.61 | 13.42 | 13.49 | 13.27 | 13.15 | 17.62 | 17.70 | 15.45 | ---   | 16.95 | 16.00 |
| 21   | 13.07 | 12.68 | 13.35 | 14.30 | 13.08 | 13.20 | 13.57 | 17.79 | 15.63 | ---   | 16.93 | 15.99 |
| 22   | 12.59 | 12.43 | 13.31 | 13.33 | 13.12 | 13.23 | 17.15 | 18.00 | 15.71 | ---   | 16.80 | 7.06  |
| 23   | 12.45 | 12.49 | 13.40 | 13.33 | 13.66 | 13.27 | 17.38 | 17.90 | 15.58 | ---   | 16.83 | 3.37  |
| 24   | 12.44 | 12.65 | 13.32 | 13.21 | 13.44 | 13.24 | 17.42 | 17.89 | 15.81 | ---   | 16.79 | 4.04  |
| 25   | 13.96 | 11.96 | 13.30 | 14.10 | 13.34 | 13.29 | 17.47 | 18.04 | 15.88 | ---   | 16.10 | 4.44  |
| 26   | 14.38 | 12.51 | 13.27 | 13.99 | 13.24 | 13.37 | 17.55 | 18.13 | 15.89 | ---   | 16.24 | 4.43  |
| 27   | 14.18 | 12.62 | 13.41 | 13.22 | 13.07 | 13.43 | 17.58 | 18.07 | 15.75 | ---   | 16.25 | 4.32  |
| 28   | 12.94 | 12.73 | 13.33 | 13.06 | 12.85 | 13.47 | 17.72 | 18.08 | 15.44 | ---   | 16.28 | 4.24  |
| 29   | 12.64 | 12.80 | 14.26 | 13.14 | ---   | 13.60 | 16.99 | 18.21 | 15.67 | ---   | 16.23 | 4.19  |
| 30   | 12.50 | 12.79 | 14.56 | 13.10 | ---   | 13.57 | 14.54 | 17.93 | 15.71 | ---   | 16.17 | 4.09  |
| 31   | 14.41 | ---   | 14.61 | 13.09 | ---   | 13.67 | ---   | 16.29 | ---   | ---   | 16.53 | ---   |
| MEAN | 14.01 | 13.13 | 13.76 | 13.30 | 13.36 | 13.11 | 16.47 | 17.39 | 15.34 | 15.85 | 16.52 | 12.51 |

WTR YR 1998 MEAN 14.43 HIGHEST 3.30 SEPT. 22, 23, 1998 LOWEST 18.64 MAY 29, 1998



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180206066135500. Local number, RM-5.

LOCATION.--Lat 18°02'06", long 66°13'55", Hydrologic Unit 21010004, 6.98 mi southwest of Cayey plaza, 0.63 mi east of Hwy 1 km 82.3 on Rabo del Buey, and 1.75 mi southeast of Capilla de Santa Marta. Owner: US Geological Survey, WRD, Name: RM # 5.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-34.0 ft (0-10.4 m), screened 24-34.0 ft (7.32-10.7 m). Depth 34.0 ft (10.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minute punch.

DATUM.--Elevation of land-surface datum is about 276 ft (84.2 m), above mean sea level.

Measuring point: Top of shelter floor, 3.28 ft (1.00 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 3, 1998.

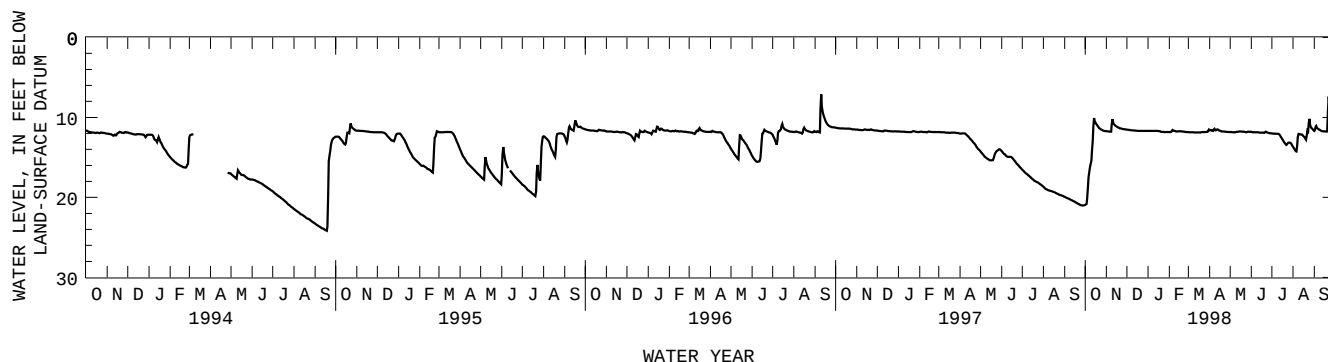
PERIOD OF RECORD.--March 9, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.56 ft (1.69 m), below land-surface datum, Sept. 10, 1996; lowest water level recorded, 24.24 ft (7.39 m), below land-surface datum, Sept. 20, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 20.95 | 11.71 | 11.51 | 11.68 | 11.83 | 11.84 | 11.56 | 11.83 | 11.79 | 12.00 | 13.62 | 11.67 |
| 2    | 20.90 | 11.71 | 11.53 | 11.68 | 11.83 | 11.84 | 11.66 | 11.84 | 11.82 | 12.00 | 13.76 | 11.71 |
| 3    | 20.85 | 11.74 | 11.54 | 11.68 | 11.83 | 11.85 | 11.51 | 11.84 | 11.84 | 12.03 | 13.88 | 11.46 |
| 4    | 20.78 | 11.75 | 11.56 | 11.68 | 11.83 | 11.85 | 11.61 | 11.84 | 11.85 | 12.04 | 14.01 | 10.88 |
| 5    | 19.48 | 11.75 | 11.57 | 11.68 | 11.76 | 11.85 | 11.65 | 11.85 | 11.84 | 12.04 | 14.15 | 11.23 |
| 6    | 17.96 | 11.77 | 11.58 | 11.68 | 11.51 | 11.86 | 11.68 | 11.85 | 11.85 | 12.03 | 14.32 | 11.37 |
| 7    | 17.09 | 11.78 | 11.60 | 11.68 | 11.63 | 11.86 | 11.70 | 11.86 | 11.86 | 12.04 | 14.19 | 11.42 |
| 8    | 16.55 | 11.79 | 11.62 | 11.68 | 11.67 | 11.86 | 11.34 | 11.87 | 11.86 | 12.04 | 12.74 | 11.50 |
| 9    | 16.11 | 11.80 | 11.62 | 11.68 | 11.69 | 11.87 | 11.51 | 11.87 | 11.86 | 12.04 | 12.06 | 11.52 |
| 10   | 15.56 | 9.85  | 11.62 | 11.68 | 11.69 | 11.87 | 11.60 | 11.80 | 11.86 | 12.05 | 12.09 | 11.59 |
| 11   | 15.27 | 10.61 | 11.63 | 11.68 | 11.75 | 11.87 | 11.63 | 11.81 | 11.86 | 12.05 | 12.09 | 11.66 |
| 12   | 13.18 | 10.78 | 11.64 | 11.68 | 11.75 | 11.87 | 11.50 | 11.81 | 11.86 | 12.10 | 12.10 | 11.69 |
| 13   | 12.73 | 10.88 | 11.64 | 11.68 | 11.76 | 11.87 | 11.50 | 11.81 | 11.90 | 12.17 | 12.13 | 11.72 |
| 14   | 9.74  | 10.97 | 11.65 | 11.68 | 11.76 | 11.87 | 11.52 | 11.76 | 11.90 | 12.34 | 12.14 | 11.73 |
| 15   | 10.44 | 11.05 | 11.66 | 11.68 | 11.72 | 11.87 | 11.63 | 11.76 | 11.91 | 12.50 | 12.17 | 11.73 |
| 16   | 10.47 | 11.11 | 11.66 | 11.70 | 11.73 | 11.87 | 11.67 | 11.77 | 11.91 | 12.61 | 12.27 | 11.73 |
| 17   | 10.79 | 11.16 | 11.68 | 11.70 | 11.73 | 11.87 | 11.68 | 11.77 | 11.91 | 12.73 | 12.39 | 11.74 |
| 18   | 10.84 | 11.23 | 11.68 | 11.70 | 11.73 | 11.87 | 11.71 | 11.77 | 11.91 | 12.88 | 12.43 | 11.77 |
| 19   | 10.97 | 11.26 | 11.68 | 11.71 | 11.74 | 11.87 | 11.75 | 11.79 | 11.92 | 13.01 | 12.56 | 11.75 |
| 20   | 11.11 | 11.30 | 11.68 | 11.81 | 11.75 | 11.87 | 11.75 | 11.79 | 11.92 | 13.19 | 12.73 | 11.77 |
| 21   | 11.23 | 11.36 | 11.68 | 11.81 | 11.76 | 11.82 | 11.76 | 11.79 | 11.93 | 13.26 | 12.83 | 11.77 |
| 22   | 11.33 | 11.37 | 11.68 | 11.81 | 11.78 | 11.82 | 11.77 | 11.80 | 11.76 | 13.42 | 11.58 | 6.70  |
| 23   | 11.40 | 11.38 | 11.68 | 11.81 | 11.79 | 11.82 | 11.77 | 11.83 | 11.82 | 13.47 | 11.70 | 8.07  |
| 24   | 11.45 | 11.40 | 11.68 | 11.82 | 11.80 | 11.82 | 11.78 | 11.83 | 11.86 | 13.32 | 11.80 | 8.60  |
| 25   | 11.52 | 11.43 | 11.68 | 11.82 | 11.82 | 11.82 | 11.80 | 11.84 | 11.90 | 13.18 | 9.59  | 8.99  |
| 26   | 11.58 | 11.46 | 11.68 | 11.82 | 11.83 | 11.82 | 11.81 | 11.86 | 11.92 | 13.16 | 10.78 | 9.43  |
| 27   | 11.62 | 11.47 | 11.68 | 11.82 | 11.83 | 11.82 | 11.81 | 11.81 | 11.96 | 13.16 | 11.12 | 9.77  |
| 28   | 11.65 | 11.49 | 11.68 | 11.82 | 11.84 | 11.81 | 11.81 | 11.78 | 11.96 | 13.16 | 11.31 | 10.08 |
| 29   | 11.68 | 11.50 | 11.68 | 11.82 | ---   | 11.81 | 11.83 | 11.79 | 11.98 | 13.18 | 11.35 | 10.36 |
| 30   | 11.70 | 11.51 | 11.68 | 11.82 | ---   | 11.81 | 11.83 | 11.82 | 11.98 | 13.31 | 11.46 | 10.58 |
| 31   | 11.70 | ---   | 11.68 | 11.83 | ---   | 11.46 | ---   | 11.79 | ---   | 13.48 | 11.58 | ---   |
| MEAN | 13.83 | 11.35 | 11.64 | 11.74 | 11.75 | 11.83 | 11.67 | 11.81 | 11.88 | 12.64 | 12.35 | 10.87 |

WTR YR 1998 MEAN 11.95 HIGHEST 6.63 SEPT. 22, 1998 LOWEST 20.97 OCT. 1, 1997



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180104066152300. Local number, RM-10.

LOCATION.--Lat 18°01'04", long 66°15'23", Hydrologic Unit 21010004, 8.00 mi southeast of Coamo plaza, 1.07 mi northeast of Escuela de Coco, and 0.70 mi southwest of Escuela Sabana Llana. Owner: US Geological Survey, WRD, Name: RM # 10.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-37.0 ft (0-11.3 m), screened 27-37 ft (8.23-11.3 m). Depth 37.0 ft (11.3 m).

INSTRUMENTATION.--Electronic water level logger--15-minute interval.

DATUM.--Elevation of land-surface datum is about 164 ft (50.0 m), above mean sea level, from leveling survey.

Measuring point: Top of shelter floor, 3.62 ft (1.10 m), above land-surface datum.

REMARKS.--Recording observation well. Pumping test performed on February 8, 1990. Well dry at 35.77 ft (10.9 m).

Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 11, 1998. From Sept. 14, 1998, monthly measurements only.

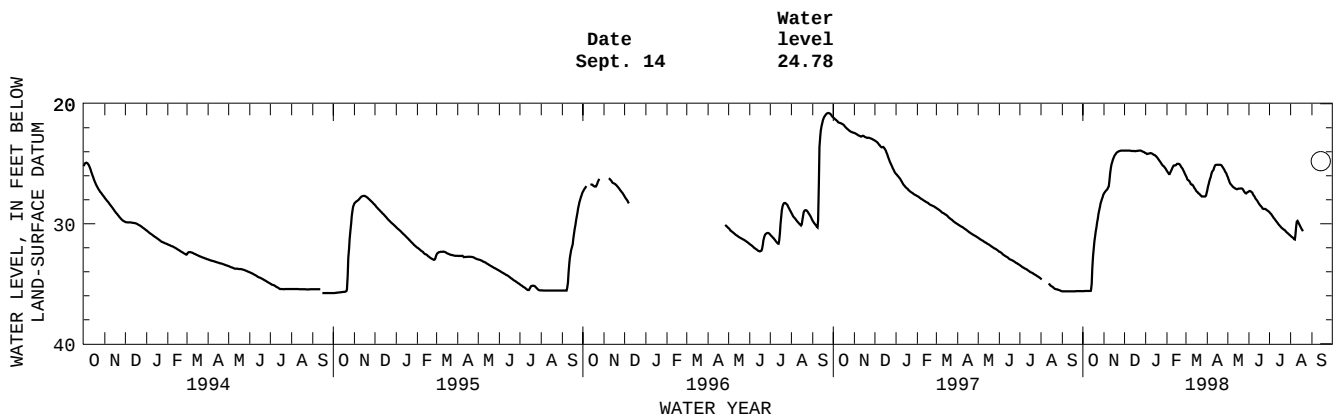
PERIOD OF RECORD.--March 13, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.0 ft (5.49 m), below land-surface datum, Nov. 9, 1990; lowest water level recorded, 35.77 ft (10.9 m), below land-surface datum, Sept. 14 to Oct. 5, 1994

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC              | JAN          | FEB            | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP |
|-------------|------------|---------------|------------------|--------------|----------------|-------|-------|-------|-------|-------|-------|-----|
| 1           | 35.61      | 27.53         | 23.91            | 24.10        | 25.56          | 25.98 | 27.32 | 26.03 | 27.32 | 29.00 | 30.97 | --- |
| 2           | 35.61      | 27.41         | 23.91            | 24.12        | 25.65          | 26.06 | 27.08 | 26.18 | 27.27 | 29.07 | 31.05 | --- |
| 3           | 35.61      | 27.34         | 23.91            | 24.18        | 25.72          | 26.24 | 26.81 | 26.37 | 27.27 | 29.15 | 31.10 | --- |
| 4           | 35.61      | 27.27         | 23.91            | 24.19        | 25.80          | 26.36 | 26.60 | 26.49 | 27.28 | 29.20 | 31.11 | --- |
| 5           | 35.60      | 27.21         | 23.91            | 24.17        | 25.90          | 26.38 | 26.38 | 26.65 | 27.36 | 29.31 | 31.19 | --- |
| 6           | 35.60      | 27.15         | 23.91            | 24.16        | 25.82          | 26.43 | 26.15 | 26.73 | 27.37 | 29.36 | 31.25 | --- |
| 7           | 35.60      | 27.05         | 23.91            | 24.14        | 25.67          | 26.50 | 26.04 | 26.74 | 27.49 | 29.46 | 31.30 | --- |
| 8           | 35.60      | 26.94         | 23.91            | 24.12        | 25.53          | 26.65 | 25.69 | 26.90 | 27.63 | 29.55 | 31.33 | --- |
| 9           | 35.60      | 26.82         | 23.91            | 24.12        | 25.42          | 26.73 | 25.63 | 26.90 | 27.68 | 29.59 | 30.56 | --- |
| 10          | 35.60      | 26.09         | 23.91            | 24.13        | 25.27          | 26.73 | 25.56 | 26.99 | 27.79 | 29.68 | 29.90 | --- |
| 11          | 35.60      | 25.51         | 23.93            | 24.16        | 25.18          | 26.74 | 25.49 | 26.99 | 27.89 | 29.79 | 29.75 | --- |
| 12          | 35.60      | 25.16         | 23.93            | 24.20        | 25.13          | 26.86 | 25.24 | 27.04 | 27.97 | 29.84 | 29.78 | --- |
| 13          | 35.59      | 24.95         | 23.93            | 24.25        | 25.13          | 26.93 | 25.13 | 27.09 | 28.04 | 29.91 | 29.91 | --- |
| 14          | 35.59      | 24.76         | 23.93            | 24.26        | 25.13          | 27.08 | 25.08 | 27.10 | 28.11 | 29.99 | 30.06 | --- |
| 15          | 34.39      | 24.58         | 23.93            | 24.29        | 25.10          | 27.08 | 25.08 | 27.14 | 28.21 | 30.06 | 30.15 | --- |
| 16          | 33.06      | 24.44         | 23.95            | 24.35        | 25.00          | 27.25 | 25.08 | 27.10 | 28.32 | 30.13 | 30.27 | --- |
| 17          | 32.28      | 24.33         | 23.95            | 24.40        | 25.01          | 27.32 | 25.08 | 27.08 | 28.39 | 30.19 | 30.39 | --- |
| 18          | 31.73      | 24.23         | 23.94            | 24.46        | 25.01          | 27.34 | 25.08 | 27.07 | 28.48 | 30.26 | 30.48 | --- |
| 19          | 31.21      | 24.14         | 23.93            | 24.54        | 25.02          | 27.41 | 25.09 | 27.07 | 28.54 | 30.32 | 30.56 | --- |
| 20          | 30.82      | 24.07         | 23.93            | 24.61        | 25.02          | 27.49 | 25.09 | 27.06 | 28.59 | 30.38 | 30.69 | --- |
| 21          | 30.45      | 24.03         | 23.92            | 24.69        | 25.12          | 27.49 | 25.10 | 27.06 | 28.70 | 30.42 | ---   | --- |
| 22          | 30.08      | 23.99         | 23.91            | 24.77        | 25.22          | 27.61 | 25.10 | 27.06 | 28.77 | 30.49 | ---   | --- |
| 23          | 29.74      | 23.97         | 23.90            | 24.86        | 25.31          | 27.61 | 25.19 | 27.07 | 28.77 | 30.49 | ---   | --- |
| 24          | 29.35      | 23.95         | 23.90            | 24.95        | 25.39          | 27.73 | 25.27 | 27.17 | 28.77 | 30.54 | ---   | --- |
| 25          | 29.04      | 23.92         | 23.90            | 25.05        | 25.49          | 27.72 | 25.37 | 27.30 | 28.77 | 30.62 | ---   | --- |
| 26          | 28.73      | 23.91         | 23.91            | 25.12        | 25.61          | 27.72 | 25.45 | 27.35 | 28.77 | 30.67 | ---   | --- |
| 27          | 28.44      | 23.91         | 23.96            | 25.17        | 25.72          | 27.72 | 25.57 | 27.42 | 28.86 | 30.74 | ---   | --- |
| 28          | 28.20      | 23.91         | 23.99            | 25.21        | 25.85          | 27.72 | 25.68 | 27.50 | 28.86 | 30.77 | ---   | --- |
| 29          | 28.02      | 23.91         | 24.00            | 25.28        | ---            | 27.72 | 25.76 | 27.43 | 28.93 | 30.83 | ---   | --- |
| 30          | 27.87      | 23.91         | 24.02            | 25.36        | ---            | 27.72 | 25.93 | 27.38 | 28.95 | 30.89 | ---   | --- |
| 31          | 27.68      | ---           | 24.08            | 25.45        | ---            | 27.62 | ---   | 27.37 | ---   | 30.94 | ---   | --- |
| MEAN        | 32.56      | 25.21         | 23.93            | 24.54        | 25.38          | 27.09 | 25.64 | 26.99 | 28.17 | 30.05 | 30.59 | --- |
| WTR YR 1998 | MEAN 27.20 | HIGHEST 23.90 | DEC. 23-26, 1997 | LOWEST 35.61 | OCT. 1-5, 1997 |       |       |       |       |       |       |     |

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175910066155500. Local number, SA-D.

LOCATION.--Lat 17°59'10", long 66°15'55", Hydrologic Unit 21010004, 0.55 mi south of Hwy 52, 0.92 mi north of the Salinas Speedway, and 2.27 mi northeast of the intersection of Hwy 1 with Hwy 3. Owner: US Geological Survey, WRD, Name: USGS piezometer D.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-86.0 ft (0-26.2 m). Depth 86.0 ft (26.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 73.0 ft (22.3 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.00 ft (0.91 m), above land-surface datum.

REMARKS.--recording observation well. Automated Digital Recorder (ADR), installed on Feb. 19, 1997.

PERIOD OF RECORD.--February 19, 1997 to September 30, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 35.80 ft (10.9 m), below land-surface datum, Feb. 19 1997; lowest water level recorded, 47.98 ft (14.6 m) below land-surface datum, Oct. 7, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-----|-----|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | --- | --- | --- | --- | ---   | 37.01 | 39.67 | 41.36 | 42.68 | 44.24 | 45.55 | 46.86 |
| 2    | --- | --- | --- | --- | ---   | 37.09 | 39.73 | 41.38 | 42.72 | 44.24 | 45.56 | 46.89 |
| 3    | --- | --- | --- | --- | ---   | 37.33 | 39.74 | 41.42 | 42.76 | 44.43 | 45.53 | 46.95 |
| 4    | --- | --- | --- | --- | ---   | 37.39 | 39.76 | 41.45 | 42.78 | 44.38 | 45.66 | 46.98 |
| 5    | --- | --- | --- | --- | ---   | 37.47 | 39.77 | 41.62 | 42.81 | 44.38 | 45.63 | 47.00 |
| 6    | --- | --- | --- | --- | ---   | 37.54 | 39.79 | 41.55 | 42.87 | 44.37 | 45.63 | 47.00 |
| 7    | --- | --- | --- | --- | ---   | 37.68 | 39.84 | 41.57 | 42.91 | 44.46 | 45.70 | 47.05 |
| 8    | --- | --- | --- | --- | ---   | 37.81 | 39.89 | 41.63 | 42.96 | 44.42 | 45.74 | 47.05 |
| 9    | --- | --- | --- | --- | ---   | 37.90 | 39.94 | 41.68 | 43.11 | 44.58 | 45.75 | 47.21 |
| 10   | --- | --- | --- | --- | ---   | 38.05 | 40.13 | 41.70 | 43.21 | 44.62 | 45.75 | 47.24 |
| 11   | --- | --- | --- | --- | ---   | 38.14 | 40.11 | 41.67 | 43.15 | 44.63 | 45.81 | 47.28 |
| 12   | --- | --- | --- | --- | ---   | 38.31 | 40.19 | 41.67 | 43.20 | 44.89 | 45.88 | 47.35 |
| 13   | --- | --- | --- | --- | ---   | 38.43 | 40.23 | 41.69 | 43.37 | 44.91 | 45.88 | 47.41 |
| 14   | --- | --- | --- | --- | ---   | 38.54 | 40.41 | 41.71 | 43.35 | 44.90 | 45.92 | 47.40 |
| 15   | --- | --- | --- | --- | ---   | 38.70 | 40.38 | 41.73 | 43.35 | 44.93 | 45.95 | 47.49 |
| 16   | --- | --- | --- | --- | ---   | 38.76 | 40.41 | 41.88 | 43.36 | 45.12 | 46.03 | 47.46 |
| 17   | --- | --- | --- | --- | ---   | 38.85 | 40.49 | 41.84 | 43.48 | 45.09 | 46.05 | 47.56 |
| 18   | --- | --- | --- | --- | ---   | 39.03 | 40.56 | 41.87 | 43.48 | 45.08 | 46.36 | 47.57 |
| 19   | --- | --- | --- | --- | 35.86 | 39.05 | 40.60 | 41.93 | 43.48 | 45.07 | 46.32 | 47.64 |
| 20   | --- | --- | --- | --- | 35.96 | 39.07 | 40.71 | 42.12 | 43.62 | 45.09 | 46.42 | 47.68 |
| 21   | --- | --- | --- | --- | 36.00 | 39.12 | 40.86 | 42.21 | 43.63 | 45.09 | 46.43 | 47.69 |
| 22   | --- | --- | --- | --- | 36.11 | 39.20 | 40.79 | 42.19 | 43.63 | 45.08 | 46.55 | 47.67 |
| 23   | --- | --- | --- | --- | 36.22 | 39.24 | 40.85 | 42.17 | 43.78 | 45.09 | 46.58 | 47.66 |
| 24   | --- | --- | --- | --- | 36.32 | 39.31 | 40.93 | 42.21 | 43.97 | 45.10 | 46.54 | 47.66 |
| 25   | --- | --- | --- | --- | 36.54 | 39.38 | 41.14 | 42.28 | 43.97 | 45.10 | 46.53 | 47.68 |
| 26   | --- | --- | --- | --- | 36.71 | 39.43 | 41.07 | 42.45 | 43.98 | 45.10 | 46.66 | 47.70 |
| 27   | --- | --- | --- | --- | 36.86 | 39.52 | 41.11 | 42.42 | 43.98 | 45.12 | 46.62 | 47.70 |
| 28   | --- | --- | --- | --- | 36.95 | 39.60 | 41.18 | 42.48 | 44.06 | 45.15 | 46.63 | 47.70 |
| 29   | --- | --- | --- | --- | ---   | 39.63 | 41.22 | 42.53 | 44.07 | 45.19 | 46.65 | 47.70 |
| 30   | --- | --- | --- | --- | ---   | 39.62 | 41.39 | 42.57 | 44.31 | 45.33 | 46.73 | 47.72 |
| 31   | --- | --- | --- | --- | ---   | 39.62 | ---   | 42.70 | ---   | 45.34 | 46.76 | ---   |
| MEAN | --- | --- | --- | --- | 36.35 | 38.57 | 40.43 | 41.93 | 43.40 | 44.86 | 46.12 | 47.40 |

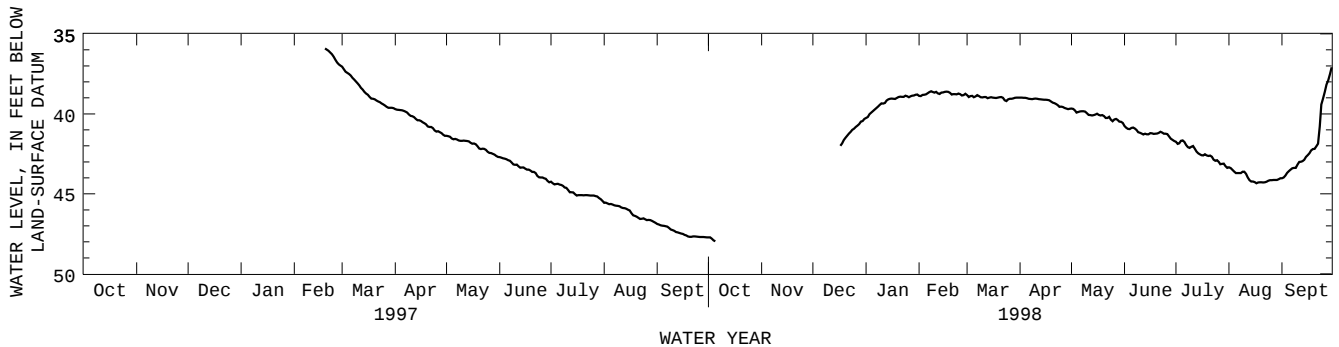
WTR YR 1997 MEAN 42.93 HIGHEST 35.80 FEB. 19, 1997 LOWEST 47.72 SEPT. 30, 1997

## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY                                                                           | OCT   | NOV | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------------------------------------------------------------------------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1                                                                             | 47.72 | --- | ---   | 40.20 | 38.79 | 38.72 | 38.98 | 39.62 | 40.66 | 41.74 | 43.36 | 44.03 |
| 2                                                                             | 47.72 | --- | ---   | 40.32 | 38.96 | 38.94 | 38.98 | 39.72 | 40.86 | 41.75 | 43.32 | 44.01 |
| 3                                                                             | 47.72 | --- | ---   | 40.07 | 38.82 | 38.95 | 38.99 | 39.66 | 40.87 | 41.99 | 43.46 | 43.95 |
| 4                                                                             | 47.88 | --- | ---   | 39.96 | 38.80 | 38.82 | 39.00 | 39.92 | 41.00 | 41.69 | 43.54 | 43.76 |
| 5                                                                             | 47.95 | --- | ---   | 39.87 | 38.81 | 38.93 | 39.00 | 39.92 | 40.91 | 41.67 | 43.68 | 43.61 |
| 6                                                                             | 47.98 | --- | ---   | 39.81 | 38.75 | 39.00 | 39.05 | 39.85 | 40.86 | 41.65 | 43.73 | 43.55 |
| 7                                                                             | ---   | --- | ---   | 39.67 | 38.67 | 38.82 | 39.06 | 39.85 | 40.86 | 41.86 | 43.68 | 43.41 |
| 8                                                                             | ---   | --- | ---   | 39.61 | 38.61 | 38.83 | 39.08 | 39.81 | 40.98 | 42.03 | 43.72 | 43.38 |
| 9                                                                             | ---   | --- | ---   | 39.49 | 38.56 | 38.95 | 39.08 | 39.86 | 41.05 | 42.12 | 43.68 | 43.38 |
| 10                                                                            | ---   | --- | ---   | 39.39 | 38.71 | 38.96 | 39.03 | 39.85 | 41.24 | 42.14 | 43.55 | 43.36 |
| 11                                                                            | ---   | --- | ---   | 39.30 | 38.64 | 38.98 | 39.05 | 40.07 | 41.12 | 41.97 | 43.68 | 42.98 |
| 12                                                                            | ---   | --- | ---   | 39.40 | 38.62 | 38.91 | 39.06 | 40.05 | 41.33 | 42.04 | 43.82 | 43.03 |
| 13                                                                            | ---   | --- | ---   | 39.23 | 38.83 | 38.98 | 39.09 | 40.11 | 41.25 | 42.31 | 44.14 | 42.95 |
| 14                                                                            | ---   | --- | ---   | 39.10 | 38.68 | 39.05 | 39.10 | 40.09 | 41.24 | 42.40 | 44.16 | 42.97 |
| 15                                                                            | ---   | --- | ---   | 39.08 | 38.66 | 38.92 | 39.11 | 40.06 | 41.32 | 42.53 | 44.29 | 42.78 |
| 16                                                                            | ---   | --- | ---   | 39.04 | 38.66 | 39.01 | 39.13 | 40.01 | 41.23 | 42.52 | 44.16 | 42.60 |
| 17                                                                            | ---   | --- | 42.00 | 39.06 | 38.59 | 38.95 | 39.10 | 39.98 | 41.18 | 42.66 | 44.37 | 42.56 |
| 18                                                                            | ---   | --- | 41.98 | 39.06 | 38.64 | 39.03 | 39.16 | 40.16 | 41.25 | 42.53 | 44.29 | 42.37 |
| 19                                                                            | ---   | --- | 41.72 | 39.08 | 38.60 | 38.99 | 39.14 | 40.04 | 41.25 | 42.52 | 44.28 | 42.20 |
| 20                                                                            | ---   | --- | 41.56 | 38.93 | 38.78 | 38.98 | 39.32 | 40.11 | 41.23 | 42.68 | 44.27 | 42.19 |
| 21                                                                            | ---   | --- | 41.43 | 38.97 | 38.81 | 38.93 | 39.26 | 40.16 | 41.23 | 42.59 | 44.29 | 42.19 |
| 22                                                                            | ---   | --- | 41.28 | 38.87 | 38.72 | 38.96 | 39.40 | 40.34 | 41.15 | 42.62 | 44.28 | 41.87 |
| 23                                                                            | ---   | --- | 41.17 | 39.01 | 38.82 | 39.03 | 39.36 | 40.18 | 41.09 | 42.75 | 44.26 | 41.86 |
| 24                                                                            | ---   | --- | 41.08 | 38.87 | 38.73 | 39.27 | 39.55 | 40.20 | 41.25 | 42.97 | 44.21 | 39.70 |
| 25                                                                            | ---   | --- | 40.92 | 38.85 | 38.73 | 39.12 | 39.57 | 40.53 | 41.23 | 42.90 | 44.15 | 39.14 |
| 26                                                                            | ---   | --- | 40.93 | 38.96 | 38.81 | 39.06 | 39.53 | 40.39 | 41.24 | 42.89 | 44.15 | 38.96 |
| 27                                                                            | ---   | --- | 40.70 | 38.95 | 38.90 | 39.06 | 39.61 | 40.32 | 41.29 | 43.12 | 44.13 | 38.32 |
| 28                                                                            | ---   | --- | 40.78 | 38.84 | 38.76 | 39.05 | 39.66 | 40.32 | 41.52 | 43.17 | 44.13 | 38.02 |
| 29                                                                            | ---   | --- | 40.51 | 38.89 | ---   | 39.01 | 39.67 | 40.44 | 41.59 | 43.08 | 44.13 | 37.78 |
| 30                                                                            | ---   | --- | 40.45 | 38.82 | ---   | 38.99 | 39.74 | 40.52 | 41.66 | 43.15 | 44.14 | 37.27 |
| 31                                                                            | ---   | --- | 40.44 | 38.79 | ---   | 38.98 | ---   | 40.47 | ---   | 43.38 | 44.02 | ---   |
| MEAN                                                                          | 47.83 | --- | 41.13 | 39.27 | 38.73 | 38.97 | 39.23 | 40.08 | 41.16 | 42.43 | 43.97 | 41.94 |
| WTR YR 1998 MEAN 40.83 HIGHEST 37.08 SEPT. 30, 1998 LOWEST 47.98 OCT. 7, 1997 |       |     |       |       |       |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175708066163000. Local number, EC-1.

LOCATION.--Lat 17°57'08", long 66°16'30", Hydrologic Unit 21010004, 1.55 mi south of Playa de Salinas, 143 mi south of Hwy 3, and 0.98 mi West of Las Mareas community. Owner: US Geological Survey. WRD, Name: Pozo Monsanto (Ermитаño Central).

**AQUIFER.** - Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m). Depth 112 ft (34.1 m).

**INSTRUMENTATION.**--Digital water level recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is about 2.00 ft (0.61 m), above mean sea level, from topographic map.

Measuring point: On shelter floor 5.10 ft (1.55 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on July 15, 1997. Well level is affected by marine tides.

PERIOD OF RECORD.--July 15, 1997 to January 7, 1998, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.28 ft (+0.08 m), above land-surface datum, Jan. 7, 1998; lowest water level measured, 0.88 ft (0.27 m), below land-surface datum, Oct. 8, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

[illegible]

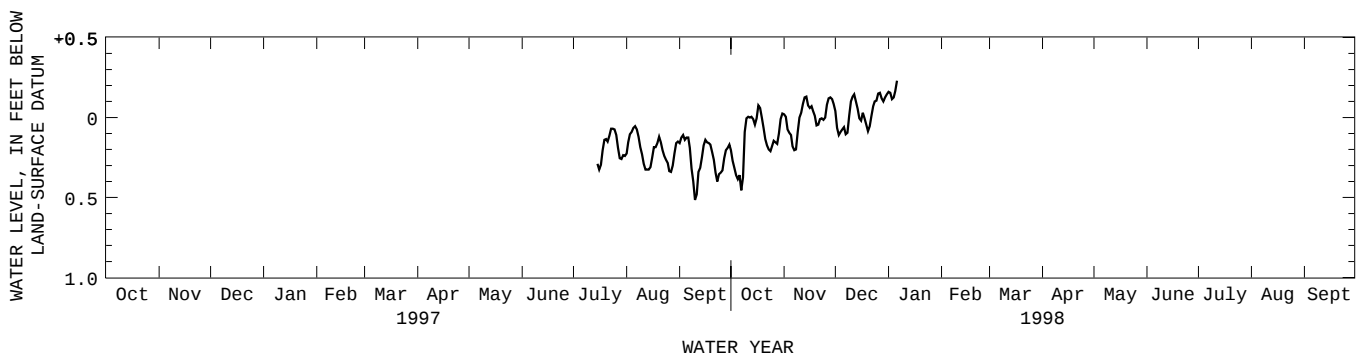
WTR YR 1997 MEAN .22 HIGHEST +.13 JULY 19, 20, 1997 LOWEST .62 SEPT. 11, 1997

## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT      | NOV                       | DEC                     | JAN  | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------------|----------|---------------------------|-------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| 1           | .14      | +.02                      | +.07                    | +.14 | --- | --- | --- | --- | --- | --- | --- | --- |
| 2           | .27      | +.02                      | +.01                    | +.18 | --- | --- | --- | --- | --- | --- | --- | --- |
| 3           | .27      | .01                       | .14                     | +.13 | --- | --- | --- | --- | --- | --- | --- | --- |
| 4           | .36      | .14                       | .08                     | +.10 | --- | --- | --- | --- | --- | --- | --- | --- |
| 5           | .36      | .05                       | .10                     | +.15 | --- | --- | --- | --- | --- | --- | --- | --- |
| 6           | .41      | .17                       | .05                     | +.18 | --- | --- | --- | --- | --- | --- | --- | --- |
| 7           | .31      | .19                       | .07                     | +.28 | --- | --- | --- | --- | --- | --- | --- | --- |
| 8           | .60      | .22                       | .14                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 9           | .15      | .18                       | .05                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 10          | .03      | .00                       | +.07                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 11          | +.02     | .00                       | +.13                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 12          | .01      | +.06                      | +.13                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 13          | +.01     | +.11                      | +.16                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 14          | .00      | +.14                      | +.04                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 15          | .02      | +.12                      | +.07                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 16          | .07      | +.03                      | .08                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 17          | +.06     | +.09                      | +.04                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 18          | +.09     | +.05                      | +.02                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 19          | +.03     | +.03                      | .03                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 20          | .03      | .01                       | .06                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 21          | .10      | .09                       | .11                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 22          | .17      | .00                       | .00                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 23          | .18      | .02                       | +.02                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 24          | .22      | +.01                      | +.12                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 25          | .20      | .04                       | +.08                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 26          | .16      | +.04                      | +.13                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 27          | .13      | +.12                      | +.17                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 28          | .18      | +.12                      | +.14                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 29          | .15      | +.13                      | +.10                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 30          | .05      | +.10                      | ---                     | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| 31          | +.03     | ---                       | +.15                    | ---  | --- | --- | --- | --- | --- | --- | --- | --- |
| MEAN        | .14      | .00                       | +.03                    | +.17 | --- | --- | --- | --- | --- | --- | --- | --- |
| WTR YR 1998 | MEAN .02 | HIGHEST +.28 JAN. 7, 1998 | LOWEST .88 OCT. 8, 1997 |      |     |     |     |     |     |     |     |     |



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175903066165000. Local number, PG-07

LOCATION.--Lat 17°59'03", long. 66°16'50", Hydrologic Unit 21010004, 0.42 mi north of Hwy 3, 0.60 mi southeast of the intersection of Hwy 1 with Hwy 52, and 1.56 mi northeast of Punta Salinas. Owner: C. Godreau, Name: Pozo Godreau No. 7.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-120 ft (0-36.6 m), perforated 30-120 ft (9.1-36.6 m). Depth 120 ft (36.6 m).

INSTRUMENTATION.--Electronic water level logger--60-minute punch.

DATUM.--Elevation of land-surface datum is about 54.0 ft (16.5 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 20 in (0.50 m) casing, 3.63 ft (1.11 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 3, 1998.

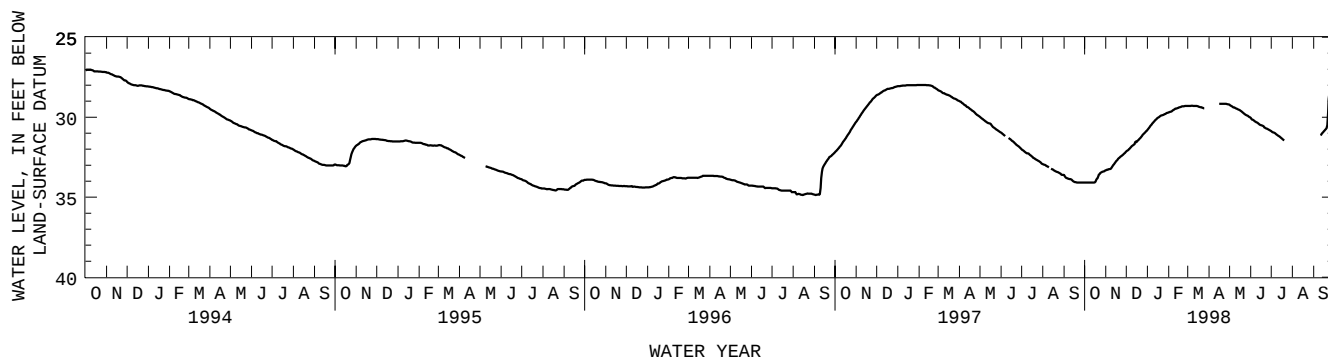
PERIOD OF RECORD.--September 25, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 24.62 ft (7.50 m), below land-surface datum, Oct. 18, 1992; lowest water level recorded, 34.87 ft (10.6 m), below land-surface datum, Sept. 3, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|
| 1    | 34.09 | 33.33 | 32.16 | 30.83 | 29.71 | 29.30 | ---   | 29.21 | 30.02 | 30.85 | --- | ---   |
| 2    | 34.09 | 33.31 | 32.13 | 30.77 | 29.70 | 29.29 | ---   | 29.24 | 30.07 | 30.89 | --- | ---   |
| 3    | 34.09 | 33.29 | 32.09 | 30.71 | 29.67 | 29.29 | ---   | 29.27 | 30.15 | 30.92 | --- | ---   |
| 4    | 34.09 | 33.28 | 32.06 | 30.66 | 29.66 | 29.30 | ---   | 29.30 | 30.15 | 30.95 | --- | ---   |
| 5    | 34.09 | 33.27 | 32.02 | 30.59 | 29.65 | 29.30 | ---   | 29.32 | 30.16 | 30.96 | --- | ---   |
| 6    | 34.09 | 33.24 | 31.97 | 30.54 | 29.64 | 29.29 | ---   | 29.34 | 30.21 | 30.98 | --- | ---   |
| 7    | 34.09 | 33.24 | 31.94 | 30.48 | 29.59 | 29.28 | ---   | 29.39 | 30.24 | 30.99 | --- | ---   |
| 8    | 34.09 | 33.24 | 31.89 | 30.43 | 29.56 | 29.28 | ---   | 29.39 | 30.27 | 31.03 | --- | ---   |
| 9    | 34.09 | 33.22 | 31.84 | 30.37 | 29.53 | 29.29 | ---   | 29.40 | 30.30 | 31.08 | --- | ---   |
| 10   | 34.09 | 33.18 | 31.80 | 30.33 | 29.51 | 29.29 | ---   | 29.42 | 30.32 | 31.09 | --- | ---   |
| 11   | 34.09 | 33.08 | 31.77 | 30.28 | 29.47 | 29.29 | ---   | 29.47 | 30.34 | 31.14 | --- | 31.12 |
| 12   | 34.09 | 33.02 | 31.74 | 30.23 | 29.46 | 29.29 | ---   | 29.47 | 30.37 | 31.17 | --- | 31.11 |
| 13   | 34.09 | 32.96 | 31.70 | 30.19 | 29.46 | 29.29 | ---   | 29.49 | 30.40 | 31.20 | --- | 31.08 |
| 14   | 34.09 | 32.92 | 31.66 | 30.14 | 29.44 | 29.29 | ---   | 29.51 | 30.44 | 31.22 | --- | 31.00 |
| 15   | 34.09 | 32.85 | 31.48 | 30.10 | 29.42 | 29.30 | ---   | 29.53 | 30.47 | 31.25 | --- | 30.95 |
| 16   | 34.09 | 32.79 | 31.57 | 30.06 | 29.40 | 29.32 | 29.17 | 29.55 | 30.50 | 31.29 | --- | 30.90 |
| 17   | 34.05 | 32.74 | 31.53 | 30.03 | 29.38 | 29.33 | 29.17 | 29.58 | 30.50 | 31.33 | --- | 30.85 |
| 18   | 33.99 | 32.69 | 31.48 | 30.01 | 29.37 | 29.35 | 29.17 | 29.61 | 30.52 | 31.37 | --- | 30.81 |
| 19   | 33.86 | 32.64 | 31.44 | 29.97 | 29.36 | 29.36 | 29.17 | 29.64 | 30.54 | 31.40 | --- | 30.76 |
| 20   | 33.83 | 32.58 | 31.39 | 29.95 | 29.34 | 29.38 | 29.17 | 29.68 | 30.56 | 31.43 | --- | 30.71 |
| 21   | 33.80 | 32.55 | 31.35 | 29.90 | 29.32 | 29.38 | 29.16 | 29.70 | 30.60 | 31.45 | --- | 30.67 |
| 22   | 33.60 | 32.51 | 31.29 | 29.89 | 29.32 | 29.39 | 29.16 | 29.75 | 30.67 | ---   | --- | 30.31 |
| 23   | 33.59 | 32.47 | 31.25 | 29.88 | 29.32 | 29.41 | 29.16 | 29.78 | 30.67 | ---   | --- | 29.16 |
| 24   | 33.52 | 32.44 | 31.21 | 29.86 | 29.32 | 29.43 | 29.16 | 29.82 | 30.70 | ---   | --- | 28.57 |
| 25   | 33.47 | 32.41 | 31.13 | 29.85 | 29.30 | 29.44 | 29.16 | 29.85 | 30.72 | ---   | --- | 28.39 |
| 26   | 33.45 | 32.37 | 31.09 | 29.82 | 29.30 | 29.44 | 29.17 | 29.87 | 30.73 | ---   | --- | 28.21 |
| 27   | 33.42 | 32.33 | 31.04 | 29.81 | 29.30 | ---   | 29.17 | 29.89 | 30.76 | ---   | --- | 28.05 |
| 28   | 33.40 | 32.29 | 31.00 | 29.78 | 29.30 | ---   | 29.18 | 29.90 | 30.79 | ---   | --- | 27.89 |
| 29   | 33.39 | 32.25 | 30.95 | 29.76 | ---   | ---   | 29.19 | 29.94 | 30.80 | ---   | --- | 27.75 |
| 30   | 33.38 | 32.22 | 30.90 | 29.73 | ---   | ---   | 29.20 | 29.98 | 30.83 | ---   | --- | 27.63 |
| 31   | 33.36 | ---   | 30.86 | 29.72 | ---   | ---   | ---   | 30.00 | ---   | ---   | --- | ---   |
| MEAN | 33.86 | 32.82 | 31.54 | 30.15 | 29.46 | 29.33 | 29.17 | 29.59 | 30.46 | 31.14 | --- | 29.80 |

WTR YR 1998 MEAN 30.79 HIGHEST 27.55 SEPT. 30, 1998 LOWEST 34.09 OCT. 1-16, 1997



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175943066224800. Local number PS-07

LOCATION.--Lat 17°59'43", long 66°22'48", Hydrologic Unit 2101004, 0.74 mi east of Hwy 153, 1.45 mi northeast of Estación Santa Isabel, and 1.98 mi north of Hwy 1. Owner: Luce and Company, Name: Paso Seco No. 7.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well. Depth 235 ft (71.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

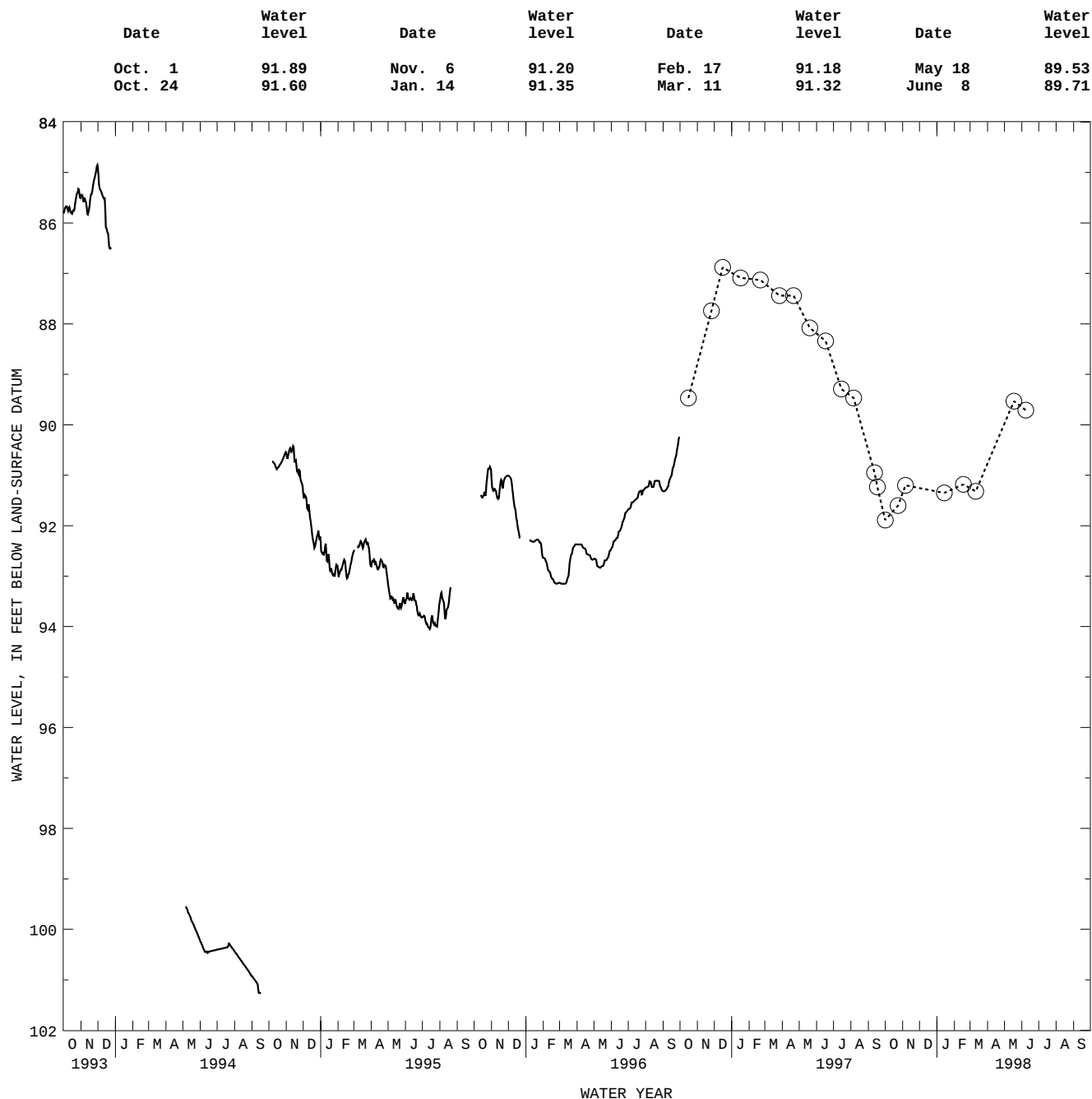
DATUM.--Elevation of land-surface datum is about 89.0 ft (27.1 m) above mean sea level, from topographic map.

Measuring point: Side of the casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping wells.

PERIOD OF RECORD.--March 27, 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 81.11 ft (24.72 m) below land-surface datum, Dec. 3, 4, 6, 7, 1992; lowest water level recorded, 101.28 ft (30.87 m) below land-surface datum, Sept. 13, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION

## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175829066232200. Local number, 87.

LOCATION.--Lat 17°58'29", long 66°23'22", Hydrologic Unit 21010004, 1.10 mi northeast of Santa Isabel plaza, 3.69 mi southeast of Escuela Playita Cortada, and 1.07 mi southeast of Estación Experimental Santa Isabel. Owner: Francisco Alomar, Name: Alomar 1.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), iron cased. Depth 112 ft (34.14 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 35.3 ft (10.8 m), above mean sea level.

Measuring point: Bottom of clean-out shelter door, 2.50 ft (0.76 m), above land-surface datum. Prior to August 1981, top of recorder shelter floor, 4.00 ft (1.22 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on December 16, 1997.

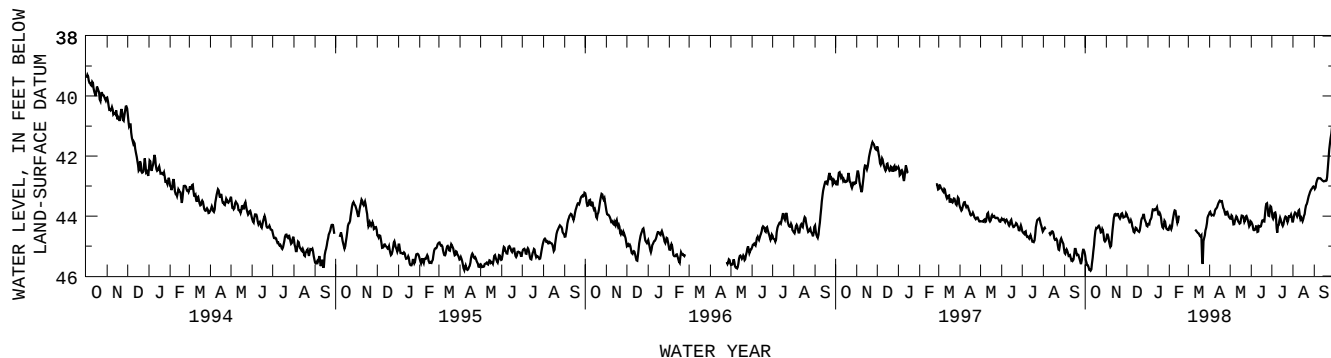
PERIOD OF RECORD.--April 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.45 ft (2.58 m), below land-surface datum, Dec. 10, 1970; lowest water level recorded, 49.18 ft (14.99 m) below land-surface datum, July 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 45.21 | 44.86 | 43.85 | 44.34 | 44.45 | ---   | 43.92 | 44.04 | 44.14 | 43.70 | 44.27 | 43.01 |
| 2    | 45.42 | 44.66 | 44.05 | 44.19 | 44.29 | ---   | 43.83 | 44.13 | 44.25 | 44.00 | 44.10 | 43.06 |
| 3    | 45.52 | 44.57 | 44.01 | 44.33 | 44.37 | ---   | 43.88 | 44.04 | 44.26 | 44.07 | 44.00 | 43.13 |
| 4    | 45.60 | 44.67 | 44.12 | 44.21 | 44.42 | ---   | 44.00 | 43.91 | 44.36 | 44.12 | 43.88 | 42.97 |
| 5    | 45.67 | 44.74 | 44.19 | 44.06 | 44.46 | ---   | 43.96 | 44.10 | 44.55 | 43.92 | 43.88 | 42.85 |
| 6    | 45.61 | 44.93 | 44.22 | 44.16 | 44.24 | ---   | 43.96 | 44.19 | 44.39 | 43.87 | 43.93 | 42.77 |
| 7    | 45.77 | 44.99 | 44.17 | 43.94 | 44.11 | ---   | 43.97 | 44.37 | 44.54 | 43.89 | 43.97 | 42.73 |
| 8    | 45.81 | 45.06 | 44.11 | 43.81 | 43.94 | ---   | 43.99 | 44.17 | 44.34 | 44.04 | 44.06 | 42.73 |
| 9    | 45.77 | 44.92 | 44.31 | 43.75 | 43.81 | ---   | 43.85 | 44.15 | 44.34 | 44.76 | 43.87 | 42.74 |
| 10   | 45.87 | 44.62 | 44.37 | 43.82 | 43.81 | ---   | 43.77 | 44.04 | 44.36 | 44.35 | 43.77 | 42.74 |
| 11   | 45.68 | 44.35 | 44.47 | 43.79 | 43.84 | 44.42 | 43.75 | 43.98 | 44.70 | 44.30 | 43.83 | 42.74 |
| 12   | 45.49 | 44.14 | 44.57 | 43.77 | 44.05 | 44.48 | 43.75 | 44.09 | 44.33 | 44.29 | 44.18 | 42.78 |
| 13   | 45.29 | 43.99 | 44.52 | 43.82 | 44.20 | 44.49 | 43.66 | 44.14 | 44.33 | 44.03 | 44.03 | 42.81 |
| 14   | 45.08 | 43.90 | 44.42 | 43.69 | 44.25 | 44.53 | 43.58 | 44.22 | 44.36 | 44.08 | 44.08 | 42.81 |
| 15   | 44.86 | 43.96 | 44.36 | 43.71 | 44.07 | 44.55 | 43.55 | 44.21 | 44.35 | 44.15 | 44.16 | 42.85 |
| 16   | 44.61 | 43.99 | 44.45 | 43.90 | 43.90 | 44.58 | 43.48 | 44.30 | 44.34 | 44.28 | 44.18 | 42.84 |
| 17   | 44.39 | 43.96 | 44.47 | 43.99 | ---   | 44.58 | 43.49 | 44.17 | 44.18 | 44.27 | 44.01 | 42.82 |
| 18   | 44.41 | 43.90 | 44.51 | 43.92 | ---   | 44.66 | 43.51 | 43.99 | 44.12 | 44.39 | 43.99 | 42.83 |
| 19   | 44.42 | 43.97 | 44.51 | 43.87 | ---   | 44.68 | 43.54 | 43.98 | 44.15 | 44.18 | 43.87 | 42.84 |
| 20   | 44.36 | 44.04 | 44.54 | 44.01 | ---   | 44.68 | 43.48 | 44.00 | 44.20 | 44.14 | 43.69 | 42.79 |
| 21   | 44.34 | 44.07 | 44.43 | 44.10 | ---   | 44.61 | 43.72 | 44.01 | 44.16 | 43.97 | 43.60 | 42.61 |
| 22   | 44.31 | 44.10 | 44.21 | 44.36 | ---   | 46.28 | 43.74 | 44.18 | 43.78 | 44.06 | 43.60 | 42.13 |
| 23   | 44.41 | 43.96 | 44.07 | 44.38 | ---   | 44.91 | 43.82 | 44.21 | 43.62 | 44.01 | 43.46 | 41.93 |
| 24   | 44.50 | 43.89 | 44.08 | 44.42 | ---   | 44.76 | 43.91 | 44.07 | 43.57 | 44.19 | 43.37 | 41.62 |
| 25   | 44.60 | 43.93 | 44.01 | 44.24 | ---   | 44.73 | 43.99 | 43.95 | 43.58 | 44.21 | 43.30 | 41.48 |
| 26   | 44.47 | 44.00 | 43.91 | 44.08 | ---   | 44.55 | 43.91 | 44.04 | 43.96 | 44.08 | 43.22 | 41.33 |
| 27   | 44.40 | 44.09 | 44.01 | 44.30 | ---   | 44.42 | 43.81 | 44.09 | 44.01 | 43.93 | 43.17 | 41.17 |
| 28   | 44.56 | 43.98 | 44.17 | 44.40 | ---   | 44.35 | 43.90 | 44.19 | 43.98 | 44.08 | 43.11 | 40.98 |
| 29   | 44.71 | 44.06 | 44.16 | 44.44 | ---   | 44.13 | 43.98 | 44.31 | 43.66 | 43.95 | 43.11 | 40.74 |
| 30   | 44.91 | 43.96 | 44.30 | 44.45 | ---   | 43.98 | 44.06 | 44.38 | 43.68 | 43.95 | 43.04 | 40.60 |
| 31   | 44.78 | ---   | 44.34 | 44.48 | ---   | 43.98 | ---   | 44.20 | ---   | 44.10 | 43.01 | ---   |
| MEAN | 44.99 | 44.28 | 44.26 | 44.09 | 44.14 | 44.59 | 43.79 | 44.12 | 44.15 | 44.11 | 43.73 | 42.38 |

WTR YR 1998 MEAN 44.04 HIGHEST 40.53 SEPT. 30, 1998 LOWEST 46.41 MAR. 22, 1998



| DAY         | OCT        | NOV           | DEC               | JAN          | FEB           | MAR   | APR   | MAY   | JUN   | JUL   | AUG | SEP |
|-------------|------------|---------------|-------------------|--------------|---------------|-------|-------|-------|-------|-------|-----|-----|
| 1           | ---        | ---           | ---               | ---          | ---           | ---   | ---   | 45.78 | 46.62 | 47.87 | --- | --- |
| 2           | ---        | ---           | ---               | ---          | ---           | ---   | ---   | 45.94 | 46.67 | 48.06 | --- | --- |
| 3           | ---        | ---           | ---               | ---          | ---           | ---   | ---   | 45.86 | 46.70 | 50.57 | --- | --- |
| 4           | ---        | ---           | ---               | ---          | ---           | ---   | 44.14 | 45.87 | 46.74 | 48.72 | --- | --- |
| 5           | ---        | ---           | ---               | ---          | ---           | ---   | 44.27 | 45.93 | 46.77 | 48.29 | --- | --- |
| 6           | ---        | ---           | ---               | ---          | ---           | ---   | 45.23 | 46.08 | 46.82 | 48.39 | --- | --- |
| 7           | ---        | ---           | ---               | ---          | ---           | ---   | 44.26 | 46.08 | 46.80 | 48.05 | --- | --- |
| 8           | ---        | ---           | ---               | ---          | ---           | ---   | 44.48 | 46.06 | 46.75 | 48.15 | --- | --- |
| 9           | ---        | ---           | ---               | ---          | ---           | ---   | 48.78 | 47.44 | 46.74 | 48.15 | --- | --- |
| 10          | ---        | ---           | ---               | ---          | ---           | ---   | 46.78 | 46.10 | 46.78 | 50.70 | --- | --- |
| 11          | ---        | ---           | ---               | ---          | ---           | ---   | 44.90 | 46.07 | 46.84 | 50.92 | --- | --- |
| 12          | ---        | ---           | ---               | ---          | ---           | ---   | 48.09 | 46.12 | 46.87 | 50.30 | --- | --- |
| 13          | ---        | ---           | ---               | ---          | ---           | ---   | 48.22 | 46.15 | 46.91 | 49.61 | --- | --- |
| 14          | ---        | ---           | ---               | ---          | ---           | ---   | 48.66 | 46.22 | 46.97 | 48.53 | --- | --- |
| 15          | ---        | ---           | ---               | ---          | ---           | ---   | 47.92 | 46.23 | 47.02 | 48.61 | --- | --- |
| 16          | ---        | ---           | ---               | ---          | ---           | ---   | 47.01 | 46.26 | 47.02 | 48.87 | --- | --- |
| 17          | ---        | ---           | ---               | ---          | ---           | ---   | 49.50 | 46.25 | 47.02 | ---   | --- | --- |
| 18          | ---        | ---           | ---               | ---          | ---           | ---   | 47.91 | 46.26 | 49.05 | ---   | --- | --- |
| 19          | ---        | ---           | ---               | ---          | ---           | 43.60 | 45.51 | 46.27 | 49.10 | ---   | --- | --- |
| 20          | ---        | ---           | ---               | ---          | ---           | 43.31 | 48.19 | 47.81 | 48.41 | ---   | --- | --- |
| 21          | ---        | ---           | ---               | ---          | ---           | 43.60 | 45.39 | 46.46 | 47.36 | ---   | --- | --- |
| 22          | ---        | ---           | ---               | ---          | ---           | 47.50 | 45.51 | 46.40 | 47.47 | ---   | --- | --- |
| 23          | ---        | ---           | ---               | ---          | ---           | ---   | 46.01 | 46.50 | 50.59 | ---   | --- | --- |
| 24          | ---        | ---           | ---               | ---          | ---           | ---   | 49.29 | 46.48 | 50.67 | ---   | --- | --- |
| 25          | ---        | ---           | ---               | ---          | ---           | ---   | 45.71 | 46.44 | 47.91 | ---   | --- | --- |
| 26          | ---        | ---           | ---               | ---          | ---           | ---   | 45.61 | 46.45 | 47.67 | ---   | --- | --- |
| 27          | ---        | ---           | ---               | ---          | ---           | ---   | 48.90 | 46.47 | 47.80 | ---   | --- | --- |
| 28          | ---        | ---           | ---               | ---          | ---           | ---   | 46.06 | 46.58 | 47.95 | ---   | --- | --- |
| 29          | ---        | ---           | ---               | ---          | ---           | ---   | 50.01 | 46.59 | 50.49 | ---   | --- | --- |
| 30          | ---        | ---           | ---               | ---          | ---           | ---   | 45.87 | 46.57 | 48.16 | ---   | --- | --- |
| 31          | ---        | ---           | ---               | ---          | ---           | ---   | ---   | 46.65 | ---   | ---   | --- | --- |
| MEAN        | ---        | ---           | ---               | ---          | ---           | 44.50 | 46.75 | 46.33 | 47.62 | 48.99 | --- | --- |
| WTR YR 1997 | MEAN 47.12 | HIGHEST 43.31 | MAR. 19, 20, 1997 | LOWEST 51.23 | JULY 11, 1997 |       |       |       |       |       |     |     |

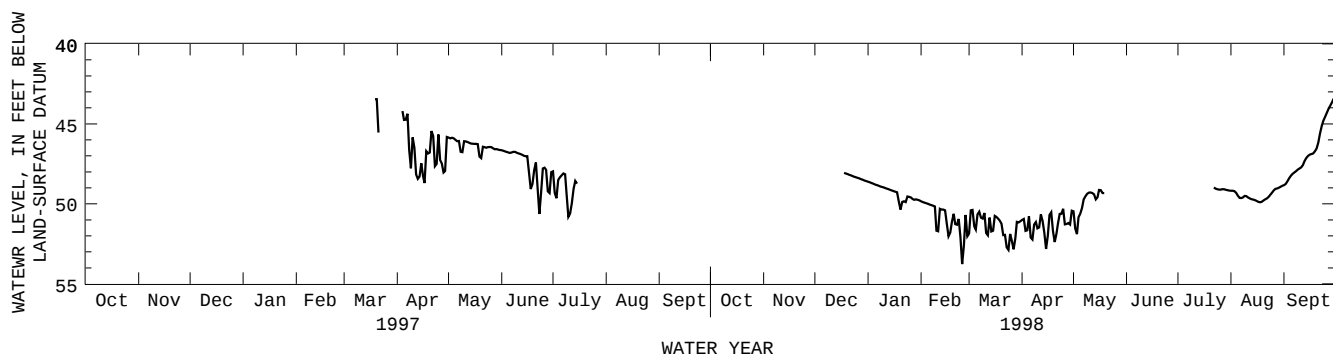
## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN | JUL   | AUG   | SEP   |
|------|-----|-----|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|
| 1    | --- | --- | ---   | 48.60 | 49.82 | 53.31 | 51.01 | 50.44 | --- | ---   | 49.18 | 48.84 |
| 2    | --- | --- | ---   | 48.63 | 49.86 | 50.41 | 50.99 | 50.48 | --- | ---   | 49.18 | 48.82 |
| 3    | --- | --- | ---   | 48.67 | 49.91 | 50.39 | 50.90 | 52.61 | --- | ---   | 49.17 | 48.69 |
| 4    | --- | --- | ---   | 48.72 | 49.94 | 50.37 | 52.48 | 51.17 | --- | ---   | 49.24 | 48.49 |
| 5    | --- | --- | ---   | 48.76 | 49.98 | 52.43 | 50.83 | 50.50 | --- | ---   | 49.38 | 48.30 |
| 6    | --- | --- | ---   | 48.80 | 50.02 | 50.79 | 50.72 | 50.74 | --- | ---   | 49.60 | 48.19 |
| 7    | --- | --- | ---   | 48.84 | 50.06 | 50.52 | 53.49 | 49.80 | --- | ---   | 49.65 | 48.05 |
| 8    | --- | --- | ---   | 48.88 | 50.10 | 50.45 | 50.97 | 49.64 | --- | ---   | 49.63 | 48.02 |
| 9    | --- | --- | ---   | 48.92 | 50.14 | 51.26 | 51.61 | 49.42 | --- | ---   | 49.57 | 47.89 |
| 10   | --- | --- | ---   | 48.95 | 50.19 | 50.57 | 50.66 | 49.33 | --- | ---   | 49.45 | 47.82 |
| 11   | --- | --- | ---   | 48.99 | 53.17 | 50.57 | 52.41 | 49.27 | --- | ---   | 49.58 | 47.76 |
| 12   | --- | --- | ---   | 49.03 | 50.26 | 53.07 | 50.53 | 49.30 | --- | ---   | 49.63 | 47.68 |
| 13   | --- | --- | ---   | 49.07 | 50.36 | 50.87 | 50.79 | 49.35 | --- | ---   | 49.69 | 47.46 |
| 14   | --- | --- | ---   | 49.11 | 50.34 | 50.86 | 51.37 | 49.47 | --- | ---   | 49.72 | 47.21 |
| 15   | --- | --- | ---   | 49.15 | 50.38 | 52.59 | 52.24 | 49.98 | --- | ---   | 49.74 | 47.07 |
| 16   | --- | --- | ---   | 49.19 | 50.42 | 50.76 | 53.38 | 49.19 | --- | ---   | 49.79 | 46.95 |
| 17   | --- | --- | ---   | 49.23 | 52.04 | 50.75 | 50.63 | 49.08 | --- | ---   | 49.85 | 46.90 |
| 18   | --- | --- | 48.04 | 49.26 | 52.00 | 50.88 | 50.76 | 49.21 | --- | ---   | 49.91 | 46.87 |
| 19   | --- | --- | 48.08 | 49.30 | 51.60 | 50.97 | 50.29 | 49.43 | --- | ---   | 49.90 | 46.83 |
| 20   | --- | --- | 48.12 | 50.40 | 50.61 | 51.13 | 53.11 | 49.22 | --- | ---   | 49.83 | 46.61 |
| 21   | --- | --- | 48.16 | 50.32 | 50.64 | 51.35 | 51.65 | ---   | --- | ---   | 49.75 | 46.46 |
| 22   | --- | --- | 48.20 | 49.43 | 51.90 | 52.55 | 52.09 | ---   | --- | 48.94 | 49.69 | 45.87 |
| 23   | --- | --- | 48.24 | 50.25 | 50.70 | 51.32 | 50.38 | ---   | --- | 49.02 | 49.63 | 45.32 |
| 24   | --- | --- | 48.29 | 49.52 | 51.19 | 54.11 | 50.88 | ---   | --- | 49.07 | 49.51 | 44.94 |
| 25   | --- | --- | 48.32 | 49.55 | 52.96 | 51.64 | 50.35 | ---   | --- | 49.09 | 49.35 | 44.68 |
| 26   | --- | --- | 48.36 | 49.59 | 54.57 | 52.13 | 50.27 | ---   | --- | 49.13 | 49.24 | 44.46 |
| 27   | --- | --- | 48.39 | 49.62 | 50.66 | 52.51 | 52.28 | ---   | --- | 49.09 | 49.08 | 44.19 |
| 28   | --- | --- | 48.43 | 49.78 | 50.73 | 53.18 | 50.22 | ---   | --- | 49.09 | 49.04 | 43.94 |
| 29   | --- | --- | 48.48 | 49.70 | ---   | 51.10 | 52.17 | ---   | --- | 49.09 | 49.02 | 43.78 |
| 30   | --- | --- | 48.52 | 49.74 | ---   | 51.16 | 50.41 | ---   | --- | 49.14 | 48.96 | 43.55 |
| 31   | --- | --- | 48.56 | 49.74 | ---   | 51.16 | ---   | ---   | --- | 49.15 | 48.89 | ---   |
| MEAN | --- | --- | 48.30 | 49.28 | 50.88 | 51.46 | 51.33 | 49.88 | --- | 49.08 | 49.48 | 46.72 |

WTR YR 1998 MEAN 49.72 HIGHEST 43.41 SEPT. 30, 1998 LOWEST 55.00 APR. 14, 1998



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180048066301800. Local number, FA-1.

LOCATION.--Lat 18°00'48", long 66°30'18", Hydrologic Unit 21010004, 3.85 mi east of Central Mercedita, 2.13 mi south of the intersection of Hwy 149 with Hwy 52, and 0.64 mi west of hwy 149. Owner: US Geological Survey, WRD,

Name: Fort Allen TW-1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 0-201 ft (0-61.3 m), screened 30-201 ft (9.1-61.3 m). Depth 201 ft (61.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 38.0 ft (11.6 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on the top of 4 in (0.10 m) casing, 3.19 ft (0.97 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on March 12, 1997. Well destroyed for radar construction.

PERIOD OF RECORD.--March 12, 1997 to February 24, 1998, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.33 ft (7.11 m), below land-surface datum, Mar. 12, 13, 14, 1997; lowest water level recorded, 28.93 ft (8.82 m), below land-surface datum, Feb. 24, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|-------|-------|
| 1    | --- | --- | --- | --- | --- | ---   | 23.59 | 24.05 | 24.88 | 25.91 | 26.69 | 27.52 |
| 2    | --- | --- | --- | --- | --- | ---   | 23.62 | 24.07 | 24.91 | 25.94 | 26.71 | 27.55 |
| 3    | --- | --- | --- | --- | --- | ---   | 23.62 | 24.10 | 24.94 | 25.98 | 26.74 | 27.58 |
| 4    | --- | --- | --- | --- | --- | ---   | 23.63 | 24.11 | 24.97 | 26.01 | 26.76 | 27.61 |
| 5    | --- | --- | --- | --- | --- | ---   | 23.64 | 24.13 | 25.00 | 26.04 | 26.78 | 27.63 |
| 6    | --- | --- | --- | --- | --- | ---   | 23.65 | 24.15 | 25.03 | 26.08 | 26.80 | 27.67 |
| 7    | --- | --- | --- | --- | --- | ---   | 23.67 | 24.20 | 25.07 | 26.10 | 26.82 | 27.70 |
| 8    | --- | --- | --- | --- | --- | ---   | 23.67 | 24.22 | 25.10 | 26.13 | 26.82 | 27.73 |
| 9    | --- | --- | --- | --- | --- | ---   | 23.68 | 24.23 | 25.13 | 26.16 | 26.85 | 27.77 |
| 10   | --- | --- | --- | --- | --- | ---   | 23.69 | 24.26 | 25.16 | 26.19 | 26.87 | 27.80 |
| 11   | --- | --- | --- | --- | --- | ---   | 23.70 | 24.28 | 25.19 | 26.22 | 26.91 | 27.83 |
| 12   | --- | --- | --- | --- | --- | 23.34 | 23.70 | 24.30 | 25.21 | 26.24 | 26.92 | 27.86 |
| 13   | --- | --- | --- | --- | --- | 23.35 | 23.72 | 24.33 | 25.25 | 26.27 | 26.95 | 27.90 |
| 14   | --- | --- | --- | --- | --- | 23.35 | 23.74 | 24.35 | 25.27 | 26.30 | 26.97 | 27.93 |
| 15   | --- | --- | --- | --- | --- | 23.35 | 23.75 | 24.38 | 25.32 | 26.33 | 27.00 | 27.96 |
| 16   | --- | --- | --- | --- | --- | 23.38 | 23.77 | 24.41 | 25.36 | 26.35 | 27.02 | 27.99 |
| 17   | --- | --- | --- | --- | --- | 23.38 | 23.78 | 24.43 | 25.40 | 26.39 | 27.05 | 28.02 |
| 18   | --- | --- | --- | --- | --- | 23.40 | 23.80 | 24.46 | 25.43 | 26.41 | 27.09 | 28.05 |
| 19   | --- | --- | --- | --- | --- | 23.40 | 23.82 | 24.49 | 25.47 | 26.43 | 27.11 | 28.08 |
| 20   | --- | --- | --- | --- | --- | 23.42 | 23.84 | 24.52 | 25.51 | 26.46 | 27.14 | 28.11 |
| 21   | --- | --- | --- | --- | --- | 23.44 | 23.86 | 24.54 | 25.55 | 26.48 | 27.18 | 28.15 |
| 22   | --- | --- | --- | --- | --- | 23.46 | 23.87 | 24.56 | 25.59 | 26.50 | 27.21 | 28.19 |
| 23   | --- | --- | --- | --- | --- | 23.48 | 23.89 | 24.60 | 25.62 | 26.52 | 27.22 | 28.22 |
| 24   | --- | --- | --- | --- | --- | 23.50 | 23.91 | 24.62 | 25.66 | 26.53 | 27.26 | 28.25 |
| 25   | --- | --- | --- | --- | --- | 23.51 | 23.94 | 24.65 | 25.70 | 26.55 | 27.30 | 28.28 |
| 26   | --- | --- | --- | --- | --- | 23.54 | 23.95 | 24.68 | 25.73 | 26.57 | 27.33 | 28.31 |
| 27   | --- | --- | --- | --- | --- | 23.55 | 23.97 | 24.72 | 25.77 | 26.58 | 27.36 | 28.36 |
| 28   | --- | --- | --- | --- | --- | 23.56 | 23.99 | 24.75 | 25.79 | 26.61 | 27.39 | 28.40 |
| 29   | --- | --- | --- | --- | --- | 23.57 | 24.01 | 24.78 | 25.83 | 26.62 | 27.42 | 28.43 |
| 30   | --- | --- | --- | --- | --- | 23.57 | 24.03 | 24.81 | 25.87 | 26.64 | 27.46 | 28.45 |
| 31   | --- | --- | --- | --- | --- | 23.58 | ---   | 24.84 | ---   | 26.67 | 27.49 | ---   |
| MEAN | --- | --- | --- | --- | --- | 23.46 | 23.78 | 24.42 | 25.36 | 26.33 | 27.05 | 27.98 |

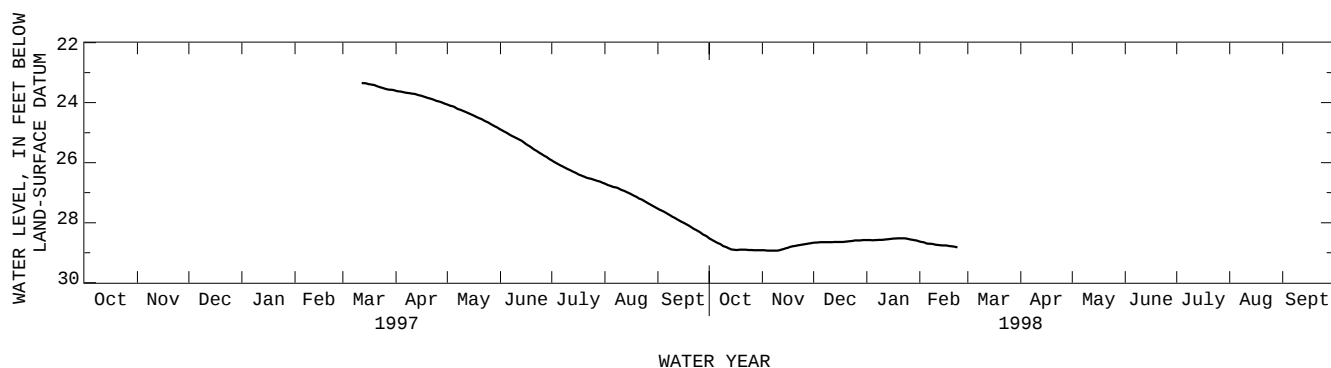
WTR YR 1997 MEAN 25.59 HIGHEST 23.33 MAR. 12, 13, 14, 1997 LOWEST 28.50 SEPT. 30, 1997

## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV                        | DEC                        | JAN   | FEB   | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------------|------------|----------------------------|----------------------------|-------|-------|-----|-----|-----|-----|-----|-----|-----|
| 1           | 28.50      | 28.92                      | 28.67                      | 28.58 | 28.62 | --- | --- | --- | --- | --- | --- | --- |
| 2           | 28.54      | 28.92                      | 28.67                      | 28.58 | 28.64 | --- | --- | --- | --- | --- | --- | --- |
| 3           | 28.57      | 28.92                      | 28.66                      | 28.58 | 28.65 | --- | --- | --- | --- | --- | --- | --- |
| 4           | 28.60      | 28.93                      | 28.66                      | 28.58 | 28.65 | --- | --- | --- | --- | --- | --- | --- |
| 5           | 28.63      | 28.93                      | 28.65                      | 28.59 | 28.69 | --- | --- | --- | --- | --- | --- | --- |
| 6           | 28.67      | 28.93                      | 28.65                      | 28.58 | 28.70 | --- | --- | --- | --- | --- | --- | --- |
| 7           | 28.69      | 28.93                      | 28.65                      | 28.58 | 28.70 | --- | --- | --- | --- | --- | --- | --- |
| 8           | 28.71      | 28.93                      | 28.65                      | 28.58 | 28.70 | --- | --- | --- | --- | --- | --- | --- |
| 9           | 28.76      | 28.93                      | 28.65                      | 28.57 | 28.71 | --- | --- | --- | --- | --- | --- | --- |
| 10          | 28.79      | 28.93                      | 28.65                      | 28.57 | 28.72 | --- | --- | --- | --- | --- | --- | --- |
| 11          | 28.80      | 28.93                      | 28.65                      | 28.57 | 28.74 | --- | --- | --- | --- | --- | --- | --- |
| 12          | 28.83      | 28.91                      | 28.65                      | 28.56 | 28.74 | --- | --- | --- | --- | --- | --- | --- |
| 13          | 28.86      | 28.89                      | 28.65                      | 28.56 | 28.75 | --- | --- | --- | --- | --- | --- | --- |
| 14          | 28.88      | 28.88                      | 28.64                      | 28.55 | 28.76 | --- | --- | --- | --- | --- | --- | --- |
| 15          | 28.90      | 28.85                      | 28.64                      | 28.54 | 28.76 | --- | --- | --- | --- | --- | --- | --- |
| 16          | 28.90      | 28.85                      | 28.64                      | 28.54 | 28.76 | --- | --- | --- | --- | --- | --- | --- |
| 17          | 28.91      | 28.82                      | 28.65                      | 28.53 | 28.76 | --- | --- | --- | --- | --- | --- | --- |
| 18          | 28.91      | 28.80                      | 28.64                      | 28.53 | 28.77 | --- | --- | --- | --- | --- | --- | --- |
| 19          | 28.90      | 28.79                      | 28.64                      | 28.52 | 28.78 | --- | --- | --- | --- | --- | --- | --- |
| 20          | 28.90      | 28.78                      | 28.63                      | 28.52 | 28.79 | --- | --- | --- | --- | --- | --- | --- |
| 21          | 28.90      | 28.77                      | 28.63                      | 28.52 | 28.79 | --- | --- | --- | --- | --- | --- | --- |
| 22          | 28.90      | 28.76                      | 28.62                      | 28.52 | 28.80 | --- | --- | --- | --- | --- | --- | --- |
| 23          | 28.90      | 28.75                      | 28.61                      | 28.52 | 28.82 | --- | --- | --- | --- | --- | --- | --- |
| 24          | 28.91      | 28.74                      | 28.61                      | 28.52 | 28.82 | --- | --- | --- | --- | --- | --- | --- |
| 25          | 28.91      | 28.73                      | 28.60                      | 28.53 | ---   | --- | --- | --- | --- | --- | --- | --- |
| 26          | 28.91      | 28.72                      | 28.59                      | 28.55 | ---   | --- | --- | --- | --- | --- | --- | --- |
| 27          | 28.92      | 28.71                      | 28.59                      | 28.56 | ---   | --- | --- | --- | --- | --- | --- | --- |
| 28          | 28.92      | 28.70                      | 28.59                      | 28.57 | ---   | --- | --- | --- | --- | --- | --- | --- |
| 29          | 28.92      | 28.69                      | 28.59                      | 28.58 | ---   | --- | --- | --- | --- | --- | --- | --- |
| 30          | 28.92      | 28.68                      | 28.58                      | 28.59 | ---   | --- | --- | --- | --- | --- | --- | --- |
| 31          | 28.92      | ---                        | 28.58                      | 28.60 | ---   | --- | --- | --- | --- | --- | --- | --- |
| MEAN        | 28.82      | 28.83                      | 28.63                      | 28.56 | 28.73 | --- | --- | --- | --- | --- | --- | --- |
| WTR YR 1998 | MEAN 28.71 | HIGHEST 28.50 OCT. 1, 1997 | LOWEST 28.93 FEB. 24, 1998 |       |       |     |     |     |     |     |     |     |



## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASINS

175950066354200. Local number, 141.

LOCATION.--Lat 17°59'50", long 66°35'42", Hydrologic Unit 21010004, 1.71 mi southeast of Plaza Degetau at Ponce, 1.31 mi southeast of the intersection between Hwy 10 and Hwy 2, and 2.60 mi northeast of Muelle de Ponce. Owner: PR Aqueduct and Sewer Authority, Name: Restaurada 8A.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 16-10 in (0.41-0.25 m), cased 16 in (0.41 m) 2.00-20.0 ft (0.6-6.1 m), perforated 20-130 ft (6.10-39.6 m), 10 in (0.25 m) 128-165 ft (39.0-50.3 m), perforated. Depth 165 ft (50.3 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 24.0 ft (7.30 m), above mean sea level, from topographic map.

Measuring point: Bottom edge of hole on side of casing 1.90 ft (0.58 m), above land-surface datum, 26.2 ft (7.67 m), above mean sea level.

REMARKS.--Recording observation well. Discontinued on Nov. 8, 1994 due to apparent collapsed casing, repair on August 7, 1996. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 12, 1998.

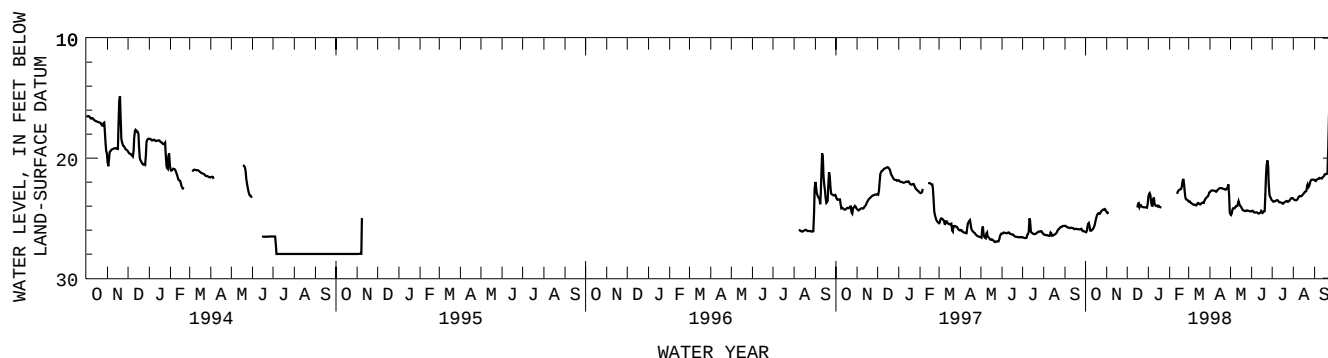
PERIOD OF RECORD.--October 1981 to March 1, 1986, discontinued, November 18, 1991 to November 8, 1994, discontinued, August 7, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.2 ft (3.41 m), below land-surface datum, Oct. 9, 1985; lowest water level recorded, 28.6 ft (8.71 m), below land-surface datum, July 9, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 26.15 | 24.45 | ---   | 23.41 | ---   | 23.54 | 22.84 | 24.66 | 24.43 | 23.51 | 23.33 | 21.78 |
| 2    | 26.16 | 24.55 | ---   | 23.02 | ---   | 23.69 | 22.81 | 24.73 | 24.42 | 23.54 | 23.44 | 21.85 |
| 3    | 26.18 | 24.60 | ---   | 22.94 | ---   | 23.54 | 22.71 | 24.73 | 24.36 | 23.64 | 23.46 | 21.93 |
| 4    | 25.89 | 24.49 | ---   | 22.87 | ---   | 23.70 | 22.71 | 24.41 | 24.45 | 23.63 | 23.49 | 21.89 |
| 5    | 25.50 | 24.55 | ---   | 23.34 | ---   | 23.75 | 22.69 | 24.16 | 24.53 | 23.57 | 23.52 | 21.76 |
| 6    | 25.44 | ---   | ---   | 23.87 | ---   | 23.77 | 22.69 | 24.20 | 24.53 | 23.62 | 23.49 | 21.75 |
| 7    | 25.37 | ---   | ---   | 24.02 | ---   | 23.83 | 22.72 | 24.20 | 24.52 | 23.52 | 23.48 | 21.71 |
| 8    | 26.01 | ---   | ---   | 23.92 | ---   | 23.86 | 22.70 | 24.16 | 24.52 | 23.51 | 23.38 | 21.67 |
| 9    | 26.04 | ---   | ---   | 22.92 | ---   | 23.89 | 22.74 | 23.99 | 24.50 | 23.51 | 23.25 | 21.64 |
| 10   | 26.06 | ---   | ---   | 23.64 | ---   | 23.87 | 22.78 | 24.01 | 24.54 | 23.50 | 23.17 | 21.74 |
| 11   | 25.96 | ---   | ---   | 23.87 | ---   | 23.88 | 22.81 | 24.00 | 24.60 | 23.64 | 23.17 | 21.63 |
| 12   | 25.94 | ---   | ---   | 23.98 | 23.07 | 23.96 | 22.68 | 23.98 | 24.61 | 23.68 | 23.17 | 21.68 |
| 13   | 25.88 | ---   | ---   | 23.96 | 22.88 | 23.92 | 22.64 | 23.57 | 24.59 | 23.67 | 23.20 | 21.67 |
| 14   | 25.69 | ---   | ---   | 23.98 | 22.76 | 23.80 | 22.57 | 23.60 | 24.56 | 23.69 | 23.10 | 21.53 |
| 15   | 25.61 | ---   | ---   | 24.04 | 22.64 | 23.70 | 22.52 | 23.97 | 24.52 | 23.71 | 23.06 | 21.54 |
| 16   | 25.30 | ---   | 24.13 | 23.88 | 22.65 | 23.74 | 22.50 | 23.95 | 24.24 | 23.76 | 22.97 | 21.38 |
| 17   | 25.00 | ---   | 24.11 | 24.05 | 22.60 | 23.84 | 22.50 | 24.09 | 24.61 | 23.80 | 22.96 | 21.32 |
| 18   | 24.80 | ---   | 23.44 | 24.07 | 22.55 | 23.84 | 22.50 | 24.14 | 24.52 | 23.77 | 22.80 | 21.33 |
| 19   | 24.70 | ---   | 24.06 | 24.09 | 22.57 | 23.87 | 22.50 | 24.31 | 24.46 | 23.68 | 22.80 | 21.31 |
| 20   | 24.55 | ---   | 24.09 | 24.09 | 22.06 | 23.72 | 22.54 | 24.35 | 24.44 | 23.65 | 22.77 | 21.30 |
| 21   | 24.63 | ---   | 23.86 | 24.14 | 21.77 | 23.77 | 22.56 | 24.36 | 24.39 | 23.62 | 22.69 | 21.23 |
| 22   | 24.65 | ---   | 23.98 | ---   | 21.70 | 23.66 | 22.56 | 24.39 | 21.95 | 23.62 | 21.98 | 17.23 |
| 23   | 24.64 | ---   | 24.05 | ---   | 22.29 | 23.71 | 22.58 | 24.42 | 20.85 | 23.53 | 22.41 | 15.67 |
| 24   | 24.44 | ---   | 24.07 | ---   | 23.16 | 23.72 | 22.63 | 24.42 | 20.37 | 23.64 | 22.43 | 14.79 |
| 25   | 24.41 | ---   | 24.08 | ---   | 23.41 | 23.42 | 22.63 | 24.35 | 20.02 | 23.63 | 22.27 | 14.34 |
| 26   | 24.36 | ---   | 24.10 | ---   | 23.43 | 23.43 | 22.55 | 24.36 | 21.37 | 23.61 | 22.01 | 14.13 |
| 27   | 24.29 | ---   | 24.09 | ---   | 23.46 | 23.28 | 22.44 | 24.37 | 22.92 | 23.54 | 21.85 | 17.40 |
| 28   | 24.28 | ---   | 24.09 | ---   | 23.52 | 23.27 | 22.43 | 24.40 | 23.20 | 23.44 | 21.79 | 18.03 |
| 29   | 24.29 | ---   | 24.11 | ---   | ---   | 23.17 | 21.96 | 24.39 | 23.24 | 23.35 | 21.80 | 18.40 |
| 30   | 24.18 | ---   | 24.12 | ---   | ---   | 23.19 | 24.40 | 24.44 | 23.41 | 23.32 | 21.77 | 18.71 |
| 31   | 24.35 | ---   | 24.14 | ---   | ---   | 22.88 | ---   | 24.41 | ---   | 23.34 | 21.81 | ---   |
| MEAN | 25.19 | 24.53 | 24.03 | 23.72 | 22.74 | 23.65 | 22.66 | 24.24 | 23.72 | 23.59 | 22.80 | 20.08 |

WTR YR 1998 MEAN 23.32 HIGHEST 14.12 SEPT. 26, 1998 LOWEST 26.18 OCT. 3, 1997



## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASINS

175934066364800. Local number, CO-3.

LOCATION.--Lat 17°59'34", long 66°36'48", Hydrologic Unit 21010004, 0.35 mi southeast of the intersection of Hwy 10 with Hwy 2, 0.32 mi south of Hwy 2, 0.10 mi southwest of Plaza del Caribe Mall, and 1.90 mi north of Punta Carenero. Owner: Plaza del Caribe, Name: Constancia 3.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.33 m). Depth 84 ft (25.6 m).

INSTRUMENTATION.--Electronic water level logger--60-minute punch.

DATUM.--Elevation of land-surface datum is 16.0 ft (4.90 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on the top of 4 in (0.10 m) casing, 3.12 ft (0.95 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 30, 1996, replaced by an Electronic Data Logger (EDL) installed during Mar. 19 to April 9, 1997. Automated Digital Recorder (ADR), re-installed on April 9, 1997, replaced by an Electronic Data Logger (EDL), installed on June 4, 1998.

PERIOD OF RECORD.--May 30, 1996 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.83 ft (3.30 m), below land-surface datum, Sept. 30, 1998; lowest water level recorded, 17.96 ft (5.47 m), below land-surface datum, July 19, 20, 21, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|
| 1    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.62 | 17.19 | 16.51 | 16.12 |
| 2    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.64 | 17.17 | 16.51 | 16.12 |
| 3    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.64 | 17.17 | 16.50 | 16.12 |
| 4    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.66 | 17.14 | 16.50 | 16.07 |
| 5    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.68 | 17.13 | 16.50 | 16.04 |
| 6    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.70 | 17.11 | 16.49 | 16.03 |
| 7    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.70 | 17.10 | 16.49 | 16.02 |
| 8    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.70 | 17.04 | 16.49 | 16.01 |
| 9    | --- | --- | --- | --- | --- | --- | --- | ---   | 17.70 | 17.03 | 16.49 | 15.99 |
| 10   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.69 | 16.99 | 16.49 | 15.59 |
| 11   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.69 | 16.99 | 16.49 | 15.47 |
| 12   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.69 | 16.97 | 16.49 | 15.46 |
| 13   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.68 | 16.96 | 16.49 | 15.39 |
| 14   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.68 | 16.93 | 16.49 | 15.33 |
| 15   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.64 | 16.81 | 16.49 | 15.26 |
| 16   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.52 | 16.80 | 16.48 | 15.20 |
| 17   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.52 | 16.80 | 16.43 | 15.15 |
| 18   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.51 | 16.78 | 16.41 | 15.09 |
| 19   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.49 | 16.76 | 16.38 | 15.04 |
| 20   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.47 | 16.76 | 16.38 | 15.00 |
| 21   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.47 | 16.75 | 16.36 | 14.89 |
| 22   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.42 | 16.72 | 16.35 | 14.84 |
| 23   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.40 | 16.72 | 16.28 | 14.78 |
| 24   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.40 | 16.72 | 16.28 | 14.73 |
| 25   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.37 | 16.71 | 16.28 | 14.70 |
| 26   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.37 | 16.71 | 16.28 | 14.68 |
| 27   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.35 | 16.71 | 16.28 | 14.66 |
| 28   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.32 | 16.70 | 16.28 | 14.65 |
| 29   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.30 | 16.52 | 16.28 | 14.63 |
| 30   | --- | --- | --- | --- | --- | --- | --- | ---   | 17.24 | 16.52 | 16.28 | 14.61 |
| 31   | --- | --- | --- | --- | --- | --- | --- | 17.63 | ---   | 16.51 | 16.12 | ---   |
| MEAN | --- | --- | --- | --- | --- | --- | --- | 17.63 | 17.54 | 16.87 | 16.41 | 15.32 |

WTR YR 1996 MEAN 16.55 HIGHEST 14.59 SEPT. 30, 1996 LOWEST 17.70 JUNE 6-10, 1996

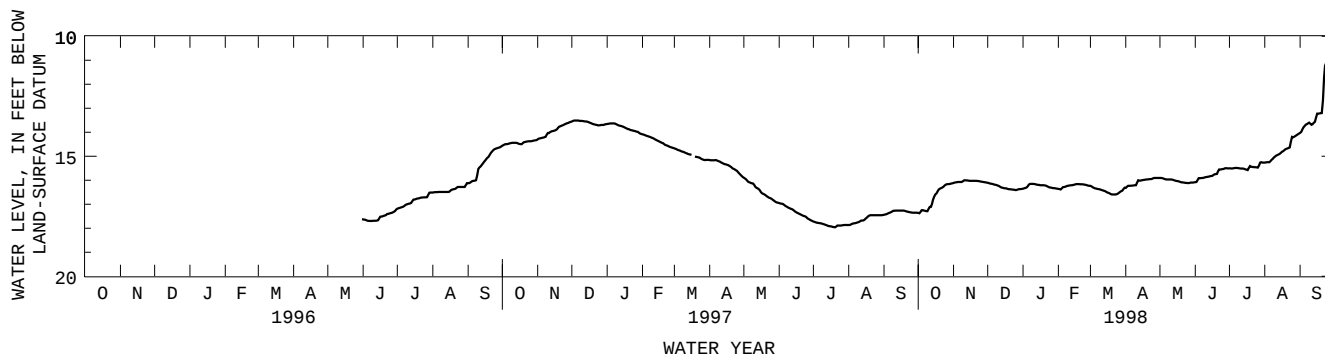
| DAY | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1   | 14.57 | 14.32 | 13.56 | 13.66 | 14.08 | 14.66 | 15.16 | 15.88 | 16.94 | 17.71 | 17.86 | 17.45 |
| 2   | 14.55 | 14.27 | 13.54 | 13.65 | 14.09 | 14.68 | 15.16 | 15.91 | 16.96 | 17.73 | 17.86 | 17.43 |
| 3   | 14.52 | 14.26 | 13.52 | 13.64 | 14.11 | 14.69 | 15.17 | 15.94 | 16.97 | 17.75 | 17.86 | 17.42 |
| 4   | 14.50 | 14.25 | 13.51 | 13.64 | 14.13 | 14.73 | 15.17 | 15.99 | 16.98 | 17.76 | 17.82 | 17.41 |
| 5   | 14.50 | 14.24 | 13.51 | 13.63 | 14.14 | 14.74 | 15.17 | 16.06 | 16.99 | 17.77 | 17.81 | 17.38 |
| 6   | 14.49 | 14.23 | 13.51 | 13.63 | 14.16 | 14.76 | 15.16 | 16.08 | 17.04 | 17.78 | 17.79 | 17.36 |
| 7   | 14.48 | 14.22 | 13.51 | 13.63 | 14.18 | 14.78 | 15.16 | 16.10 | 17.08 | 17.79 | 17.79 | 17.34 |
| 8   | 14.46 | 14.20 | 13.52 | 13.63 | 14.19 | 14.80 | 15.18 | 16.12 | 17.09 | 17.80 | 17.78 | 17.32 |
| 9   | 14.45 | 14.18 | 13.53 | 13.65 | 14.21 | 14.81 | 15.21 | 16.13 | 17.14 | 17.80 | 17.76 | 17.28 |
| 10  | 14.44 | 14.03 | 13.53 | 13.67 | 14.23 | 14.83 | 15.21 | 16.15 | 17.15 | 17.83 | 17.74 | 17.27 |
| 11  | 14.44 | 14.04 | 13.53 | 13.70 | 14.25 | 14.85 | 15.24 | 16.22 | 17.17 | 17.84 | 17.73 | 17.27 |
| 12  | 14.44 | 14.02 | 13.54 | 13.72 | 14.28 | 14.87 | 15.27 | 16.30 | 17.19 | 17.86 | 17.68 | 17.26 |
| 13  | 14.44 | 13.97 | 13.55 | 13.73 | 14.31 | 14.89 | 15.29 | 16.32 | 17.21 | 17.87 | 17.68 | 17.26 |
| 14  | 14.44 | 13.96 | 13.55 | 13.74 | 14.33 | 14.92 | 15.32 | 16.35 | 17.23 | 17.89 | 17.68 | 17.26 |
| 15  | 14.46 | 13.94 | 13.56 | 13.76 | 14.36 | 14.92 | 15.33 | 16.39 | 17.29 | 17.91 | 17.66 | 17.26 |
| 16  | 14.48 | 13.94 | 13.57 | 13.78 | 14.38 | 14.93 | 15.34 | 16.45 | 17.32 | 17.92 | 17.62 | 17.26 |
| 17  | 14.49 | 13.92 | 13.60 | 13.80 | 14.40 | 14.96 | 15.36 | 16.54 | 17.35 | 17.92 | 17.57 | 17.26 |
| 18  | 14.50 | 13.88 | 13.61 | 13.83 | 14.43 | ---   | 15.38 | 16.55 | 17.37 | 17.93 | 17.53 | 17.26 |
| 19  | 14.50 | 13.86 | 13.64 | 13.85 | 14.45 | 15.01 | 15.41 | 16.58 | 17.40 | 17.95 | 17.48 | 17.27 |
| 20  | 14.42 | 13.77 | 13.65 | 13.87 | 14.47 | 15.02 | 15.44 | 16.60 | 17.41 | 17.96 | 17.46 | 17.28 |
| 21  | 14.41 | 13.76 | 13.67 | 13.88 | 14.52 | 15.03 | 15.48 | 16.64 | 17.45 | 17.96 | 17.46 | 17.30 |
| 22  | 14.40 | 13.74 | 13.68 | 13.91 | 14.53 | 15.04 | 15.52 | 16.68 | 17.47 | 17.89 | 17.46 | 17.31 |
| 23  | 14.39 | 13.72 | 13.69 | 13.91 | 14.55 | 15.05 | 15.54 | 16.71 | 17.49 | 17.89 | 17.46 | 17.32 |
| 24  | 14.38 | 13.70 | 13.71 | 13.93 | 14.57 | 15.07 | 15.57 | 16.74 | 17.50 | 17.89 | 17.46 | 17.33 |
| 25  | 14.38 | 13.68 | 13.71 | 13.94 | 14.60 | 15.10 | 15.59 | 16.75 | 17.53 | 17.89 | 17.46 | 17.34 |
| 26  | 14.38 | 13.65 | 13.71 | 13.95 | 14.62 | 15.13 | 15.63 | 16.79 | 17.58 | 17.89 | 17.46 | 17.35 |
| 27  | 14.38 | 13.63 | 13.70 | 13.97 | 14.63 | 15.15 | 15.70 | 16.81 | 17.60 | 17.87 | 17.46 | 17.35 |
| 28  | 14.36 | 13.62 | 13.70 | 13.98 | 14.65 | 15.16 | 15.74 | 16.86 | 17.63 | 17.87 | 17.46 | 17.35 |
| 29  | 14.35 | 13.59 | 13.70 | 13.99 | ---   | 15.16 | 15.79 | 16.89 | 17.66 | 17.86 | 17.46 | 17.35 |
| 30  | 14.34 | 13.57 | 13.69 | 14.05 | ---   | 15.15 | 15.84 | 16.92 | 17.69 | 17.86 | 17.46 | 17.35 |
| 31  | 14.34 | ---   | 13.66 | 14.06 | ---   | 15.15 | ---   | 16.93 | ---   | 17.86 | 17.45 | ---   |

## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASINS--continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV                          | DEC                          | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|------------------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 17.35      | 16.12                        | 16.10                        | 16.36 | 16.36 | 16.23 | 16.32 | 15.90 | 16.08 | 15.50 | 15.26 | 14.04 |
| 2           | 17.37      | 16.11                        | 16.11                        | 16.34 | 16.36 | 16.24 | 16.32 | 15.90 | 16.08 | 15.50 | 15.26 | 14.00 |
| 3           | 17.38      | 16.09                        | 16.13                        | 16.33 | 16.38 | 16.27 | 16.23 | 15.91 | 16.07 | 15.51 | 15.25 | 13.97 |
| 4           | 17.26      | 16.08                        | 16.14                        | 16.31 | 16.39 | 16.30 | 16.23 | 15.91 | 15.91 | 15.51 | 15.25 | 13.79 |
| 5           | 17.24      | 16.08                        | 16.15                        | 16.30 | 16.29 | 16.33 | 16.23 | 15.94 | 15.91 | 15.50 | 15.25 | 13.79 |
| 6           | 17.26      | 16.07                        | 16.16                        | 16.21 | 16.28 | 16.34 | 16.23 | 15.95 | 15.91 | 15.49 | 15.24 | 13.69 |
| 7           | 17.27      | 16.07                        | 16.18                        | 16.15 | 16.28 | 16.35 | 16.22 | 15.97 | 15.91 | 15.49 | 15.16 | 13.67 |
| 8           | 17.28      | 16.07                        | 16.19                        | 16.15 | 16.26 | 16.37 | 16.22 | 15.97 | 15.90 | 15.48 | 15.15 | 13.65 |
| 9           | 17.29      | 16.08                        | 16.20                        | 16.15 | 16.23 | 16.37 | 16.21 | 15.97 | 15.90 | 15.49 | 15.08 | 13.61 |
| 10          | 17.29      | 16.01                        | 16.21                        | 16.15 | 16.23 | 16.38 | 16.21 | 15.97 | 15.87 | 15.50 | 15.04 | 13.59 |
| 11          | 17.10      | 16.00                        | 16.23                        | 16.16 | 16.22 | 16.40 | 16.21 | 15.97 | 15.87 | 15.51 | 14.99 | 13.69 |
| 12          | 17.12      | 16.00                        | 16.27                        | 16.16 | 16.21 | 16.42 | 15.99 | 15.97 | 15.86 | 15.51 | 14.97 | 13.68 |
| 13          | 17.11      | 16.01                        | 16.29                        | 16.17 | 16.21 | 16.43 | 16.01 | 15.99 | 15.85 | 15.51 | 14.94 | 13.64 |
| 14          | 16.86      | 16.01                        | 16.31                        | 16.19 | 16.20 | 16.45 | 16.02 | 16.00 | 15.84 | 15.52 | 14.92 | 13.57 |
| 15          | 16.77      | 16.02                        | 16.32                        | 16.19 | 16.19 | 16.47 | 16.01 | 16.01 | 15.83 | 15.53 | 14.89 | 13.56 |
| 16          | 16.61      | 16.02                        | 16.34                        | 16.20 | 16.17 | 16.50 | 15.99 | 16.03 | 15.82 | 15.55 | 14.83 | 13.22 |
| 17          | 16.57      | 16.02                        | 16.34                        | 16.21 | 16.16 | 16.52 | 15.99 | 16.03 | 15.81 | 15.57 | 14.80 | 13.23 |
| 18          | 16.53      | 16.02                        | 16.34                        | 16.21 | 16.16 | 16.54 | 15.98 | 16.05 | 15.75 | 15.58 | 14.78 | 13.22 |
| 19          | 16.40      | 16.02                        | 16.36                        | 16.21 | 16.16 | 16.56 | 15.97 | 16.07 | 15.75 | 15.39 | 14.73 | 13.21 |
| 20          | 16.37      | 16.02                        | 16.37                        | 16.21 | 16.16 | 16.59 | 15.97 | 16.08 | 15.74 | 15.43 | 14.70 | 13.21 |
| 21          | 16.34      | 16.02                        | 16.38                        | 16.22 | 16.17 | 16.59 | 15.97 | 16.09 | 15.73 | 15.44 | 14.68 | 13.19 |
| 22          | 16.31      | 16.03                        | 16.38                        | 16.23 | 16.17 | 16.59 | 15.95 | 16.09 | 15.55 | 15.45 | 14.66 | 12.13 |
| 23          | 16.30      | 16.03                        | 16.39                        | 16.26 | 16.17 | 16.59 | 15.95 | 16.10 | 15.55 | 15.45 | 14.65 | 11.28 |
| 24          | 16.24      | 16.04                        | 16.39                        | 16.29 | 16.18 | 16.59 | 15.95 | 16.11 | 15.55 | 15.46 | 14.62 | 11.17 |
| 25          | 16.20      | 16.05                        | 16.40                        | 16.30 | 16.19 | 16.58 | 15.93 | 16.11 | 15.54 | 15.46 | 14.17 | 11.06 |
| 26          | 16.17      | 16.06                        | 16.41                        | 16.31 | 16.20 | 16.54 | 15.91 | 16.12 | 15.53 | 15.47 | 14.21 | 10.98 |
| 27          | 16.16      | 16.07                        | 16.40                        | 16.32 | 16.22 | 16.51 | 15.90 | 16.12 | 15.52 | 15.47 | 14.20 | 10.91 |
| 28          | 16.16      | 16.08                        | 16.39                        | 16.33 | 16.23 | 16.47 | 15.90 | 16.10 | 15.49 | 15.30 | 14.17 | 10.87 |
| 29          | 16.16      | 16.08                        | 16.37                        | 16.33 | ---   | 16.44 | 15.90 | 16.10 | 15.50 | 15.23 | 14.14 | 10.84 |
| 30          | 16.15      | 16.09                        | 16.37                        | 16.34 | ---   | 16.43 | 15.90 | 16.10 | 15.50 | 15.26 | 14.10 | 10.83 |
| 31          | 16.13      | ---                          | 16.36                        | 16.35 | ---   | 16.31 | ---   | 16.09 | ---   | 15.26 | 14.07 | ---   |
| MEAN        | 16.73      | 16.05                        | 16.29                        | 16.25 | 16.23 | 16.44 | 16.06 | 16.02 | 15.77 | 15.46 | 14.78 | 12.84 |
| WTR YR 1998 | MEAN 15.75 | HIGHEST 10.83 SEPT. 30, 1998 | LOWEST 17.38 OCT. 3, 4, 1997 |       |       |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASIN

180045066381600. Local number AN-1

LOCATION.--Lat 18°00'45", long 66°38'16", Hydrologic Unit 21010004, 0.27 mi east of the intersection of Hwy 10 with Hwy 132, 0.60 mi northwest of Parque Montaner, and 0.04 mi south of Hwy 132. Owner: Albergue de Niños de Ponce, Name: Albergue de Niños.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well.

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 49.0 ft (14.90 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 5.42 ft (1.65 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on February 12, 1998.

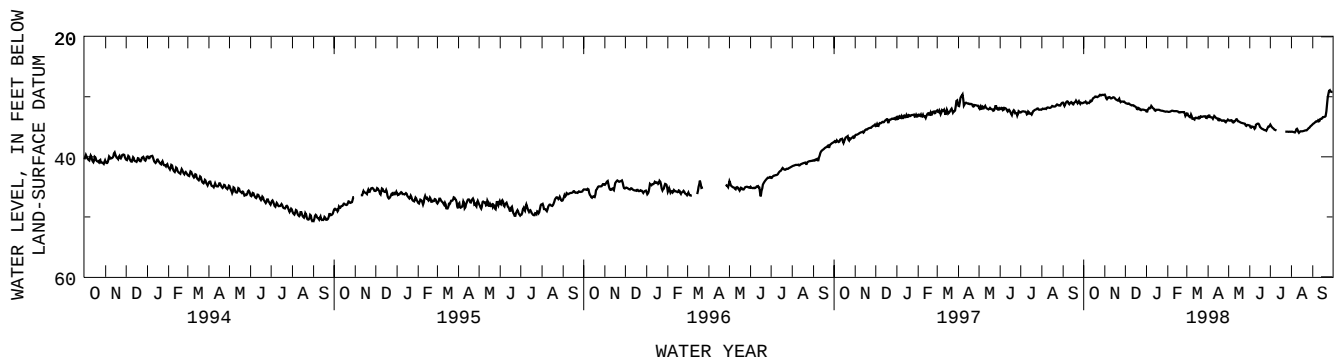
PERIOD OF RECORD.--March 30, 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 28.57 ft (8.71 m), below land-surface datum, Sept. 27, 1998; lowest water level recorded, 51.88 ft (15.81 m), below land-surface datum, Aug. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 30.98 | 29.63 | 30.97 | 32.24 | 32.47 | 32.74 | 33.31 | 33.87 | 34.76 | 34.58 | 35.82 | 34.61 |
| 2    | 30.94 | 29.61 | 31.05 | 32.68 | 32.48 | 32.81 | 33.38 | 33.95 | 34.82 | 34.65 | 35.79 | 34.51 |
| 3    | 30.97 | 30.21 | 31.09 | 32.21 | 32.54 | 32.82 | 32.85 | 33.94 | 35.36 | 34.94 | 35.82 | 34.44 |
| 4    | 30.80 | 30.30 | 31.12 | 32.03 | 32.47 | 33.41 | 33.39 | 34.00 | 34.91 | 35.08 | 35.87 | 34.35 |
| 5    | 30.77 | 30.51 | 31.21 | 31.88 | 32.46 | 32.99 | 33.39 | 33.86 | 34.95 | 35.18 | 35.87 | 34.24 |
| 6    | 31.26 | 30.02 | 31.08 | 31.77 | 32.43 | 33.79 | 33.41 | 33.94 | 34.99 | 35.27 | 35.92 | 34.14 |
| 7    | 30.98 | 30.12 | 31.13 | 32.01 | 32.34 | 33.01 | 33.41 | 33.99 | 35.03 | 35.36 | 35.94 | 34.03 |
| 8    | 30.96 | 30.06 | 31.28 | 31.55 | 32.29 | 32.92 | 33.55 | 34.48 | 35.09 | 35.55 | 35.52 | 34.20 |
| 9    | 31.07 | 30.05 | 31.31 | 31.52 | 32.32 | 33.45 | 33.81 | 34.09 | 35.59 | 35.51 | 35.31 | 33.95 |
| 10   | 30.98 | 30.25 | 31.37 | 31.82 | 32.36 | 33.82 | 33.15 | 34.08 | 34.72 | 35.60 | 35.32 | 33.88 |
| 11   | 30.74 | 30.28 | 31.46 | 31.88 | 32.39 | 33.36 | 33.22 | 34.11 | 34.60 | 35.62 | 35.64 | 34.28 |
| 12   | 30.60 | 30.23 | 31.38 | 31.97 | 32.37 | 34.06 | 33.35 | 33.84 | 34.52 | ---   | 36.11 | 33.74 |
| 13   | 30.89 | 30.11 | 31.41 | 32.03 | 32.39 | 33.55 | 33.51 | 33.71 | 34.49 | ---   | 35.91 | 33.67 |
| 14   | 30.46 | 30.06 | 31.45 | 32.49 | 32.37 | 33.53 | 33.60 | 33.74 | 34.46 | ---   | 35.74 | 33.67 |
| 15   | 30.36 | 30.10 | 31.63 | 32.14 | 32.39 | 33.44 | 33.59 | 34.12 | 34.52 | ---   | 35.75 | 33.64 |
| 16   | 30.15 | 30.19 | 31.56 | 32.16 | 32.43 | 33.56 | 33.62 | 34.07 | 34.90 | ---   | 35.75 | 33.34 |
| 17   | 30.14 | 30.37 | 31.73 | 32.17 | 32.45 | 33.60 | 34.13 | 34.15 | 35.09 | ---   | 35.76 | 33.40 |
| 18   | 29.99 | 30.49 | 31.79 | 32.15 | 32.68 | 33.41 | 33.72 | 34.20 | 35.19 | ---   | 35.74 | 33.38 |
| 19   | 29.92 | 30.53 | 32.28 | 32.15 | 32.51 | 33.41 | 33.71 | 34.28 | 35.31 | ---   | 35.67 | 33.33 |
| 20   | 29.97 | 30.60 | 31.84 | 32.17 | 32.55 | 33.82 | 33.85 | 34.33 | 35.37 | ---   | 35.67 | 33.28 |
| 21   | 30.09 | 30.66 | 31.87 | 32.21 | 32.58 | 33.28 | 33.90 | 34.37 | 35.39 | ---   | 35.60 | 33.17 |
| 22   | 30.02 | 30.27 | 31.96 | 32.28 | 32.54 | 33.24 | 34.07 | 34.39 | 35.47 | ---   | 35.57 | 31.65 |
| 23   | 29.95 | 30.35 | 32.01 | 32.31 | 32.54 | 33.32 | 33.91 | 34.44 | 35.54 | 35.80 | 35.58 | 30.45 |
| 24   | 29.88 | 31.01 | 32.36 | 32.33 | 32.54 | 33.34 | 33.94 | 34.44 | 35.57 | 35.81 | 35.56 | 29.69 |
| 25   | 29.68 | 30.75 | 32.12 | 32.33 | 32.55 | 33.29 | 33.95 | 34.46 | 35.55 | 35.82 | 35.44 | 29.21 |
| 26   | 29.66 | 30.82 | 32.15 | 32.35 | 32.54 | 33.28 | 33.93 | 34.53 | 35.73 | 35.79 | 35.29 | 28.77 |
| 27   | 29.85 | 30.75 | 32.13 | 32.42 | 33.14 | 33.24 | 34.43 | 35.04 | 35.19 | 35.80 | 35.18 | 29.03 |
| 28   | 29.70 | 30.80 | 32.13 | 32.42 | 33.24 | 33.25 | 34.05 | 34.66 | 35.12 | 35.82 | 35.13 | 29.18 |
| 29   | 29.64 | 30.81 | 32.16 | 32.48 | ---   | 33.23 | 34.07 | 34.69 | 34.84 | 35.83 | 34.98 | 29.15 |
| 30   | 29.67 | 30.79 | 32.21 | 32.47 | ---   | 33.78 | 33.74 | 34.70 | 35.13 | 35.81 | 34.80 | 29.20 |
| 31   | 29.71 | ---   | 32.25 | 32.43 | ---   | 33.31 | ---   | 34.72 | ---   | 35.83 | 34.75 | ---   |
| MEAN | 30.35 | 30.36 | 31.66 | 32.16 | 32.51 | 33.36 | 33.66 | 34.23 | 35.07 | 35.48 | 35.57 | 32.59 |

WTR YR 1998 MEAN 33.02 HIGHEST 28.57 SEPT. 27, 1998 LOWEST 36.27 JULY 27, 1998



## GROUND-WATER LEVELS

### RIO INABON TO RIO LOCO BASINS

180156066434000. Local number, LV-1.

LOCATION.--Lat 18°01'56", long 66°43'40", Hydrologic Unit 21010004, 1.23 mi north of Hwy 2, 0.10 mi west of Hwy 385, and 0.14 mi east of Río Tallaboa. Owner: CORCO, Name: Luciana Ventura.

**AQUIFER. - -Alluvium.**

**WELL CHARACTERISTICS.**--Drilled unused water-table well. Depth 66.4 ft (20.2 m).

**INSTRUMENTATION.**--Digital water level recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is about 66.0 ft (20.1 m), above mean sea level, from topographic map..

Measuring point: Top of shelter floor, 3.00 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on September 5, 1997.

PERIOD OF RECORD.--September 5, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.65 ft (5.07 m), below land-surface datum, Sept. 23, 1998; lowest water level recorded, 28.87 ft (8.80 m), below land-surface datum, Sept. 28, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC            | JAN          | FEB            | MAR | APR | MAY | JUN | JUL | AUG | SEP   |
|-------------|------------|---------------|----------------|--------------|----------------|-----|-----|-----|-----|-----|-----|-------|
| 1           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | ---   |
| 2           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | ---   |
| 3           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | ---   |
| 4           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | ---   |
| 5           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 24.75 |
| 6           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 24.75 |
| 7           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.16 |
| 8           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.27 |
| 9           | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 24.56 |
| 10          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 24.33 |
| 11          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.05 |
| 12          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.12 |
| 13          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.30 |
| 14          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 26.28 |
| 15          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.86 |
| 16          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 26.38 |
| 17          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.87 |
| 18          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 25.84 |
| 19          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 26.83 |
| 20          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.31 |
| 21          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.34 |
| 22          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.83 |
| 23          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.68 |
| 24          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.60 |
| 25          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.75 |
| 26          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.63 |
| 27          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.90 |
| 28          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 28.65 |
| 29          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 28.40 |
| 30          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 27.36 |
| 31          | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | ---   |
| MEAN        | ---        | ---           | ---            | ---          | ---            | --- | --- | --- | --- | --- | --- | 26.42 |
| WTR YR 1997 | MEAN 26.42 | HIGHEST 24.33 | SEPT. 10, 1997 | LOWEST 28.87 | SEPT. 28, 1997 |     |     |     |     |     |     |       |

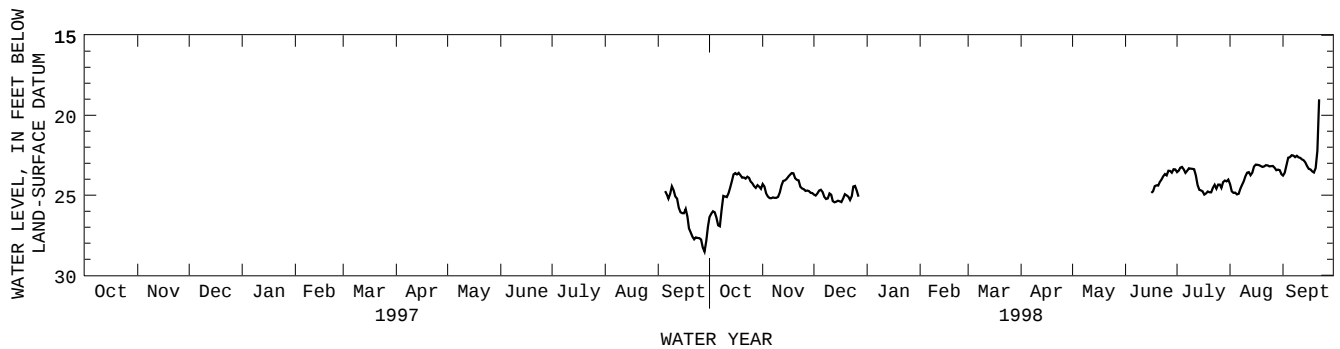
## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASINS--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN | FEB | MAR | APR | MAY | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-----|-----|-----|-----|-----|-------|-------|-------|-------|
| 1    | 26.55 | 24.42 | 24.85 | --- | --- | --- | --- | --- | ---   | 23.50 | 23.97 | 23.84 |
| 2    | 26.18 | 24.18 | 25.07 | --- | --- | --- | --- | --- | ---   | 23.62 | 24.64 | 23.70 |
| 3    | 26.13 | 24.73 | 24.98 | --- | --- | --- | --- | --- | ---   | 23.31 | 24.88 | 23.48 |
| 4    | 25.89 | 25.04 | 24.79 | --- | --- | --- | --- | --- | ---   | 23.26 | 24.83 | 22.78 |
| 5    | 26.23 | 25.13 | 24.63 | --- | --- | --- | --- | --- | ---   | 23.20 | 24.86 | 22.54 |
| 6    | 26.58 | 25.22 | 24.68 | --- | --- | --- | --- | --- | ---   | 23.58 | 25.03 | 22.71 |
| 7    | 27.17 | 25.16 | 24.92 | --- | --- | --- | --- | --- | ---   | 23.64 | 24.79 | 22.29 |
| 8    | 26.70 | 25.13 | 25.29 | --- | --- | --- | --- | --- | ---   | 23.30 | 24.38 | 22.76 |
| 9    | 25.13 | 25.19 | 25.19 | --- | --- | --- | --- | --- | ---   | 23.34 | 24.36 | 22.47 |
| 10   | 24.97 | 25.14 | 25.20 | --- | --- | --- | --- | --- | ---   | 23.35 | 23.94 | 22.59 |
| 11   | 25.18 | 25.06 | 24.57 | --- | --- | --- | --- | --- | ---   | 23.35 | 23.69 | 22.68 |
| 12   | 25.06 | 24.60 | 25.37 | --- | --- | --- | --- | --- | ---   | 23.39 | 23.50 | 22.65 |
| 13   | 24.70 | 24.16 | 25.36 | --- | --- | --- | --- | --- | ---   | 24.12 | 23.62 | 22.87 |
| 14   | 24.40 | 24.05 | 25.51 | --- | --- | --- | --- | --- | ---   | 24.59 | 23.87 | 22.76 |
| 15   | 23.90 | 24.09 | 25.30 | --- | --- | --- | --- | --- | ---   | 24.73 | 23.31 | 23.13 |
| 16   | 23.49 | 23.86 | 25.38 | --- | --- | --- | --- | --- | 24.66 | 24.67 | 23.10 | 23.21 |
| 17   | 23.74 | 23.81 | 25.39 | --- | --- | --- | --- | --- | 25.05 | 24.85 | 23.08 | 23.49 |
| 18   | 23.65 | 23.61 | 25.46 | --- | --- | --- | --- | --- | 24.47 | 25.08 | 23.12 | 23.29 |
| 19   | 23.57 | 23.63 | 24.95 | --- | --- | --- | --- | --- | 24.39 | 24.69 | 23.13 | 23.73 |
| 20   | 23.93 | 23.62 | 24.93 | --- | --- | --- | --- | --- | 24.37 | 24.85 | 23.25 | 23.42 |
| 21   | 23.88 | 24.27 | 25.09 | --- | --- | --- | --- | --- | 24.43 | 24.77 | 23.21 | 23.19 |
| 22   | 23.91 | 23.81 | 25.10 | --- | --- | --- | --- | --- | 23.93 | 24.87 | 23.18 | 21.26 |
| 23   | 24.02 | 24.33 | 25.48 | --- | --- | --- | --- | --- | 24.11 | 24.19 | 23.08 | 16.75 |
| 24   | 23.67 | 24.61 | 24.63 | --- | --- | --- | --- | --- | 23.54 | 24.51 | 23.20 | ---   |
| 25   | 24.15 | 24.55 | 24.29 | --- | --- | --- | --- | --- | 23.82 | 24.67 | 23.19 | ---   |
| 26   | 24.13 | 24.70 | 24.54 | --- | --- | --- | --- | --- | 23.69 | 24.00 | 23.18 | ---   |
| 27   | 24.37 | 24.77 | 24.90 | --- | --- | --- | --- | --- | 23.25 | 24.67 | 23.16 | ---   |
| 28   | 24.50 | 24.65 | 25.29 | --- | --- | --- | --- | --- | 23.71 | 24.40 | 23.39 | ---   |
| 29   | 24.59 | 24.84 | ---   | --- | --- | --- | --- | --- | 23.47 | 23.97 | 23.47 | ---   |
| 30   | 24.16 | 24.87 | ---   | --- | --- | --- | --- | --- | 23.28 | 24.20 | 23.33 | ---   |
| 31   | 24.77 | ---   | ---   | --- | --- | --- | --- | --- | ---   | 24.07 | 23.53 | ---   |
| MEAN | 24.82 | 24.51 | 25.04 | --- | --- | --- | --- | --- | 24.01 | 24.09 | 23.72 | 22.68 |

WTR YR 1998 MEAN 24.18 HIGHEST 16.65 SEPT. 23, 1998 LOWEST 27.23 OCT. 7, 1997



## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASINS

180133066503300. Local number, 132.

LOCATION.--Lat 18°01'33", long 66°50'33", Hydrologic Unit 21010004, 0.90 mi southeast of Yauco plaza, 3.46 mi west of Guayanilla plaza, and 1.32 mi north of Escuela Segunda Unidad Barinas. Owner: Pittsburg Plate Glass 4, Name: Yauco 2. AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled observation well, cased 20 in (0.51 m) 0-20.0 ft (0-6.10 m), 12 in (0.30 m) perforated pipe 20-84.0 ft (6.10-25.6 m), 10 in (0.25 m) perforated pipe 84-190 ft (25.6-57.9 m). Depth 190 ft (57.9 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 75.0 ft (22.9 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.35 ft (0.72 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998. [+ , above land-surface datum]. From July 27, 1998, monthly measurements only.

PERIOD OF RECORD.--July 1972 to current year.

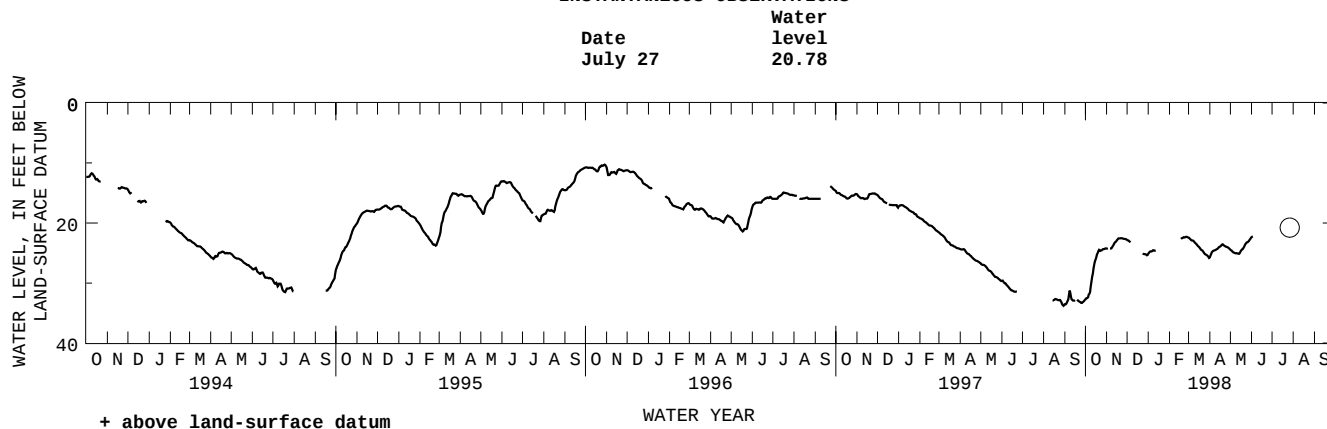
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.12 ft (0.04 m), above land-surface datum, July 19, 1979; lowest water level recorded, 36.91 ft (11.25 m), below land-surface datum, June 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|
| 1    | 32.78 | 24.26 | 22.81 | 25.18 | ---   | 22.42 | 25.88 | 24.39 | 22.43 | --- | --- | --- |
| 2    | 32.69 | 24.26 | 22.89 | 25.03 | ---   | 22.47 | 25.55 | 24.51 | 22.29 | --- | --- | --- |
| 3    | 32.48 | 24.25 | 22.86 | 24.90 | ---   | 22.58 | 25.30 | 24.57 | 22.25 | --- | --- | --- |
| 4    | 32.58 | 24.20 | 22.97 | 24.77 | ---   | 22.65 | 25.00 | 24.67 | 22.20 | --- | --- | --- |
| 5    | 32.40 | ---   | 23.11 | 24.73 | ---   | 22.83 | 24.81 | 24.81 | ---   | --- | --- | --- |
| 6    | 32.29 | 24.24 | 23.13 | 24.77 | ---   | 22.92 | 24.66 | 24.91 | ---   | --- | --- | --- |
| 7    | 31.56 | 24.26 | 23.26 | 24.67 | ---   | 22.92 | 24.65 | 24.93 | ---   | --- | --- | --- |
| 8    | 31.96 | 24.26 | ---   | 24.59 | ---   | 22.93 | 24.56 | 25.02 | ---   | --- | --- | --- |
| 9    | 31.05 | 24.20 | ---   | 24.53 | ---   | 23.03 | 24.51 | 25.04 | ---   | --- | --- | --- |
| 10   | 29.94 | 23.98 | ---   | 24.58 | ---   | 23.15 | 24.50 | 25.04 | ---   | --- | --- | --- |
| 11   | 29.30 | 23.76 | ---   | 24.63 | ---   | 23.30 | 24.41 | 25.00 | ---   | --- | --- | --- |
| 12   | 28.60 | 23.58 | ---   | 24.56 | ---   | 23.45 | 24.39 | 25.08 | ---   | --- | --- | --- |
| 13   | 28.09 | 23.34 | ---   | 24.58 | ---   | 23.50 | 24.25 | 25.10 | ---   | --- | --- | --- |
| 14   | 27.11 | 23.21 | ---   | ---   | ---   | 23.67 | 24.13 | 25.17 | ---   | --- | --- | --- |
| 15   | 26.63 | 23.14 | ---   | ---   | ---   | 23.85 | 23.99 | 25.10 | ---   | --- | --- | --- |
| 16   | 26.23 | 22.98 | ---   | ---   | ---   | 23.90 | 23.93 | 24.86 | ---   | --- | --- | --- |
| 17   | 25.95 | 22.84 | ---   | ---   | ---   | 24.03 | 23.92 | 24.62 | ---   | --- | --- | --- |
| 18   | 25.41 | 22.64 | ---   | ---   | 22.77 | 24.18 | 23.79 | 24.44 | ---   | --- | --- | --- |
| 19   | 25.11 | 22.56 | ---   | ---   | 22.57 | 24.35 | 23.64 | 24.39 | ---   | --- | --- | --- |
| 20   | 24.85 | 22.58 | ---   | ---   | 22.48 | 24.49 | 23.53 | 24.29 | ---   | --- | --- | --- |
| 21   | 24.54 | 22.55 | ---   | ---   | 22.49 | 24.52 | 23.60 | 24.12 | ---   | --- | --- | --- |
| 22   | 24.39 | 22.55 | ---   | ---   | 22.38 | 24.61 | 23.77 | 23.91 | ---   | --- | --- | --- |
| 23   | 24.74 | 22.49 | ---   | ---   | 22.36 | 24.81 | 23.79 | 23.62 | ---   | --- | --- | --- |
| 24   | 24.56 | 22.54 | 24.96 | ---   | 22.41 | 25.00 | 23.87 | 23.45 | ---   | --- | --- | --- |
| 25   | 24.59 | 22.61 | 25.13 | ---   | 22.31 | 25.14 | 23.96 | 23.26 | ---   | --- | --- | --- |
| 26   | 24.51 | 22.57 | 25.15 | ---   | 22.29 | 25.20 | 24.00 | 23.21 | ---   | --- | --- | --- |
| 27   | 24.35 | 22.67 | 25.20 | ---   | 22.31 | 25.27 | 24.00 | 23.16 | ---   | --- | --- | --- |
| 28   | 24.36 | 22.61 | 25.18 | ---   | 22.37 | 25.38 | 24.07 | 23.10 | ---   | --- | --- | --- |
| 29   | 24.37 | 22.71 | 25.24 | ---   | ---   | 25.44 | 24.18 | 22.90 | ---   | --- | --- | --- |
| 30   | 24.30 | 22.66 | 25.35 | ---   | ---   | 25.56 | 24.28 | 22.77 | ---   | --- | --- | --- |
| 31   | 24.22 | ---   | 25.42 | ---   | ---   | 25.77 | ---   | 22.60 | ---   | --- | --- | --- |
| MEAN | 27.61 | 23.26 | 24.18 | 24.73 | 22.43 | 23.98 | 24.30 | 24.26 | 22.29 | --- | --- | --- |

WTR YR 1998 MEAN 24.49 HIGHEST 22.19 JUNE 4, 1998 LOWEST 32.83 OCT. 1, 1997

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180132067033800. Local number, 143.

LOCATION.--Lat 18°01'32", long 67°03'38", Hydrologic Unit 21010003, 1.86 mi south of Lajas plaza, 1.27 mi southeast of the Estación Experimental Agrícola, and 1.30 mi northwest of the intersection of Hwy 116 with Hwy 305.

Owner: Pedro P. Vivoni, Name: Vivoni, Hacienda Amistad.

AQUIFER.--Limestone of unknown age.

WELL CHARACTERISTICS.--Drilled unused irrigation well, diameter 12 in (0.30 m). Depth 200 ft (60.98 m).

INSTRUMENTATION.--Electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 52.5 ft (16.0 m), above mean sea level, from topographic map.

Measuring point: Hole side of casing, 0.80 ft (0.24 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on January 14, 1998. From July 27, 1998, monthly measurements only.

PERIOD OF RECORD.--December 1981 to current year.

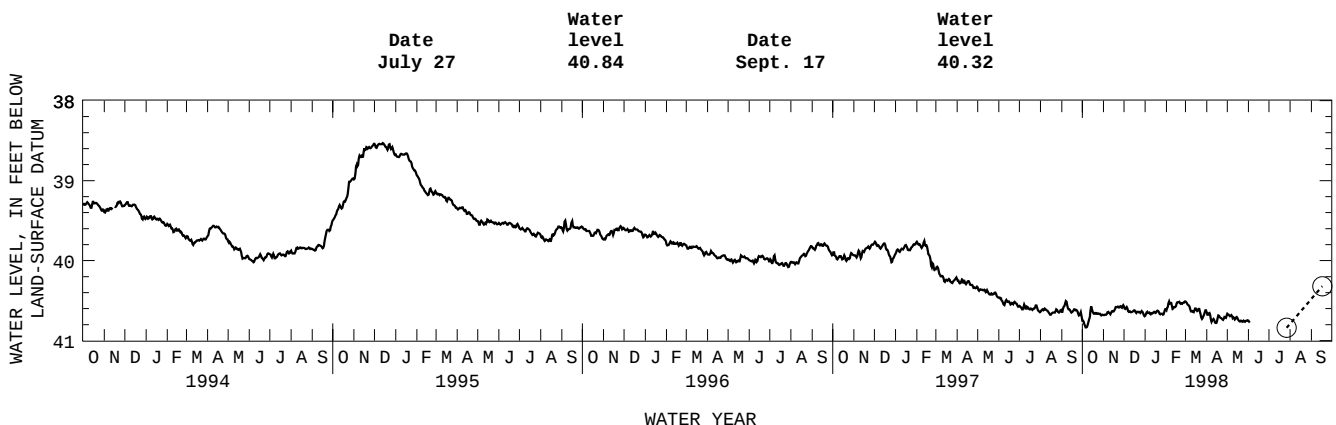
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.4 ft (11.4 m), below land, -surface datum, Nov. 20, 1985; lowest water level recorded, 40.85 ft (12.45 m) below land-surface datum, Oct. 8, 9, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|
| 1    | 40.75 | 40.68 | 40.56 | 40.70 | 40.62 | 40.50 | 40.63 | 40.67 | 40.74 | --- | --- | --- |
| 2    | 40.75 | 40.68 | 40.59 | 40.68 | 40.62 | 40.52 | 40.67 | 40.66 | 40.76 | --- | --- | --- |
| 3    | 40.75 | 40.68 | 40.61 | 40.66 | 40.57 | 40.52 | 40.68 | 40.68 | 40.77 | --- | --- | --- |
| 4    | 40.78 | 40.67 | 40.60 | 40.64 | 40.59 | 40.54 | 40.67 | 40.67 | 40.78 | --- | --- | --- |
| 5    | 40.80 | 40.68 | 40.58 | 40.64 | 40.48 | 40.56 | 40.65 | 40.70 | ---   | --- | --- | --- |
| 6    | 40.83 | 40.67 | 40.58 | 40.67 | 40.54 | 40.55 | 40.66 | 40.69 | ---   | --- | --- | --- |
| 7    | 40.84 | 40.66 | 40.62 | 40.64 | 40.53 | 40.57 | 40.70 | 40.69 | ---   | --- | --- | --- |
| 8    | 40.83 | 40.63 | 40.64 | 40.66 | 40.53 | 40.59 | 40.76 | 40.67 | ---   | --- | --- | --- |
| 9    | 40.83 | 40.65 | 40.64 | 40.67 | 40.53 | 40.63 | 40.77 | 40.72 | ---   | --- | --- | --- |
| 10   | 40.77 | 40.65 | 40.63 | 40.67 | 40.59 | 40.64 | 40.73 | 40.72 | ---   | --- | --- | --- |
| 11   | 40.76 | 40.67 | 40.64 | 40.65 | 40.62 | 40.63 | 40.74 | 40.70 | ---   | --- | --- | --- |
| 12   | 40.71 | 40.67 | 40.65 | 40.66 | 40.58 | 40.63 | 40.72 | 40.73 | ---   | --- | --- | --- |
| 13   | 40.70 | 40.64 | 40.64 | 40.66 | 40.58 | 40.65 | 40.77 | 40.74 | ---   | --- | --- | --- |
| 14   | 40.56 | 40.63 | 40.64 | 40.64 | 40.58 | 40.64 | 40.78 | 40.72 | ---   | --- | --- | --- |
| 15   | 40.58 | 40.63 | 40.63 | 40.64 | 40.58 | 40.60 | 40.78 | 40.70 | ---   | --- | --- | --- |
| 16   | 40.62 | 40.64 | 40.62 | 40.65 | 40.55 | 40.60 | 40.78 | 40.71 | ---   | --- | --- | --- |
| 17   | 40.65 | 40.63 | 40.62 | 40.66 | 40.52 | 40.60 | 40.74 | 40.73 | ---   | --- | --- | --- |
| 18   | 40.66 | 40.61 | 40.63 | 40.64 | 40.52 | 40.63 | 40.69 | 40.75 | ---   | --- | --- | --- |
| 19   | 40.67 | 40.59 | 40.66 | 40.62 | 40.52 | 40.63 | 40.68 | 40.75 | ---   | --- | --- | --- |
| 20   | 40.66 | 40.57 | 40.65 | 40.63 | 40.52 | 40.62 | 40.70 | 40.77 | ---   | --- | --- | --- |
| 21   | 40.65 | 40.59 | 40.63 | 40.63 | 40.51 | 40.59 | 40.71 | 40.75 | ---   | --- | --- | --- |
| 22   | 40.66 | 40.57 | 40.65 | 40.65 | 40.55 | 40.62 | 40.72 | 40.75 | ---   | --- | --- | --- |
| 23   | 40.67 | 40.58 | 40.64 | 40.68 | 40.53 | 40.65 | 40.72 | 40.76 | ---   | --- | --- | --- |
| 24   | 40.66 | 40.59 | 40.64 | 40.66 | 40.54 | 40.69 | 40.73 | 40.77 | ---   | --- | --- | --- |
| 25   | 40.66 | 40.58 | 40.65 | 40.67 | 40.54 | 40.73 | 40.74 | 40.75 | ---   | --- | --- | --- |
| 26   | 40.67 | 40.57 | 40.66 | 40.66 | 40.52 | 40.73 | 40.74 | 40.75 | ---   | --- | --- | --- |
| 27   | 40.66 | 40.57 | 40.63 | 40.67 | 40.53 | 40.71 | 40.71 | 40.77 | ---   | --- | --- | --- |
| 28   | 40.67 | 40.60 | 40.63 | 40.68 | 40.52 | 40.68 | 40.70 | 40.76 | ---   | --- | --- | --- |
| 29   | 40.69 | 40.58 | 40.65 | 40.66 | ---   | 40.67 | 40.72 | 40.75 | ---   | --- | --- | --- |
| 30   | 40.68 | 40.55 | 40.67 | 40.62 | ---   | 40.63 | 40.71 | 40.75 | ---   | --- | --- | --- |
| 31   | 40.67 | ---   | 40.69 | 40.60 | ---   | 40.61 | ---   | 40.75 | ---   | --- | --- | --- |
| MEAN | 40.70 | 40.62 | 40.63 | 40.65 | 40.55 | 40.62 | 40.72 | 40.73 | 40.76 | --- | --- | --- |

WTR YR 1998 MEAN 40.66 HIGHEST 40.42 FEB. 5, 1998 LOWEST 40.85 OCT. 8, 9, 1997

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATIONS



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180541067084000. Local number, CR-1.

LOCATION.--Lat 18°05'41", long 67°08'40", Hydrologic Unit 21010003, 0.35 mi east of Hwy 311, 0.30 mi north of Hwy 102 in Central Cabo Rojo, and 0.50 mi northwest of the intersection of Hwy 102 with hwy 103. Owner: PR Aqueduct and Sewer Authority. Name: Cabo Rojo 1.

**AQUIFER. - Coquí Limestone.**

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.30 m).

**INSTRUMENTATION.**--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 18.9 ft (12.0 m), above mean sea level, from topographic map.

Measuring point: Hole in the side of the 12.0 in (0.30 m) casing, 1.30 ft (0.40 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 25, 1996.

**PERIOD OF RECORD.** -- May 25, 1996 to September 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.37 ft (2.86 m), below land-surface datum, Sept. 27, 1998; lowest water level recorded, 28.41 ft (8.66 m) below land-surface datum, Apr. 8, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC          | JAN          | FEB           | MAR | APR | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|---------------|--------------|--------------|---------------|-----|-----|-------|-------|-------|-------|-------|
| 1           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.18 | 16.73 | 18.10 | 15.55 |
| 2           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.20 | 17.18 | 17.56 | 15.51 |
| 3           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.27 | 17.35 | 17.28 | 15.65 |
| 4           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.53 | 17.22 | 16.69 | 15.73 |
| 5           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.78 | 17.18 | 16.39 | 15.66 |
| 6           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.91 | 17.30 | 16.36 | 15.60 |
| 7           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.31 | 17.20 | 16.42 | 16.06 |
| 8           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.84 | 17.36 | 16.08 | 16.12 |
| 9           | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 14.87 | 16.75 | 15.62 | 16.55 |
| 10          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.00 | 17.16 | 15.68 | 15.81 |
| 11          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.21 | 17.36 | 15.06 | 15.90 |
| 12          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.37 | 17.39 | 14.77 | 15.86 |
| 13          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.50 | 17.69 | 14.67 | 15.88 |
| 14          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.20 | 17.54 | 14.58 | 16.04 |
| 15          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.39 | 17.53 | 14.35 | 16.17 |
| 16          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.47 | 16.93 | 14.46 | 16.27 |
| 17          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.54 | 17.36 | 14.67 | 16.53 |
| 18          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.66 | 17.22 | 14.51 | 16.71 |
| 19          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.85 | 17.36 | 14.50 | 16.83 |
| 20          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.77 | 17.40 | 14.84 | 16.86 |
| 21          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.89 | 17.29 | 14.99 | 17.10 |
| 22          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 15.97 | 17.26 | 15.27 | 16.65 |
| 23          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 16.02 | 17.53 | 15.55 | 16.76 |
| 24          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 16.18 | 17.64 | 15.45 | 16.78 |
| 25          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 16.41 | 17.89 | 15.05 | 16.98 |
| 26          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 16.61 | 17.98 | 14.82 | 17.17 |
| 27          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 16.73 | 18.12 | 15.17 | 17.08 |
| 28          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 16.94 | 17.99 | 15.13 | 17.23 |
| 29          | ---        | ---           | ---          | ---          | ---           | --- | --- | ---   | 16.84 | 17.77 | 15.17 | 16.95 |
| 30          | ---        | ---           | ---          | ---          | ---           | --- | --- | 13.87 | 16.67 | 17.74 | 15.34 | 16.75 |
| 31          | ---        | ---           | ---          | ---          | ---           | --- | --- | 13.95 | ---   | 18.01 | 15.54 | ---   |
| MEAN        | ---        | ---           | ---          | ---          | ---           | --- | --- | 13.91 | 15.50 | 17.43 | 15.49 | 16.36 |
| WTR YR 1996 | MEAN 16.16 | HIGHEST 13.76 | MAY 29, 1996 | LOWEST 18.29 | JULY 31, 1996 |     |     |       |       |       |       |       |

## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC           | JAN          | FEB           | MAR   | APR   | MAY   | JUN   | JUL | AUG | SEP   |
|-------------|------------|---------------|---------------|--------------|---------------|-------|-------|-------|-------|-----|-----|-------|
| 1           | 16.69      | 15.13         | 12.12         | 18.79        | 17.72         | 18.50 | 20.10 | 21.93 | 24.75 | --- | --- | ---   |
| 2           | 16.69      | 15.76         | 12.26         | 18.87        | 17.80         | 18.55 | 20.11 | 22.05 | 24.80 | --- | --- | ---   |
| 3           | 16.51      | 15.55         | 12.67         | 19.01        | 17.79         | 18.72 | 20.37 | 22.21 | 24.89 | --- | --- | ---   |
| 4           | 16.34      | 15.57         | 13.14         | 18.90        | 17.56         | 18.97 | 20.31 | 22.19 | 24.83 | --- | --- | ---   |
| 5           | 15.98      | 15.83         | 13.38         | 18.93        | 17.53         | 19.15 | 20.38 | 22.34 | 24.76 | --- | --- | ---   |
| 6           | 15.38      | 15.71         | 15.08         | 19.00        | 17.27         | 19.21 | 20.32 | 22.49 | 24.75 | --- | --- | ---   |
| 7           | 15.10      | 15.66         | 15.24         | 19.03        | 16.98         | 19.27 | 20.31 | 22.57 | 25.15 | --- | --- | ---   |
| 8           | 15.03      | 15.78         | 15.50         | 19.29        | 17.05         | 19.21 | 20.35 | 22.49 | 25.38 | --- | --- | ---   |
| 9           | 14.97      | 15.74         | 15.67         | 19.09        | 16.95         | 19.22 | 20.35 | 22.61 | 25.24 | --- | --- | ---   |
| 10          | 14.85      | 15.23         | 15.86         | 18.53        | 16.95         | 19.26 | 20.52 | 22.48 | 25.40 | --- | --- | ---   |
| 11          | 14.86      | 15.07         | 16.08         | 18.05        | 16.86         | 19.41 | 20.43 | 22.53 | 25.46 | --- | --- | ---   |
| 12          | 14.88      | 14.98         | 16.20         | 17.67        | 16.77         | 19.39 | 20.54 | 22.53 | 25.56 | --- | --- | ---   |
| 13          | 14.72      | 14.41         | 16.25         | 17.50        | 16.82         | 19.51 | 20.68 | 23.36 | 25.69 | --- | --- | ---   |
| 14          | 14.66      | 14.34         | 16.37         | 17.58        | 17.03         | 19.60 | 20.69 | 23.53 | 26.02 | --- | --- | ---   |
| 15          | 14.68      | 13.96         | 16.71         | 17.83        | 17.13         | 19.75 | 21.00 | 23.73 | 26.04 | --- | --- | ---   |
| 16          | 14.66      | 13.52         | 17.02         | 17.73        | 17.28         | 19.78 | 20.95 | 23.98 | 26.14 | --- | --- | ---   |
| 17          | 14.68      | 13.32         | 16.95         | 17.74        | 17.55         | 19.78 | 20.98 | 24.11 | ---   | --- | --- | ---   |
| 18          | 14.96      | 13.15         | 17.09         | 17.83        | 17.80         | 19.86 | 20.99 | 24.11 | ---   | --- | --- | ---   |
| 19          | 15.01      | 12.81         | 17.25         | 17.88        | 17.83         | 19.86 | 20.88 | 24.15 | ---   | --- | --- | ---   |
| 20          | 14.95      | 12.42         | 17.24         | 17.83        | 17.88         | 19.95 | 20.89 | 24.15 | ---   | --- | --- | ---   |
| 21          | 14.70      | 12.46         | 17.53         | 18.02        | 18.20         | 20.17 | 21.11 | 24.27 | ---   | --- | --- | ---   |
| 22          | 14.75      | 12.32         | 17.66         | 17.81        | 18.19         | 20.24 | 21.04 | 24.27 | ---   | --- | --- | ---   |
| 23          | 15.20      | 12.05         | 17.90         | 17.63        | 18.22         | 20.24 | 21.25 | 24.27 | ---   | --- | --- | ---   |
| 24          | 15.42      | 11.78         | 18.19         | 17.58        | 18.32         | 20.28 | 21.29 | 24.34 | ---   | --- | --- | 25.97 |
| 25          | 15.38      | 11.77         | 18.44         | 17.48        | 18.45         | 20.38 | 21.28 | 24.31 | ---   | --- | --- | 26.05 |
| 26          | 15.26      | 12.06         | 18.51         | 17.43        | 18.44         | 20.54 | 21.30 | 24.43 | ---   | --- | --- | 25.94 |
| 27          | 15.02      | 11.93         | 18.65         | 17.44        | 18.43         | 20.58 | 21.44 | 24.54 | ---   | --- | --- | 25.89 |
| 28          | 14.94      | 12.00         | 18.63         | 17.42        | 18.42         | 20.60 | 21.56 | 24.63 | ---   | --- | --- | 25.93 |
| 29          | 15.13      | 11.86         | 18.58         | 17.19        | ---           | 20.59 | 21.80 | 24.69 | ---   | --- | --- | 25.96 |
| 30          | 15.45      | 11.87         | 18.66         | 17.43        | ---           | 20.45 | 21.85 | 24.77 | ---   | --- | --- | 25.44 |
| 31          | 15.29      | ---           | 18.60         | 17.69        | ---           | 20.37 | ---   | 24.89 | ---   | --- | --- | ---   |
| MEAN        | 15.23      | 13.80         | 16.43         | 18.07        | 17.61         | 19.72 | 20.84 | 23.51 | 25.30 | --- | --- | 25.88 |
| WTR YR 1997 | MEAN 18.80 | HIGHEST 11.63 | NOV. 25, 1996 | LOWEST 26.39 | JUNE 16, 1997 |       |       |       |       |     |     |       |

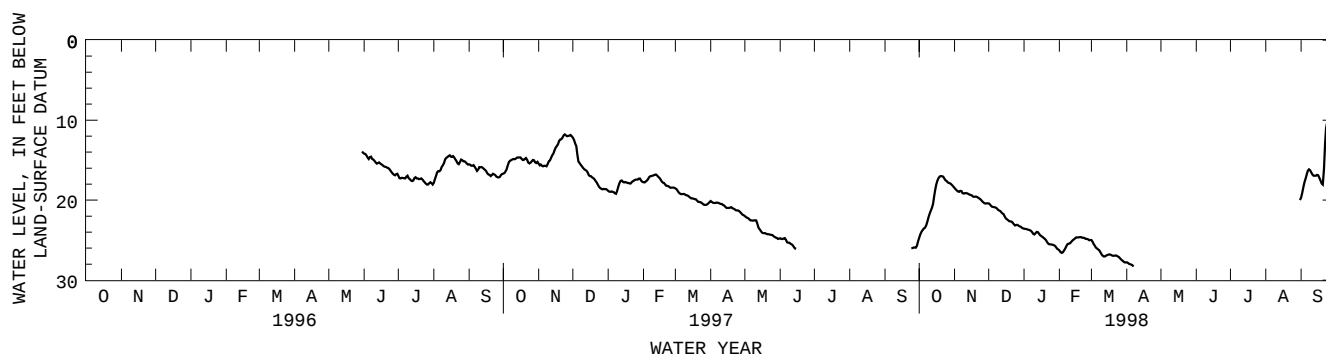
## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY | JUN | JUL | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-------|-------|
| 1    | 24.87 | 18.39 | 20.35 | 23.56 | 26.16 | 24.94 | 27.75 | --- | --- | --- | ---   | 19.95 |
| 2    | 24.50 | 18.56 | 20.46 | 23.58 | 26.42 | 25.01 | 27.78 | --- | --- | --- | ---   | 19.40 |
| 3    | 24.03 | 18.75 | 20.60 | 23.59 | 26.57 | 25.37 | 27.90 | --- | --- | --- | ---   | 18.74 |
| 4    | 23.89 | 18.85 | 20.80 | 23.63 | 26.62 | 25.54 | 28.00 | --- | --- | --- | ---   | 17.98 |
| 5    | 23.59 | 18.96 | 20.86 | 23.69 | 26.43 | 25.81 | 28.04 | --- | --- | --- | ---   | 17.48 |
| 6    | 23.50 | 18.97 | 20.86 | 23.75 | 26.16 | 26.01 | 28.05 | --- | --- | --- | ---   | 17.01 |
| 7    | 23.38 | 18.72 | 20.92 | 23.77 | 25.98 | 26.08 | 28.19 | --- | --- | --- | ---   | 16.45 |
| 8    | 23.00 | 19.03 | 20.96 | 23.91 | 25.59 | 26.22 | 28.41 | --- | --- | --- | ---   | 16.21 |
| 9    | 22.47 | 19.22 | 21.09 | 24.09 | 25.43 | 26.32 | ---   | --- | --- | --- | ---   | 16.11 |
| 10   | 21.90 | 19.14 | 21.28 | 24.33 | 25.47 | 26.70 | ---   | --- | --- | --- | ---   | 16.43 |
| 11   | 21.54 | 19.14 | 21.31 | 24.23 | 25.34 | 26.88 | ---   | --- | --- | --- | ---   | 16.66 |
| 12   | 21.14 | 19.11 | 21.42 | 24.03 | 25.21 | 27.04 | ---   | --- | --- | --- | ---   | 16.93 |
| 13   | 20.81 | 19.20 | 21.63 | 23.92 | 25.02 | 27.04 | ---   | --- | --- | --- | ---   | 16.96 |
| 14   | 20.16 | 19.23 | 21.71 | 24.10 | 24.89 | 26.99 | ---   | --- | --- | --- | ---   | 16.92 |
| 15   | 19.16 | 19.35 | 21.82 | 24.30 | 24.82 | 26.85 | ---   | --- | --- | --- | ---   | 16.98 |
| 16   | 18.33 | 19.33 | 22.23 | 24.42 | 24.64 | 26.84 | ---   | --- | --- | --- | ---   | 16.73 |
| 17   | 17.74 | 19.45 | 22.32 | 24.54 | 24.65 | 26.78 | ---   | --- | --- | --- | ---   | 17.06 |
| 18   | 17.36 | 19.61 | 22.48 | 24.62 | 24.69 | 26.78 | ---   | --- | --- | --- | ---   | 17.37 |
| 19   | 17.10 | 19.58 | 22.56 | 24.77 | 24.61 | 26.88 | ---   | --- | --- | --- | ---   | 17.70 |
| 20   | 16.97 | 19.55 | 22.69 | 24.86 | 24.62 | 26.92 | ---   | --- | --- | --- | ---   | 18.09 |
| 21   | 17.00 | 19.59 | 22.61 | 25.07 | 24.64 | 26.97 | ---   | --- | --- | --- | ---   | 18.00 |
| 22   | 17.03 | 19.67 | 22.76 | 25.35 | 24.73 | 26.94 | ---   | --- | --- | --- | ---   | 14.31 |
| 23   | 17.08 | 19.79 | 22.89 | 25.46 | 24.68 | 26.90 | ---   | --- | --- | --- | ---   | 11.45 |
| 24   | 17.52 | 19.86 | 23.14 | 25.56 | 24.80 | 26.97 | ---   | --- | --- | --- | ---   | 10.54 |
| 25   | 17.51 | 20.04 | 23.16 | 25.53 | 24.87 | 27.07 | ---   | --- | --- | --- | ---   | 9.98  |
| 26   | 17.73 | 20.18 | 23.08 | 25.55 | 24.81 | 27.10 | ---   | --- | --- | --- | ---   | 9.58  |
| 27   | 17.82 | 20.31 | 23.11 | 25.60 | 24.95 | 27.37 | ---   | --- | --- | --- | ---   | 9.50  |
| 28   | 17.87 | 20.46 | 23.27 | 25.64 | 25.05 | 27.46 | ---   | --- | --- | --- | ---   | 11.23 |
| 29   | 17.96 | 20.37 | 23.27 | 25.78 | ---   | 27.60 | ---   | --- | --- | --- | ---   | 12.56 |
| 30   | 18.06 | 20.44 | 23.39 | 26.03 | ---   | 27.68 | ---   | --- | --- | --- | ---   | 13.55 |
| 31   | 18.23 | ---   | 23.50 | 26.14 | ---   | 27.85 | ---   | --- | --- | --- | 20.02 | ---   |
| MEAN | 19.98 | 19.43 | 22.02 | 24.63 | 25.28 | 26.67 | 28.01 | --- | --- | --- | 20.02 | 15.60 |

WTR YR 1998 MEAN 22.15 HIGHEST 9.37 SEPT. 27, 1998 LOWEST 28.41 APR. 8, 1998



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180628067084300. Local number, CR-TW9A.

LOCATION.--Lat 18°06'28", long 67°08'43", Hydrologic Unit 21010003, 1.29 mi north of Cabo Rojo plaza, 1.54 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.23 mi southeast of Escuela Sabana Alta. Owner: US Geological Survey, WRD, Name: CR-TW-9A.

AQUIFER.--Sandy and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-24.0 ft (0-7.32 m), screened 19-24 ft (5.79-7.32 m). Depth 24.0 ft (7.32 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 33.2 ft (10.1 m), above mean sea level, from topographic map.

Measuring point: Hole on shelter floor, 4.51 ft (1.37 m), above land-surface datum.

REMARKS.--Recording observation well. Drilled on Mar. 25, 1992. Automatic Digital Recorder (ADR), re-installed on May 29, 1996.

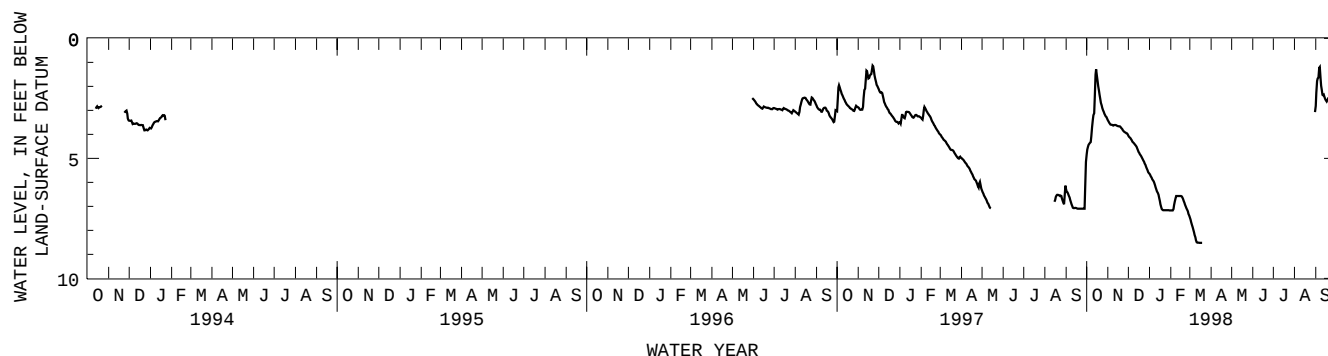
PERIOD OF RECORD.--July 1992 to January 1994, discontinued, May 27, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.24 ft (+0.07 m), below land-surface datum, Oct. 12, 1992; lowest water level recorded, 8.53 ft (2.60 m), below land-surface datum, Mar. 21, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR | MAY | JUN | JUL | AUG  | SEP  |
|------|------|------|------|------|------|------|-----|-----|-----|-----|------|------|
| 1    | 4.95 | 3.37 | 4.02 | 5.62 | 7.17 | 7.41 | --- | --- | --- | --- | ---  | 3.07 |
| 2    | 4.71 | 3.44 | 4.09 | 5.66 | 7.17 | 7.51 | --- | --- | --- | --- | ---  | 2.56 |
| 3    | 4.55 | 3.49 | 4.11 | 5.73 | 7.17 | 7.60 | --- | --- | --- | --- | ---  | 1.96 |
| 4    | 4.46 | 3.53 | 4.14 | 5.77 | 7.17 | 7.71 | --- | --- | --- | --- | ---  | 1.60 |
| 5    | 4.40 | 3.59 | 4.18 | 5.83 | 7.16 | 7.83 | --- | --- | --- | --- | ---  | 1.74 |
| 6    | 4.37 | 3.60 | 4.22 | 5.89 | 7.06 | 7.91 | --- | --- | --- | --- | ---  | 1.53 |
| 7    | 4.34 | 3.60 | 4.27 | 5.94 | 6.84 | 8.01 | --- | --- | --- | --- | ---  | .92  |
| 8    | 4.30 | 3.60 | 4.33 | 5.98 | 6.74 | 8.15 | --- | --- | --- | --- | ---  | 1.47 |
| 9    | 3.87 | 3.64 | 4.34 | 6.07 | 6.57 | 8.24 | --- | --- | --- | --- | ---  | 1.86 |
| 10   | 3.53 | 3.63 | 4.38 | 6.17 | 6.57 | 8.34 | --- | --- | --- | --- | ---  | 2.08 |
| 11   | 3.24 | 3.60 | 4.42 | 6.25 | 6.57 | 8.48 | --- | --- | --- | --- | ---  | 2.27 |
| 12   | 3.16 | 3.61 | 4.45 | 6.35 | 6.57 | 8.51 | --- | --- | --- | --- | ---  | 2.43 |
| 13   | 3.08 | 3.61 | 4.49 | 6.41 | 6.57 | 8.51 | --- | --- | --- | --- | ---  | 2.32 |
| 14   | 1.85 | 3.62 | 4.55 | 6.46 | 6.57 | 8.51 | --- | --- | --- | --- | ---  | 2.39 |
| 15   | 1.18 | 3.65 | 4.62 | 6.56 | 6.57 | 8.52 | --- | --- | --- | --- | ---  | 2.52 |
| 16   | 1.39 | 3.65 | 4.71 | 6.70 | 6.57 | 8.52 | --- | --- | --- | --- | ---  | 2.56 |
| 17   | 1.71 | 3.66 | 4.75 | 6.85 | 6.57 | 8.52 | --- | --- | --- | --- | ---  | 2.60 |
| 18   | 1.89 | 3.66 | 4.81 | 6.97 | 6.59 | 8.52 | --- | --- | --- | --- | ---  | 2.67 |
| 19   | 2.09 | 3.66 | 4.86 | 7.09 | 6.65 | 8.52 | --- | --- | --- | --- | ---  | 2.50 |
| 20   | 2.27 | 3.69 | 4.88 | 7.13 | 6.74 | 8.52 | --- | --- | --- | --- | ---  | 2.52 |
| 21   | 2.44 | 3.73 | 4.94 | 7.16 | 6.80 | ---  | --- | --- | --- | --- | ---  | 2.54 |
| 22   | 2.63 | 3.76 | 5.02 | 7.16 | 6.90 | ---  | --- | --- | --- | --- | ---  | ---  |
| 23   | 2.74 | 3.80 | 5.06 | 7.16 | 6.96 | ---  | --- | --- | --- | --- | ---  | ---  |
| 24   | 2.84 | 3.85 | 5.11 | 7.16 | 7.05 | ---  | --- | --- | --- | --- | ---  | ---  |
| 25   | 2.95 | 3.87 | 5.18 | 7.16 | 7.13 | ---  | --- | --- | --- | --- | ---  | ---  |
| 26   | 3.03 | 3.91 | 5.25 | 7.16 | 7.14 | ---  | --- | --- | --- | --- | ---  | ---  |
| 27   | 3.10 | 3.91 | 5.30 | 7.16 | 7.27 | ---  | --- | --- | --- | --- | ---  | ---  |
| 28   | 3.17 | 3.95 | 5.39 | 7.16 | 7.36 | ---  | --- | --- | --- | --- | ---  | ---  |
| 29   | 3.23 | 3.96 | 5.46 | 7.16 | ---  | ---  | --- | --- | --- | --- | ---  | ---  |
| 30   | 3.26 | 3.96 | 5.53 | 7.16 | ---  | ---  | --- | --- | --- | --- | ---  | ---  |
| 31   | 3.30 | ---  | 5.61 | 7.17 | ---  | ---  | --- | --- | --- | --- | 3.07 | ---  |
| MEAN | 3.16 | 3.69 | 4.72 | 6.59 | 6.86 | 8.19 | --- | --- | --- | --- | 3.07 | 2.20 |

WTR YR 1998 MEAN 5.00 HIGHEST 0.87 SEPT. 7, 1998 LOWEST 8.53 MAR. 21, 1998



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180628067084301. Local number, CR-TW9B.

LOCATION.--Lat 18°06'28", long 67°08'43", Hydrologic Unit 21010003, 1.29 mi north of Cabo Rojo plaza, 1.54 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.23 mi southeast of Escuela Sabana Alta. Owner: US Geological Survey, WRD, Name: CR-TW-9B.

AQUIFER.--Cotuí Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-109 ft (0-33.2m), screened 104-109 ft (31.7-33.2 m). Depth 109 ft (33.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 33.2 ft (10.1 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 4.73 ft (1.44 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 29, 1996.

PERIOD OF RECORD.--May 29, 1996 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.18 ft (1.88 m), below land-surface datum, Nov. 23, 1996; lowest water level recorded, 23.38 ft (7.13 m), below land-surface datum, May 18, 19, 20, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY  | JUN  | JUL | AUG  | SEP   |
|------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|------|-------|
| 1    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.21 | --- | ---  | 9.42  |
| 2    | --- | --- | --- | --- | --- | --- | --- | ---  | 8.42 | --- | ---  | 9.59  |
| 3    | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | ---  | 9.79  |
| 4    | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | ---  | 9.80  |
| 5    | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | ---  | 9.76  |
| 6    | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | ---  | 9.95  |
| 7    | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | ---  | 9.96  |
| 8    | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.86 | 10.22 |
| 9    | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.47 | 10.45 |
| 10   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.20 | 10.04 |
| 11   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | ---  | 9.56  |
| 12   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | ---  | 9.45  |
| 13   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 8.34 | 9.27  |
| 14   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 8.10 | 9.38  |
| 15   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 7.95 | 9.59  |
| 16   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 7.89 | 9.81  |
| 17   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 7.92 | 10.01 |
| 18   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 8.13 | 10.13 |
| 19   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 8.31 | 10.23 |
| 20   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 8.50 | 10.33 |
| 21   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 8.68 | 10.45 |
| 22   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 8.90 | 10.58 |
| 23   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.06 | 10.51 |
| 24   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.16 | 10.45 |
| 25   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.01 | 10.62 |
| 26   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.07 | 10.84 |
| 27   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.11 | 10.81 |
| 28   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.21 | 10.87 |
| 29   | --- | --- | --- | --- | --- | --- | --- | ---  | ---  | --- | 9.21 | 10.70 |
| 30   | --- | --- | --- | --- | --- | --- | --- | 7.91 | ---  | --- | 9.25 | 10.61 |
| 31   | --- | --- | --- | --- | --- | --- | --- | 8.02 | ---  | --- | 9.32 | ---   |
| MEAN | --- | --- | --- | --- | --- | --- | --- | 7.97 | 8.32 | --- | 8.80 | 10.11 |

WTR YR 1996 MEAN 9.45 HOGHEST 7.92 MAY 29, 1996 LOWEST 10.88 SEPT. 28, 1996

GROUND-WATER LEVELS

RIO GUANAJIBO BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

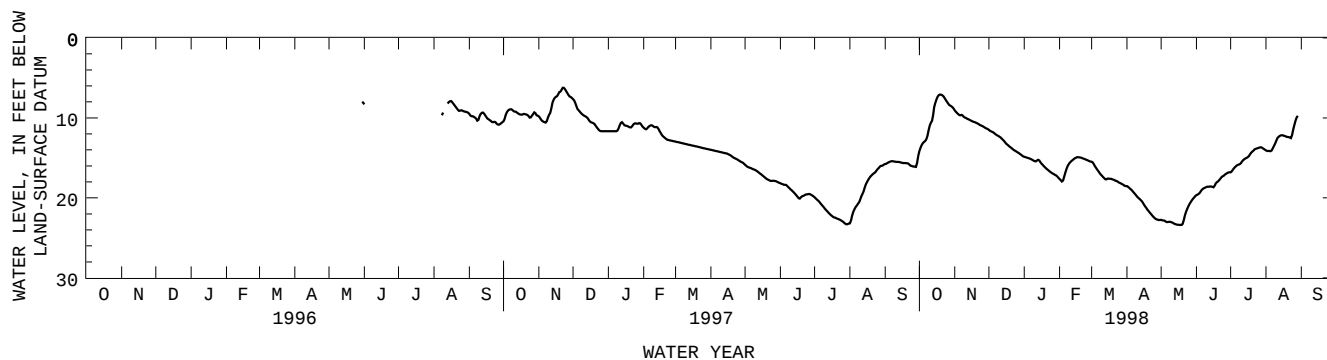
| DAY         | OCT        | NOV   | DEC                        | JAN   | FEB   | MAR   | APR                            | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|-------|----------------------------|-------|-------|-------|--------------------------------|-------|-------|-------|-------|-------|
| 1           | 10.47      | 9.71  | 7.60                       | 11.67 | 11.17 | 12.95 | 13.98                          | 15.78 | 18.14 | 19.85 | 23.19 | 15.79 |
| 2           | 10.37      | 9.90  | 7.71                       | 11.67 | 11.28 | 12.98 | 14.01                          | 15.93 | 18.19 | 19.99 | 23.16 | 15.74 |
| 3           | 9.85       | 10.12 | 7.96                       | 11.67 | 11.43 | 13.02 | 14.04                          | 16.05 | 18.27 | 20.14 | 22.46 | 15.68 |
| 4           | 9.45       | 10.30 | 8.34                       | 11.67 | 11.42 | 13.05 | 14.08                          | 16.15 | 18.33 | 20.28 | 21.89 | 15.59 |
| 5           | 9.18       | 10.42 | 8.79                       | 11.67 | 11.23 | 13.08 | 14.11                          | 16.21 | 18.41 | 20.39 | 21.55 | 15.50 |
| 6           | 9.01       | 10.49 | 8.99                       | 11.67 | 11.10 | 13.12 | 14.14                          | 16.24 | 18.29 | 20.57 | 21.27 | 15.46 |
| 7           | 8.93       | 10.56 | 9.12                       | 11.67 | 10.97 | 13.15 | 14.18                          | 16.32 | 18.46 | 20.77 | 21.04 | 15.41 |
| 8           | 8.93       | 10.60 | 9.30                       | 11.66 | 10.91 | 13.18 | 14.21                          | 16.38 | 18.60 | 20.90 | 20.85 | 15.42 |
| 9           | 8.95       | 10.21 | 9.47                       | 11.66 | 10.93 | 13.22 | 14.24                          | 16.45 | 18.75 | 21.08 | 20.61 | 15.46 |
| 10          | 9.10       | 9.77  | 9.60                       | 11.54 | 11.07 | 13.25 | 14.27                          | 16.47 | 18.87 | 21.28 | 20.46 | 15.45 |
| 11          | 9.25       | 9.49  | 9.70                       | 11.11 | 11.15 | 13.28 | 14.31                          | 16.56 | 18.99 | 21.46 | 19.89 | 15.50 |
| 12          | 9.19       | 9.30  | 9.77                       | 10.71 | 11.15 | 13.32 | 14.34                          | 16.66 | 19.12 | 21.59 | 19.64 | 15.52 |
| 13          | 9.31       | 8.33  | 9.87                       | 10.54 | 11.13 | 13.35 | 14.37                          | 16.77 | 19.26 | 21.72 | 19.44 | 15.49 |
| 14          | 9.41       | 7.86  | 9.94                       | 10.55 | 11.25 | 13.38 | 14.41                          | 16.89 | 19.43 | 21.89 | 18.96 | 15.54 |
| 15          | 9.52       | 7.58  | 10.17                      | 10.84 | 11.51 | 13.41 | 14.44                          | 17.00 | 19.59 | 22.03 | 18.47 | 15.54 |
| 16          | 9.56       | 7.41  | 10.42                      | 10.96 | 11.80 | 13.45 | 14.47                          | 17.09 | 19.76 | 22.16 | 18.16 | 15.61 |
| 17          | 9.61       | 7.32  | 10.53                      | 10.98 | 12.03 | 13.48 | 14.55                          | 17.22 | 19.94 | 22.29 | 17.89 | 15.64 |
| 18          | 9.60       | 7.23  | 10.58                      | 11.00 | 12.25 | 13.51 | 14.63                          | 17.34 | 20.16 | 22.42 | 17.64 | 15.64 |
| 19          | 9.51       | 6.84  | 10.64                      | 11.08 | 12.38 | 13.55 | 14.71                          | 17.45 | 20.03 | 22.44 | 17.42 | 15.65 |
| 20          | 9.51       | 6.72  | 10.70                      | 11.17 | 12.50 | 13.58 | 14.82                          | 17.58 | 19.81 | 22.50 | 17.25 | 15.66 |
| 21          | 9.55       | 6.70  | 10.87                      | 11.20 | 12.58 | 13.61 | 14.96                          | 17.68 | 19.77 | 22.57 | 17.10 | 15.69 |
| 22          | 9.58       | 6.30  | 11.10                      | 11.15 | 12.72 | 13.65 | 15.01                          | 17.73 | 19.73 | 22.63 | 16.96 | 15.72 |
| 23          | 9.65       | 6.19  | 11.29                      | 10.91 | 12.75 | 13.68 | 15.09                          | 17.82 | 19.61 | 22.70 | 16.87 | 15.93 |
| 24          | 9.88       | 6.30  | 11.47                      | 10.73 | 12.79 | 13.71 | 15.16                          | 17.88 | 19.57 | 22.77 | 16.76 | 15.98 |
| 25          | 10.04      | 6.53  | 11.61                      | 10.67 | 12.82 | 13.75 | 15.24                          | 17.86 | 19.54 | 22.84 | 16.50 | 16.05 |
| 26          | 9.82       | 6.77  | 11.67                      | 10.71 | 12.85 | 13.78 | 15.31                          | 17.85 | 19.52 | 22.93 | 16.38 | 16.07 |
| 27          | 9.63       | 7.01  | 11.67                      | 10.75 | 12.89 | 13.81 | 15.42                          | 17.88 | 19.52 | 23.05 | 16.20 | 16.08 |
| 28          | 9.41       | 7.26  | 11.67                      | 10.70 | 12.92 | 13.84 | 15.48                          | 17.88 | 19.55 | 23.17 | 16.05 | 16.14 |
| 29          | 9.23       | 7.36  | 11.67                      | 10.60 | ---   | 13.88 | 15.56                          | 17.93 | 19.65 | 23.29 | 15.98 | 16.12 |
| 30          | 9.60       | 7.41  | 11.67                      | 10.75 | ---   | 13.91 | 15.66                          | 18.02 | 19.75 | 23.31 | 16.01 | 15.10 |
| 31          | 9.72       | ---   | 11.67                      | 10.99 | ---   | 13.94 | ---                            | 18.08 | ---   | 23.24 | 15.84 | ---   |
| MEAN        | 9.51       | 8.27  | 10.18                      | 11.12 | 11.82 | 13.45 | 14.64                          | 17.07 | 19.22 | 21.88 | 18.77 | 15.67 |
| WTR YR 1997 | MEAN 14.32 |       | HIGHEST 6.18 NOV. 13, 1996 |       |       |       | LOWEST 23.31 JULY 29, 30, 1997 |       |       |       |       |       |

## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV          | DEC               | JAN          | FEB                 | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP |
|-------------|------------|--------------|-------------------|--------------|---------------------|-------|-------|-------|-------|-------|-------|-----|
| 1           | 14.39      | 8.96         | 11.43             | 14.85        | 17.57               | 15.46 | 18.52 | 22.72 | 19.71 | 16.79 | 14.02 | --- |
| 2           | 13.89      | 9.16         | 11.57             | 14.88        | 17.72               | 15.50 | 18.55 | 22.76 | 19.62 | 16.79 | 14.13 | --- |
| 3           | 13.55      | 9.33         | 11.67             | 14.92        | 17.87               | 15.64 | 18.69 | 22.82 | 19.56 | 16.59 | 14.13 | --- |
| 4           | 13.23      | 9.46         | 11.72             | 14.97        | 18.04               | 15.91 | 18.80 | 22.82 | 19.42 | 16.34 | 14.13 | --- |
| 5           | 13.06      | 9.61         | 11.79             | 15.03        | 17.63               | 16.15 | 18.92 | 22.89 | 19.29 | 16.19 | 14.14 | --- |
| 6           | 12.94      | 9.68         | 11.88             | 15.08        | 17.09               | 16.35 | 19.07 | 23.01 | 19.02 | 16.07 | 14.17 | --- |
| 7           | 12.82      | 9.65         | 12.02             | 15.13        | 16.59               | 16.56 | 19.25 | 23.01 | 18.89 | 15.94 | 13.94 | --- |
| 8           | 12.54      | 9.61         | 12.13             | 15.19        | 16.20               | 16.77 | 19.41 | 23.01 | 18.79 | 15.87 | 13.70 | --- |
| 9           | 11.96      | 9.85         | 12.20             | 15.29        | 15.87               | 16.98 | 19.56 | 22.98 | 18.74 | 15.83 | 13.38 | --- |
| 10          | 11.12      | 9.91         | 12.30             | 15.39        | 15.65               | 17.13 | 19.74 | 23.02 | 18.65 | 15.77 | 13.14 | --- |
| 11          | 10.76      | 10.00        | 12.38             | 15.45        | 15.51               | 17.29 | 19.94 | 23.06 | 18.60 | 15.55 | 12.66 | --- |
| 12          | 10.44      | 10.08        | 12.48             | 15.42        | 15.37               | 17.45 | 20.05 | 23.14 | 18.59 | 15.36 | 12.45 | --- |
| 13          | 10.23      | 10.16        | 12.65             | 15.26        | 15.25               | 17.59 | 20.19 | 23.22 | 18.59 | 15.21 | 12.30 | --- |
| 14          | 8.93       | 10.21        | 12.79             | 15.22        | 15.13               | 17.72 | 20.32 | 23.29 | 18.57 | 15.11 | 12.21 | --- |
| 15          | 8.36       | 10.29        | 12.92             | 15.42        | 15.03               | 17.64 | 20.49 | 23.34 | 18.59 | 15.04 | 12.18 | --- |
| 16          | 7.87       | 10.35        | 13.12             | 15.60        | 14.97               | 17.55 | 20.72 | 23.35 | 18.66 | 14.94 | 12.18 | --- |
| 17          | 7.48       | 10.42        | 13.28             | 15.77        | 14.91               | 17.61 | 20.99 | 23.35 | 18.69 | 14.89 | 12.22 | --- |
| 18          | 7.20       | 10.49        | 13.38             | 15.92        | 14.91               | 17.61 | 21.16 | 23.38 | 18.24 | 14.68 | 12.27 | --- |
| 19          | 7.09       | 10.54        | 13.51             | 16.08        | 14.93               | 17.64 | 21.36 | 23.38 | 18.09 | 14.41 | 12.33 | --- |
| 20          | 7.07       | 10.60        | 13.64             | 16.22        | 14.97               | 17.68 | 21.54 | 23.38 | 17.98 | 14.28 | 12.41 | --- |
| 21          | 7.13       | 10.66        | 13.73             | 16.37        | 15.00               | 17.72 | 21.72 | 23.15 | 17.87 | 14.13 | 12.38 | --- |
| 22          | 7.23       | 10.73        | 13.85             | 16.48        | 15.09               | 17.81 | 21.90 | 22.42 | 17.72 | 14.03 | 12.44 | --- |
| 23          | 7.37       | 10.83        | 13.98             | 16.60        | 15.12               | 17.88 | 22.07 | 21.91 | 17.51 | 13.88 | 12.48 | --- |
| 24          | 7.64       | 10.94        | 14.08             | 16.73        | 15.18               | 17.90 | 22.24 | 21.52 | 17.33 | 13.84 | 12.57 | --- |
| 25          | 7.87       | 10.97        | 14.16             | 16.83        | 15.24               | 18.04 | 22.39 | 21.21 | 17.29 | 13.81 | 11.73 | --- |
| 26          | 8.06       | 11.06        | 14.26             | 16.92        | 15.29               | 18.11 | 22.55 | 20.87 | 17.17 | 13.76 | 11.15 | --- |
| 27          | 8.29       | 11.14        | 14.33             | 17.00        | 15.36               | 18.17 | 22.66 | 20.63 | 17.03 | 13.70 | 10.61 | --- |
| 28          | 8.47       | 11.24        | 14.44             | 17.10        | 15.44               | 18.24 | 22.70 | 20.40 | 16.93 | 13.66 | 10.07 | --- |
| 29          | 8.49       | 11.31        | 14.54             | 17.16        | ---                 | 18.33 | 22.77 | 20.20 | 16.86 | 13.72 | 9.81  | --- |
| 30          | 8.61       | 11.35        | 14.65             | 17.28        | ---                 | 18.43 | 22.78 | 20.02 | 16.80 | 13.85 | 9.69  | --- |
| 31          | 8.71       | ---          | 14.77             | 17.41        | ---                 | 18.54 | ---   | 19.86 | ---   | 13.91 | ---   | --- |
| MEAN        | 9.77       | 10.29        | 13.09             | 15.90        | 15.82               | 17.34 | 20.70 | 22.39 | 18.29 | 14.97 | 12.50 | --- |
| WTR YR 1998 | MEAN 15.55 | HIGHEST 7.07 | OCT. 19, 20, 1997 | LOWEST 23.38 | MAY 18, 19, 20 1998 |       |       |       |       |       |       |     |



## GROUND-WATER LEVELS

## RIO YAGÜEZ AND RIO GRANDE AÑACO BASINS

181232067083700. Local number, CI-1.

LOCATION.--Lat 18°12'32", long 67°08'37", Hydrologic Unit 21010003, 0.10 mi east of Hwy 2, 0.92 mi southeast of the intersection of Hwy 104 with Hwy 2, and 0.20 mi southwest of the University of Puerto Rico, Mayagüez Campus.

Owner: Cervecería India, Name: Cervecería India.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled emergency use water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-100 ft (0-30.5 m), perforated 85-95.0 ft (25.9-28.9 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m), above mean sea level.

Measuring point: Top of shelter floor, 2.80 ft (0.85 m), above land-surface datum. Prior to Nov. 20, 1992, hole on side of casing, 2.00 ft (0.61 m), above land-surface datum.

REMARKS.--Recording observation well. Eletronic Data Logger (EDL), installed on August 29, 1997.

PERIOD OF RECORD.--August 29, 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.89 ft (1.49 m), below land-surface datum, Oct. 15, 1997; lowest water level recorded, 18.82 ft (5.74 m), below land-surface datum, Oct. 22, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG  | SEP  |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 1    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.54 |
| 2    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.55 |
| 3    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.55 |
| 4    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.49 |
| 5    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.48 |
| 6    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.49 |
| 7    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.50 |
| 8    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.51 |
| 9    | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.52 |
| 10   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.55 |
| 11   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.86 |
| 12   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.72 |
| 13   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.57 |
| 14   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.53 |
| 15   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.53 |
| 16   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.56 |
| 17   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.55 |
| 18   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.57 |
| 19   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.60 |
| 20   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.63 |
| 21   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.58 |
| 22   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.51 |
| 23   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.31 |
| 24   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.30 |
| 25   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.27 |
| 26   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.28 |
| 27   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.34 |
| 28   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.38 |
| 29   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---  | 5.40 |
| 30   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 5.53 | 5.27 |
| 31   | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 5.52 | ---  |
| MEAN | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 5.53 | 5.50 |

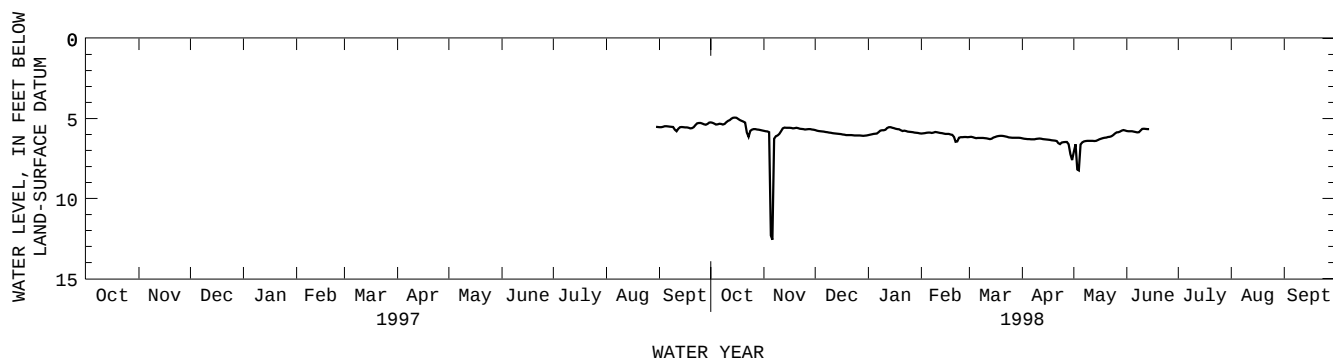
WTR YR 1997 MEAN 5.50 HIGHEST 5.10 SEPT. 29, 1997 LOWEST 6.59 SEPT. 10, 1997

## GROUND-WATER LEVELS

## RIO YAGÜEZ AND RIO GRANDE AÑACO BASINS-Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT                                                                   | NOV   | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL | AUG | SEP |
|-------------|-----------------------------------------------------------------------|-------|------|------|------|------|------|------|------|-----|-----|-----|
| 1           | 5.24                                                                  | 5.76  | 5.70 | 6.05 | 5.94 | 6.17 | 6.23 | 7.49 | 5.78 | --- | --- | --- |
| 2           | 5.25                                                                  | 5.79  | 5.75 | 6.02 | 5.94 | 6.14 | 6.26 | 6.66 | 5.78 | --- | --- | --- |
| 3           | 5.29                                                                  | 5.80  | 5.77 | 6.01 | 5.92 | 6.16 | 6.27 | 6.57 | 5.80 | --- | --- | --- |
| 4           | 5.35                                                                  | 5.82  | 5.79 | 5.97 | 5.91 | 6.17 | 6.29 | 9.79 | 5.79 | --- | --- | --- |
| 5           | 5.39                                                                  | 5.89  | 5.80 | 5.95 | 5.87 | 6.24 | 6.29 | 6.70 | 5.81 | --- | --- | --- |
| 6           | 5.33                                                                  | 18.73 | 5.81 | 5.95 | 5.88 | 6.22 | 6.28 | 6.55 | 5.82 | --- | --- | --- |
| 7           | 5.33                                                                  | 6.42  | 5.84 | 5.94 | 5.89 | 6.22 | 6.31 | 6.44 | 5.86 | --- | --- | --- |
| 8           | 5.36                                                                  | 6.10  | 5.85 | 5.77 | 5.91 | 6.22 | 6.30 | 6.42 | 5.87 | --- | --- | --- |
| 9           | 5.40                                                                  | 6.12  | 5.87 | 5.74 | 5.84 | 6.21 | 6.29 | 6.40 | 5.85 | --- | --- | --- |
| 10          | 5.27                                                                  | 5.99  | 5.89 | 5.74 | 5.85 | 6.22 | 6.27 | 6.40 | 5.68 | --- | --- | --- |
| 11          | 5.19                                                                  | 5.94  | 5.90 | 5.74 | 5.87 | 6.23 | 6.25 | 6.38 | 5.63 | --- | --- | --- |
| 12          | 5.11                                                                  | 5.66  | 5.92 | 5.65 | 5.90 | 6.25 | 6.25 | 6.40 | 5.64 | --- | --- | --- |
| 13          | 5.08                                                                  | 5.58  | 5.94 | 5.54 | 5.91 | 6.28 | 6.27 | 6.40 | 5.66 | --- | --- | --- |
| 14          | 4.95                                                                  | 5.56  | 5.95 | 5.54 | 5.93 | 6.30 | 6.30 | 6.41 | 5.66 | --- | --- | --- |
| 15          | 4.96                                                                  | 5.59  | 5.95 | 5.56 | 5.95 | 6.22 | 6.31 | 6.38 | 5.68 | --- | --- | --- |
| 16          | 4.93                                                                  | 5.58  | 5.97 | 5.59 | 5.97 | 6.16 | 6.32 | 6.31 | ---  | --- | --- | --- |
| 17          | 4.99                                                                  | 5.58  | 5.99 | 5.63 | 5.96 | 6.15 | 6.33 | 6.28 | ---  | --- | --- | --- |
| 18          | 5.07                                                                  | 5.60  | 6.00 | 5.66 | 5.98 | 6.10 | 6.35 | 6.25 | ---  | --- | --- | --- |
| 19          | 5.13                                                                  | 5.63  | 6.02 | 5.68 | 6.01 | 6.09 | 6.37 | 6.21 | ---  | --- | --- | --- |
| 20          | 5.17                                                                  | 5.57  | 6.04 | 5.68 | 6.03 | 6.08 | 6.38 | 6.20 | ---  | --- | --- | --- |
| 21          | 5.22                                                                  | 5.59  | 6.04 | 5.80 | 6.28 | 6.09 | 6.39 | 6.19 | ---  | --- | --- | --- |
| 22          | 5.29                                                                  | 5.62  | 6.04 | 5.76 | 6.63 | 6.11 | 6.42 | 6.13 | ---  | --- | --- | --- |
| 23          | 6.46                                                                  | 5.65  | 6.04 | 5.77 | 6.23 | 6.14 | 6.67 | 6.15 | ---  | --- | --- | --- |
| 24          | 5.84                                                                  | 5.66  | 6.05 | 5.80 | 6.17 | 6.16 | 6.53 | 6.06 | ---  | --- | --- | --- |
| 25          | 5.71                                                                  | 5.68  | 6.06 | 5.83 | 6.17 | 6.19 | 6.49 | 6.00 | ---  | --- | --- | --- |
| 26          | 5.68                                                                  | 5.69  | 6.06 | 5.84 | 6.16 | 6.20 | 6.47 | 5.87 | ---  | --- | --- | --- |
| 27          | 5.66                                                                  | 5.66  | 6.06 | 5.85 | 6.16 | 6.21 | 6.46 | 5.86 | ---  | --- | --- | --- |
| 28          | 5.68                                                                  | 5.66  | 6.07 | 5.87 | 6.16 | 6.21 | 6.48 | 5.86 | ---  | --- | --- | --- |
| 29          | 5.70                                                                  | 5.68  | 6.07 | 5.89 | ---  | 6.21 | 6.75 | 5.79 | ---  | --- | --- | --- |
| 30          | 5.71                                                                  | 5.69  | 6.09 | 5.89 | ---  | 6.20 | 7.70 | 5.74 | ---  | --- | --- | --- |
| 31          | 5.73                                                                  | ---   | 6.06 | 5.92 | ---  | 6.20 | ---  | 5.72 | ---  | --- | --- | --- |
| MEAN        | 5.37                                                                  | 6.18  | 5.95 | 5.79 | 6.01 | 6.19 | 6.41 | 6.39 | 5.75 | --- | --- | --- |
| WTR YR 1998 | MEAN 6.02    HIGHEST 4.89 OCT. 15, 1997    LOWEST 18.82 OCT. 22, 1997 |       |      |      |      |      |      |      |      |     |     |     |



## GROUND-WATER LEVELS

## RIO CULEBRINAS BASIN

181911067140500. Local number, C-4.

LOCATION.--Lat 18°19'11", long 67°14'05", Hydrologic Unit 21010003, 0.32 mi east of the intersection of Hwy 429 with Hwy 115, 0.75 mi northwest of the intersection of Hwy 411 with Hwy 115, and 0.01 mi north of Hwy 115. Owner: PR Aqueduct and Sewer Authority, Name: Rincón-Calvache 4.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.30 m). Depth 80 ft (24.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 23.0 ft (7.00 m), above mean sea level, from topographic map.

Measuring point: Hole in the side of the 12 in (0.30 m) casing, 1.07 ft (0.33 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 30, 1996. Station discontinued on July 1, 1997 due to nearby highway construction. Well depth from specific conductance profile conducted on April 18, 1996.

PERIOD OF RECORD.--May 30, 1996 to July 1, 1997, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.63 ft (2.02 m), below land-surface datum, Oct. 23, 1996; lowest water level recorded, 18.19 ft (5.54 m), below land-surface datum, June 2, 4, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996  
INSTANTANEOUS OBSERVATION AT 1200

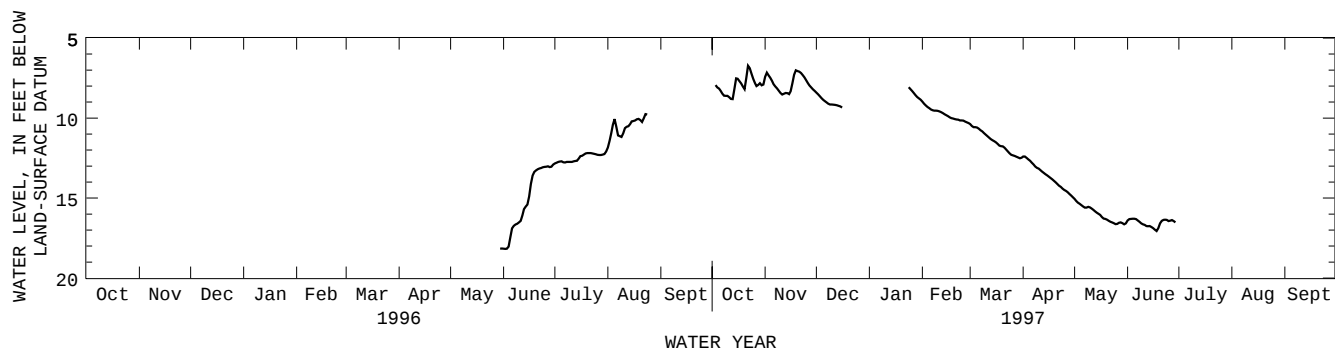
| DAY         | OCT        | NOV          | DEC               | JAN | FEB | MAR | APR          | MAY            | JUN   | JUL   | AUG   | SEP |
|-------------|------------|--------------|-------------------|-----|-----|-----|--------------|----------------|-------|-------|-------|-----|
| 1           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 18.16 | 12.86 | 11.96 | --- |
| 2           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 18.17 | 12.81 | 11.72 | --- |
| 3           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 18.18 | 12.77 | 11.11 | --- |
| 4           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 18.15 | 12.72 | 10.74 | --- |
| 5           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 17.92 | 12.71 | 10.10 | --- |
| 6           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 16.99 | 12.71 | 10.02 | --- |
| 7           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 16.80 | 12.81 | 11.06 | --- |
| 8           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 16.68 | 12.75 | 11.11 | --- |
| 9           | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 16.62 | 12.74 | 11.16 | --- |
| 10          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 16.59 | 12.74 | 11.21 | --- |
| 11          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 16.46 | 12.75 | 10.69 | --- |
| 12          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 16.38 | 12.74 | 10.57 | --- |
| 13          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 15.78 | 12.68 | 10.51 | --- |
| 14          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 15.61 | 12.68 | 10.51 | --- |
| 15          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 15.46 | 12.65 | 10.24 | --- |
| 16          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 15.34 | 12.41 | 10.18 | --- |
| 17          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 14.47 | 12.36 | 10.19 | --- |
| 18          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.76 | 12.34 | 10.11 | --- |
| 19          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.42 | 12.23 | 10.04 | --- |
| 20          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.30 | 12.19 | 10.06 | --- |
| 21          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.24 | 12.19 | 10.18 | --- |
| 22          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.16 | 12.19 | 10.30 | --- |
| 23          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.14 | 12.19 | 9.74  | --- |
| 24          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.11 | 12.23 | 9.76  | --- |
| 25          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.05 | 12.24 | 9.79  | --- |
| 26          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.05 | 12.29 | ---   | --- |
| 27          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.03 | 12.29 | ---   | --- |
| 28          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.01 | 12.33 | ---   | --- |
| 29          | ---        | ---          | ---               | --- | --- | --- | ---          | ---            | 13.11 | 12.29 | ---   | --- |
| 30          | ---        | ---          | ---               | --- | --- | --- | ---          | 18.18          | 12.96 | 12.27 | ---   | --- |
| 31          | ---        | ---          | ---               | --- | --- | --- | ---          | 18.15          | ---   | 12.23 | ---   | --- |
| MEAN        | ---        | ---          | ---               | --- | --- | --- | ---          | 18.17          | 15.17 | 12.50 | 10.52 | --- |
| WTR YR 1996 | MEAN 12.98 | HIGHEST 9.67 | AUG. 24, 25, 1996 |     |     |     | LOWEST 18.19 | JUNE2, 4, 1996 |       |       |       |     |

## GROUND-WATER LEVELS

## RIO CULEBRINAS BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV  | DEC                        | JAN  | FEB   | MAR   | APR                        | MAY   | JUN   | JUL | AUG | SEP |
|-------------|------------|------|----------------------------|------|-------|-------|----------------------------|-------|-------|-----|-----|-----|
| 1           | ---        | 7.77 | 8.35                       | ---  | 8.90  | 10.34 | 12.42                      | 15.00 | 16.48 | --- | --- | --- |
| 2           | ---        | 7.07 | 8.46                       | ---  | 9.05  | 10.41 | 12.38                      | 15.11 | 16.33 | --- | --- | --- |
| 3           | 7.84       | 7.25 | 8.57                       | ---  | 9.17  | 10.57 | 12.42                      | 15.24 | 16.31 | --- | --- | --- |
| 4           | 8.05       | 7.40 | 8.70                       | ---  | 9.26  | 10.56 | 12.56                      | 15.33 | 16.29 | --- | --- | --- |
| 5           | 8.11       | 7.57 | 8.81                       | ---  | 9.35  | 10.57 | 12.61                      | 15.39 | 16.29 | --- | --- | --- |
| 6           | 8.21       | 7.79 | 8.91                       | ---  | 9.42  | 10.61 | 12.73                      | 15.48 | 16.29 | --- | --- | --- |
| 7           | 8.36       | 7.96 | 8.98                       | ---  | 9.51  | 10.71 | 12.85                      | 15.56 | 16.35 | --- | --- | --- |
| 8           | 8.57       | 8.09 | 9.06                       | ---  | 9.52  | 10.80 | 12.95                      | 15.64 | 16.45 | --- | --- | --- |
| 9           | 8.64       | 8.21 | 9.14                       | ---  | 9.54  | 10.87 | 13.10                      | 15.56 | 16.52 | --- | --- | --- |
| 10          | 8.59       | 8.36 | 9.16                       | ---  | 9.53  | 11.01 | 13.12                      | 15.54 | 16.63 | --- | --- | --- |
| 11          | 8.64       | 8.50 | 9.15                       | ---  | 9.56  | 11.07 | 13.19                      | 15.62 | 16.64 | --- | --- | --- |
| 12          | 8.76       | 8.56 | 9.17                       | ---  | 9.60  | 11.18 | 13.29                      | 15.70 | 16.71 | --- | --- | --- |
| 13          | 8.85       | 8.41 | 9.19                       | ---  | 9.66  | 11.26 | 13.38                      | 15.78 | 16.79 | --- | --- | --- |
| 14          | 8.78       | 8.45 | 9.22                       | ---  | 9.73  | 11.36 | 13.46                      | 15.87 | 16.73 | --- | --- | --- |
| 15          | 7.57       | 8.44 | 9.25                       | ---  | 9.79  | 11.40 | 13.55                      | 15.95 | 16.77 | --- | --- | --- |
| 16          | 7.47       | 8.58 | 9.30                       | ---  | 9.85  | 11.48 | 13.61                      | 16.02 | 16.84 | --- | --- | --- |
| 17          | 7.63       | 8.06 | 9.39                       | ---  | 9.91  | 11.56 | 13.71                      | 16.08 | 16.91 | --- | --- | --- |
| 18          | 7.75       | 7.60 | ---                        | ---  | 9.99  | 11.66 | 13.79                      | 16.28 | 17.04 | --- | --- | --- |
| 19          | 7.92       | 6.98 | ---                        | ---  | 10.02 | 11.78 | 13.88                      | 16.29 | 17.09 | --- | --- | --- |
| 20          | 8.12       | 7.05 | ---                        | ---  | 10.04 | 11.74 | 13.98                      | 16.32 | 16.68 | --- | --- | --- |
| 21          | 8.26       | 7.07 | ---                        | ---  | 10.10 | 11.79 | 14.07                      | 16.38 | 16.48 | --- | --- | --- |
| 22          | 6.72       | 7.14 | ---                        | ---  | 10.07 | 11.91 | 14.20                      | 16.46 | 16.36 | --- | --- | --- |
| 23          | 6.74       | 7.24 | ---                        | ---  | 10.13 | 12.02 | 14.26                      | 16.50 | 16.37 | --- | --- | --- |
| 24          | 7.03       | 7.38 | ---                        | 8.02 | 10.16 | 12.13 | 14.34                      | 16.54 | 16.33 | --- | --- | --- |
| 25          | 7.40       | 7.55 | ---                        | 8.13 | 10.14 | 12.26 | 14.47                      | 16.60 | 16.40 | --- | --- | --- |
| 26          | 7.70       | 7.74 | ---                        | 8.25 | 10.19 | 12.34 | 14.51                      | 16.65 | 16.46 | --- | --- | --- |
| 27          | 7.92       | 7.89 | ---                        | 8.38 | 10.24 | 12.33 | 14.59                      | 16.58 | 16.37 | --- | --- | --- |
| 28          | 8.07       | 8.03 | ---                        | 8.51 | 10.29 | 12.40 | 14.69                      | 16.52 | 16.38 | --- | --- | --- |
| 29          | 7.78       | 8.15 | ---                        | 8.63 | ---   | 12.43 | 14.79                      | 16.53 | 16.48 | --- | --- | --- |
| 30          | 7.87       | 8.26 | ---                        | 8.73 | ---   | 12.49 | 14.90                      | 16.60 | 16.57 | --- | --- | --- |
| 31          | 8.04       | ---  | ---                        | 8.81 | ---   | 12.54 | ---                        | 16.67 | ---   | --- | --- | --- |
| MEAN        | 7.98       | 7.82 | 8.99                       | 8.43 | 9.74  | 11.47 | 13.59                      | 15.99 | 16.54 | --- | --- | --- |
| WTR YR 1997 | MEAN 11.60 |      | HIGHEST 6.63 OCT. 23, 1996 |      |       |       | LOWEST 17.10 JUNE 19, 1997 |       |       |     |     |     |



## GROUND-WATER LEVELS

## RIO CULEBRINAS BASIN

**182017067143300. Local number, R-4.**

LOCATION.--Lat 18°20'17", long 67°14'33", Hydrologic Unit 21010003, 0.63 mi southeast of the intersection of Hwy 412 with Hwy 115, 1.13 mi south of the intersection of Hwy 413 with Hwy 115, and 0.01 mi north of Hwy 411. Owner: PR Aqueduct and Sewer Authority, Name: Rincón 4.

AQUIFER. - Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.30 m), cased 0-69.0 ft (0-21.0 m). Depth 64.0 ft (21.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 39.0 ft (11.9 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.53 ft (1.08 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 30, 1996.

PERIOD OF RECORD.--May 30, 1996 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 20.80 ft (6.34 m), below land-surface datum, Sept. 27, 1998; lowest water level recorded, 34.07 ft (10.4 m), below land-surface datum, May 30, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|
| 1    | --- | --- | --- | --- | --- | --- | --- | ---   | 33.87 | ---   | ---   | 28.73 |
| 2    | --- | --- | --- | --- | --- | --- | --- | ---   | 33.85 | ---   | ---   | 28.76 |
| 3    | --- | --- | --- | --- | --- | --- | --- | ---   | 33.86 | ---   | ---   | 28.73 |
| 4    | --- | --- | --- | --- | --- | --- | --- | ---   | 33.89 | ---   | ---   | 28.71 |
| 5    | --- | --- | --- | --- | --- | --- | --- | ---   | 33.68 | ---   | ---   | 28.66 |
| 6    | --- | --- | --- | --- | --- | --- | --- | ---   | 33.24 | ---   | ---   | 28.77 |
| 7    | --- | --- | --- | --- | --- | --- | --- | ---   | 32.86 | ---   | 29.27 | 28.83 |
| 8    | --- | --- | --- | --- | --- | --- | --- | ---   | 32.61 | ---   | 29.61 | 28.92 |
| 9    | --- | --- | --- | --- | --- | --- | --- | ---   | 32.46 | ---   | 29.72 | 29.03 |
| 10   | --- | --- | --- | --- | --- | --- | --- | ---   | 32.39 | ---   | 29.86 | 28.63 |
| 11   | --- | --- | --- | --- | --- | --- | --- | ---   | 32.26 | ---   | 29.80 | 27.39 |
| 12   | --- | --- | --- | --- | --- | --- | --- | ---   | 32.09 | ---   | 29.71 | 26.62 |
| 13   | --- | --- | --- | --- | --- | --- | --- | ---   | 31.83 | ---   | 29.65 | 26.83 |
| 14   | --- | --- | --- | --- | --- | --- | --- | ---   | 31.62 | ---   | 29.60 | 27.22 |
| 15   | --- | --- | --- | --- | --- | --- | --- | ---   | 31.50 | ---   | 29.42 | 27.44 |
| 16   | --- | --- | --- | --- | --- | --- | --- | ---   | 31.39 | ---   | 29.36 | 27.56 |
| 17   | --- | --- | --- | --- | --- | --- | --- | ---   | 31.17 | 31.17 | 29.39 | 27.54 |
| 18   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.18 | 29.29 | 27.33 |
| 19   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.20 | 29.02 | 27.14 |
| 20   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.20 | 28.97 | 27.08 |
| 21   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.21 | 28.82 | 27.08 |
| 22   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.25 | 28.79 | 27.13 |
| 23   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.32 | 28.76 | 27.22 |
| 24   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.37 | 28.70 | 27.30 |
| 25   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.42 | 28.63 | 27.40 |
| 26   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.47 | 28.62 | 27.14 |
| 27   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | 31.17 | 28.67 | 26.63 |
| 28   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | ---   | 28.67 | 26.30 |
| 29   | --- | --- | --- | --- | --- | --- | --- | ---   | ---   | ---   | 28.70 | 26.15 |
| 30   | --- | --- | --- | --- | --- | --- | --- | 34.05 | ---   | ---   | 28.72 | 26.17 |
| 31   | --- | --- | --- | --- | --- | --- | --- | 33.93 | ---   | ---   | 28.73 | ---   |
| MEAN | --- | --- | --- | --- | --- | --- | --- | 33.99 | 32.62 | 31.27 | 29.14 | 27.61 |

WTR YR 1996 MEAN 29.69 HIGHEST 26.14 SEPT. 29, 1996 LOWEST 34.07 MAY 30, 1996

## GROUND-WATER LEVELS

## RIO CULEBRINAS BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997  
INSTANTANEOUS OBSERVATION AT 1200

| INSTANTANEOUS OBSERVATION AT 1200 |            |       |                            |       |       |       |                                |       |       |       |       |       |
|-----------------------------------|------------|-------|----------------------------|-------|-------|-------|--------------------------------|-------|-------|-------|-------|-------|
| DAY                               | OCT        | NOV   | DEC                        | JAN   | FEB   | MAR   | APR                            | MAY   | JUN   | JUL   | AUG   | SEP   |
| 1                                 | 26.24      | 25.56 | 26.87                      | 29.26 | 29.20 | 30.02 | 31.50                          | 32.10 | 32.68 | 32.70 | 32.03 | 30.37 |
| 2                                 | 26.33      | 25.42 | 26.94                      | 29.27 | 29.26 | 30.06 | 31.53                          | 32.13 | 32.53 | 32.66 | 32.03 | 30.28 |
| 3                                 | 26.41      | 25.30 | 27.02                      | 29.50 | 29.31 | 30.13 | 31.55                          | 32.14 | 32.42 | 32.63 | 32.04 | 30.22 |
| 4                                 | 26.50      | 25.27 | 27.12                      | 29.59 | 29.37 | 30.17 | 31.57                          | 32.18 | 32.36 | 32.61 | 32.07 | 30.16 |
| 5                                 | 26.59      | 25.28 | 27.19                      | 29.60 | 29.43 | 30.20 | 31.58                          | 32.19 | 32.36 | 32.64 | 32.13 | 30.02 |
| 6                                 | 26.64      | 25.32 | 27.27                      | 29.71 | 29.49 | 30.21 | 31.59                          | 32.16 | 32.38 | 32.65 | 32.20 | 29.95 |
| 7                                 | 26.72      | 25.40 | 27.35                      | 29.80 | 29.55 | 30.36 | 31.56                          | 32.17 | 32.40 | 32.67 | 32.26 | 29.93 |
| 8                                 | 26.81      | 25.43 | 27.45                      | 29.84 | 29.56 | 30.42 | 31.56                          | 32.17 | 32.43 | 32.66 | 32.30 | 29.93 |
| 9                                 | 26.89      | 25.47 | 27.52                      | 29.93 | 29.57 | 30.46 | 31.57                          | 32.15 | 32.48 | 32.68 | 32.33 | 29.95 |
| 10                                | 26.94      | 25.56 | 27.60                      | 29.95 | 29.56 | 30.51 | 31.58                          | 32.17 | 32.53 | 32.71 | 32.38 | 29.97 |
| 11                                | 26.95      | 25.65 | 27.68                      | 29.98 | 29.50 | 30.57 | 31.49                          | 32.23 | 32.57 | 32.73 | 32.42 | 30.01 |
| 12                                | 26.93      | 25.71 | 27.78                      | 30.04 | 29.30 | 30.61 | 31.55                          | 32.25 | 32.60 | 32.75 | 32.35 | 30.05 |
| 13                                | 26.93      | 25.81 | 27.86                      | 30.10 | 29.14 | 30.65 | 31.58                          | 32.40 | 32.63 | 32.77 | 32.24 | 30.06 |
| 14                                | 26.97      | 25.92 | 27.93                      | 30.16 | 29.09 | 30.74 | 31.61                          | 32.53 | 32.65 | 32.79 | 32.22 | 30.11 |
| 15                                | 26.74      | 26.03 | 28.03                      | 30.21 | 29.13 | 30.77 | 31.61                          | 32.55 | 32.66 | 32.80 | 32.20 | 30.16 |
| 16                                | 26.41      | 26.13 | 28.10                      | 30.24 | 29.17 | 30.78 | 31.62                          | 32.62 | 32.68 | 32.74 | 32.07 | 30.18 |
| 17                                | 26.18      | 26.20 | 28.18                      | 30.26 | 29.23 | 30.87 | 31.73                          | 32.65 | 32.72 | 32.71 | 31.86 | 30.20 |
| 18                                | 26.09      | 26.23 | 28.28                      | 30.40 | 29.30 | 30.90 | 31.77                          | 32.64 | 32.76 | 32.71 | 31.71 | 30.23 |
| 19                                | 26.09      | 26.26 | 28.36                      | 30.46 | 29.37 | 30.97 | 31.87                          | 32.60 | 32.79 | 32.60 | 31.62 | 30.26 |
| 20                                | 26.16      | 26.26 | 28.44                      | 30.51 | 29.43 | 31.01 | 31.92                          | 32.60 | 32.69 | 32.37 | 31.64 | 30.29 |
| 21                                | 26.23      | 26.24 | 28.51                      | 30.55 | 29.51 | 31.05 | 31.98                          | 32.62 | 32.55 | 32.15 | 31.63 | 30.33 |
| 22                                | 26.06      | 26.17 | 28.60                      | ---   | 29.57 | 31.09 | 31.96                          | 32.65 | 32.53 | 32.06 | 31.56 | 30.28 |
| 23                                | 25.83      | 26.14 | 28.67                      | ---   | 29.60 | 31.13 | 31.94                          | 32.70 | 32.55 | 32.05 | 31.53 | 30.26 |
| 24                                | 25.70      | 26.19 | 28.77                      | 29.04 | 29.68 | 31.19 | 31.94                          | 32.73 | 32.57 | 32.06 | 31.41 | 30.24 |
| 25                                | 25.65      | 26.26 | 28.81                      | 28.94 | 29.73 | 31.21 | 31.97                          | 32.76 | 32.60 | 32.08 | 31.03 | 30.17 |
| 26                                | 25.62      | 26.35 | 28.85                      | 28.91 | 29.79 | 31.24 | 31.99                          | 32.76 | 32.51 | 32.12 | 30.74 | 30.10 |
| 27                                | 25.62      | 26.47 | 28.99                      | 28.94 | 29.89 | 31.27 | 32.01                          | 32.71 | 32.59 | 32.16 | 30.57 | 30.09 |
| 28                                | 25.63      | 26.58 | 29.05                      | 28.98 | 29.94 | 31.35 | 32.03                          | 32.73 | 32.66 | 32.18 | 30.50 | 30.11 |
| 29                                | 25.60      | 26.67 | 29.10                      | 29.02 | ---   | 31.39 | 32.05                          | 32.68 | 32.70 | 32.13 | 30.44 | 30.13 |
| 30                                | 25.57      | 26.79 | 29.19                      | 29.08 | ---   | 31.43 | 32.08                          | 32.75 | 32.72 | 32.07 | 30.43 | 30.11 |
| 31                                | 25.56      | ---   | 29.24                      | 29.15 | ---   | 31.47 | ---                            | 32.76 | ---   | 32.04 | 30.43 | ---   |
| MEAN                              | 26.28      | 25.94 | 28.09                      | 29.70 | 29.45 | 30.78 | 31.74                          | 32.47 | 32.58 | 32.47 | 31.69 | 30.14 |
| WTR YR 1997                       | MEAN 30.12 |       | HIGHEST 25.26 NOV. 4, 1996 |       |       |       | LOWEST 32.80 JULY 14, 15, 1997 |       |       |       |       |       |

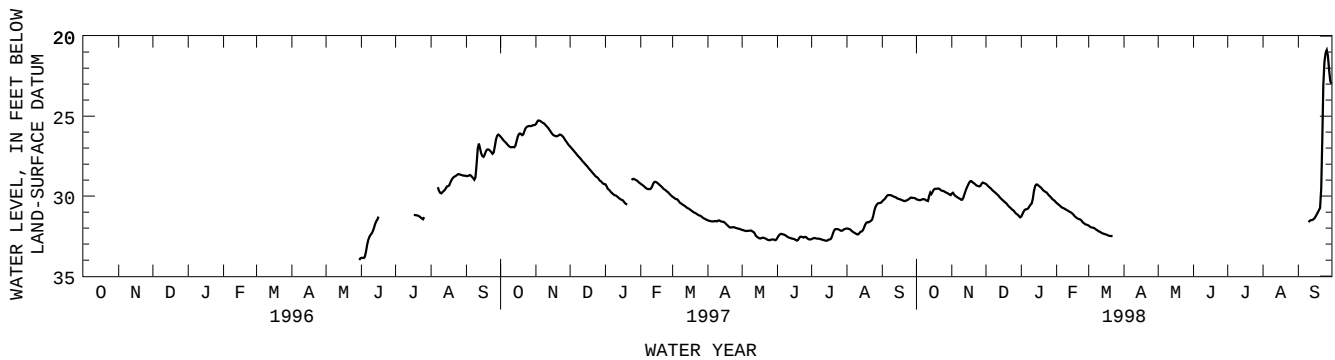
## GROUND-WATER LEVELS

## RIO CULEBRINAS BASIN--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR | MAY | JUN | JUL | AUG | SEP   |
|------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-------|
| 1    | 30.17 | 29.96 | 29.22 | 31.35 | 30.41 | 31.82 | --- | --- | --- | --- | --- | ---   |
| 2    | 30.22 | 29.72 | 29.27 | 31.21 | 30.44 | 31.87 | --- | --- | --- | --- | --- | ---   |
| 3    | 30.22 | 29.87 | 29.35 | 31.04 | 30.53 | 31.93 | --- | --- | --- | --- | --- | ---   |
| 4    | 30.25 | 29.94 | 29.42 | 30.89 | 30.57 | 31.96 | --- | --- | --- | --- | --- | ---   |
| 5    | 30.26 | 30.03 | 29.48 | 30.82 | 30.65 | 31.97 | --- | --- | --- | --- | --- | ---   |
| 6    | 30.21 | 30.04 | 29.54 | 30.82 | 30.71 | 31.98 | --- | --- | --- | --- | --- | ---   |
| 7    | 30.18 | 30.12 | 29.63 | 30.81 | 30.74 | 32.03 | --- | --- | --- | --- | --- | ---   |
| 8    | 30.19 | 30.14 | 29.69 | 30.71 | 30.77 | 32.09 | --- | --- | --- | --- | --- | ---   |
| 9    | 30.22 | 30.20 | 29.75 | 30.57 | 30.82 | 32.13 | --- | --- | --- | --- | --- | ---   |
| 10   | 30.27 | 30.24 | 29.82 | 30.49 | 30.86 | 32.18 | --- | --- | --- | --- | --- | 31.67 |
| 11   | 30.30 | 30.20 | 29.89 | 30.43 | 30.91 | 32.22 | --- | --- | --- | --- | --- | 31.58 |
| 12   | 30.31 | 30.01 | 29.93 | 29.90 | 30.94 | 32.26 | --- | --- | --- | --- | --- | 31.51 |
| 13   | 29.66 | 29.74 | 30.04 | 29.45 | 30.99 | 32.30 | --- | --- | --- | --- | --- | 31.50 |
| 14   | 29.90 | 29.57 | 30.12 | 29.29 | 31.03 | 32.34 | --- | --- | --- | --- | --- | 31.48 |
| 15   | 29.84 | 29.43 | 30.18 | 29.26 | 31.08 | 32.36 | --- | --- | --- | --- | --- | 31.45 |
| 16   | 29.67 | 29.26 | 30.24 | 29.30 | 31.14 | 32.38 | --- | --- | --- | --- | --- | 31.35 |
| 17   | 29.56 | 29.12 | 30.31 | 29.37 | 31.24 | 32.40 | --- | --- | --- | --- | --- | 31.24 |
| 18   | 29.54 | 29.05 | 30.37 | 29.43 | 31.29 | 32.44 | --- | --- | --- | --- | --- | 31.09 |
| 19   | 29.53 | 29.08 | 30.44 | 29.49 | 31.37 | 32.47 | --- | --- | --- | --- | --- | 30.96 |
| 20   | 29.54 | 29.15 | 30.49 | 29.57 | 31.41 | 32.50 | --- | --- | --- | --- | --- | 30.80 |
| 21   | 29.51 | 29.20 | 30.63 | 29.67 | 31.44 | 32.48 | --- | --- | --- | --- | --- | 30.68 |
| 22   | 29.57 | 29.26 | 30.67 | 29.71 | 31.46 | 32.50 | --- | --- | --- | --- | --- | 28.43 |
| 23   | 29.65 | 29.33 | 30.74 | 29.76 | 31.48 | 32.54 | --- | --- | --- | --- | --- | 24.08 |
| 24   | 29.66 | 29.36 | 30.82 | 29.78 | 31.63 | ---   | --- | --- | --- | --- | --- | 22.02 |
| 25   | 29.68 | 29.38 | 30.88 | 29.93 | 31.67 | ---   | --- | --- | --- | --- | --- | 21.18 |
| 26   | 29.71 | 29.40 | 30.92 | 29.97 | 31.74 | ---   | --- | --- | --- | --- | --- | 20.92 |
| 27   | 29.77 | 29.31 | 31.05 | 30.05 | 31.77 | ---   | --- | --- | --- | --- | --- | 20.84 |
| 28   | 29.80 | 29.14 | 31.10 | 30.14 | 31.80 | ---   | --- | --- | --- | --- | --- | 21.64 |
| 29   | 29.83 | 29.17 | 31.15 | 30.21 | ---   | ---   | --- | --- | --- | --- | --- | 22.56 |
| 30   | 29.88 | 29.18 | 31.22 | 30.26 | ---   | ---   | --- | --- | --- | --- | --- | 23.05 |
| 31   | 29.91 | ---   | 31.31 | 30.31 | ---   | ---   | --- | --- | --- | --- | --- | ---   |
| MEAN | 29.90 | 29.59 | 30.25 | 30.13 | 31.10 | 32.22 | --- | --- | --- | --- | --- | 27.62 |

WTR YR 1998 MEAN 30.15 HIGHEST 20.80 SEPT. 27, 1998 LOWEST 32.57 MAR. 24, 1998



## GROUND-WATER LEVELS

## RIO CULEBRINAS BASIN

182442067091700. Local number, 200.

LOCATION.--Lat 18°24'42", long 67°09'17", Hydrologic Unit 21010002, 1.40 mi south of Aguadilla plaza, 3.04 mi northeast of Aguada plaza, and 0.20 mi north of Hwy 2 km 146.4. Owner: Carmelo Sánchez, Name: Aguadilla Cement North Well.

AQUIFER.--Surficial deposits.

WELL CHARACTERISTICS.--Abandoned water-table industrial well, diameter 4 in (0.10 m), cased 0-20.0 ft (0-6.10 m), perforated 11-20.0 ft (3.35-6.10 m). Depth 20.0 ft (6.10 m).

INSTRUMENTATION.--Electronic water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m), above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.25 ft (0.99 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on February 18, 1998. Water levels affected by nearby pumping well.

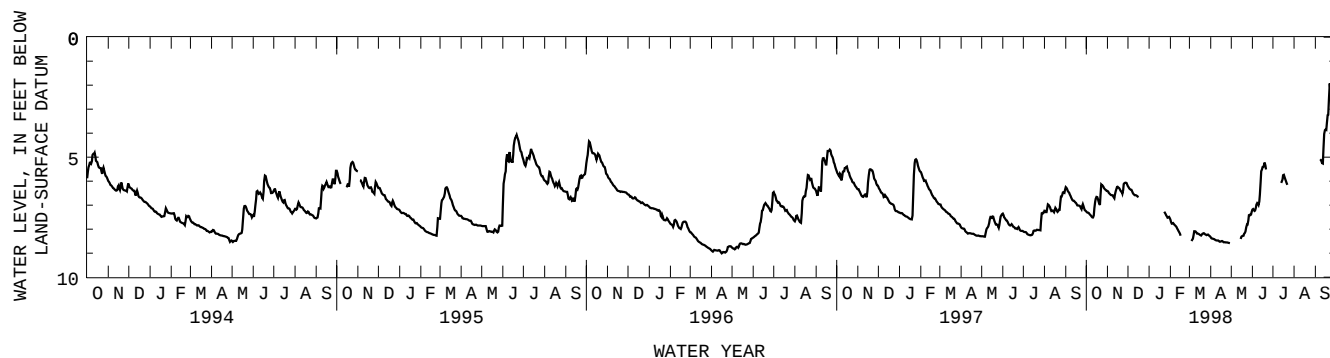
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.61 ft (0.49 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 9.60 ft (2.93 m), below land-surface datum, Feb. 20, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG | SEP  |
|------|------|------|------|------|------|------|------|------|------|------|-----|------|
| 1    | 7.24 | 6.42 | 6.20 | ---  | 7.55 | ---  | 8.31 | ---  | 7.22 | ---  | --- | ---  |
| 2    | 7.28 | 6.40 | 6.23 | ---  | 7.65 | ---  | 8.37 | ---  | 7.15 | ---  | --- | ---  |
| 3    | 7.31 | 6.46 | 6.27 | ---  | 7.75 | ---  | 8.39 | ---  | 7.17 | ---  | --- | ---  |
| 4    | 7.31 | 6.52 | 6.33 | ---  | 7.79 | 8.53 | 8.39 | ---  | 7.22 | ---  | --- | ---  |
| 5    | 7.31 | 6.52 | 6.35 | ---  | 7.73 | 8.46 | 8.39 | ---  | 7.26 | ---  | --- | ---  |
| 6    | 7.36 | 6.57 | 6.35 | ---  | 7.76 | 8.40 | 8.42 | ---  | 7.19 | ---  | --- | ---  |
| 7    | 7.40 | 6.58 | 6.37 | ---  | 7.80 | 8.40 | 8.42 | ---  | 7.04 | ---  | --- | ---  |
| 8    | 7.41 | 6.58 | 6.45 | ---  | 7.84 | 8.08 | 8.45 | ---  | 6.91 | ---  | --- | 5.08 |
| 9    | 7.45 | 6.58 | 6.52 | ---  | 7.85 | 8.09 | 8.46 | ---  | 6.91 | ---  | --- | 5.10 |
| 10   | 7.51 | 6.61 | 6.54 | ---  | 7.89 | 8.09 | 8.47 | ---  | 6.97 | ---  | --- | 5.13 |
| 11   | 7.51 | 6.72 | 6.58 | ---  | 7.93 | 8.10 | 8.47 | ---  | 7.01 | ---  | --- | 5.22 |
| 12   | 7.51 | 6.71 | 6.58 | ---  | 8.00 | 8.18 | 8.47 | ---  | 6.68 | ---  | --- | 5.28 |
| 13   | 7.34 | 6.42 | 6.58 | ---  | 8.05 | 8.18 | 8.47 | ---  | 6.46 | 6.17 | --- | 5.24 |
| 14   | 6.92 | 6.43 | 6.60 | ---  | 8.10 | 8.19 | 8.52 | ---  | 5.60 | 5.97 | --- | 4.16 |
| 15   | 6.81 | 6.26 | 6.61 | ---  | 8.15 | 8.19 | 8.52 | 8.49 | 5.56 | 6.06 | --- | 3.90 |
| 16   | 6.66 | 6.22 | 6.66 | ---  | 8.23 | 8.22 | 8.52 | 8.33 | 5.46 | 5.80 | --- | 3.84 |
| 17   | 6.65 | 6.24 | 6.70 | ---  | 8.32 | 8.24 | 8.50 | 8.29 | 5.37 | 5.71 | --- | 3.86 |
| 18   | 6.68 | 6.29 | ---  | ---  | ---  | 8.26 | 8.50 | 8.28 | 5.45 | 5.77 | --- | 3.86 |
| 19   | 6.78 | 6.29 | ---  | ---  | ---  | 8.27 | 8.50 | 8.28 | 5.18 | 5.87 | --- | 3.31 |
| 20   | 6.91 | 6.36 | ---  | ---  | ---  | 8.19 | 8.54 | 8.26 | 5.26 | 5.96 | --- | 3.19 |
| 21   | 6.94 | 6.43 | ---  | ---  | ---  | 8.19 | 8.54 | 8.13 | 5.44 | 6.04 | --- | 3.27 |
| 22   | 7.05 | 6.44 | ---  | ---  | ---  | 8.16 | 8.54 | 8.17 | 5.59 | 6.11 | --- | 1.81 |
| 23   | 6.12 | 6.46 | ---  | 7.25 | ---  | 8.17 | 8.55 | 8.03 | ---  | 6.20 | --- | 2.04 |
| 24   | 6.16 | 6.58 | ---  | 7.29 | ---  | 8.21 | 8.55 | 7.81 | ---  | ---  | --- | 2.43 |
| 25   | 6.16 | 6.15 | ---  | 7.33 | ---  | 8.22 | 8.55 | 7.81 | ---  | ---  | --- | 2.48 |
| 26   | 6.20 | 6.09 | ---  | 7.40 | ---  | 8.24 | 8.56 | 7.81 | ---  | ---  | --- | 2.60 |
| 27   | 6.26 | 6.07 | ---  | 7.45 | ---  | 8.25 | 8.56 | 7.45 | ---  | ---  | --- | 2.65 |
| 28   | 6.32 | 6.06 | ---  | 7.50 | ---  | 8.22 | 8.57 | 7.39 | ---  | ---  | --- | ---  |
| 29   | 6.34 | 6.07 | ---  | 7.54 | ---  | 8.22 | 8.58 | 7.41 | ---  | ---  | --- | ---  |
| 30   | 6.36 | 6.09 | ---  | 7.47 | ---  | 8.28 | 8.58 | 7.43 | ---  | ---  | --- | ---  |
| 31   | 6.39 | ---  | ---  | 7.51 | ---  | 8.28 | ---  | 7.36 | ---  | ---  | --- | ---  |
| MEAN | 6.89 | 6.39 | 6.47 | 7.42 | 7.91 | 8.23 | 8.49 | 7.93 | 6.37 | 5.97 | --- | 3.72 |

WTR YR 1998 MEAN 6.97 HIGHEST 1.61 SEPT. 22, 1998 LOWEST 8.59 APR. 30, 1998





**Surface-Water Records  
for U.S. Virgin Islands**

## ST. THOMAS, U.S. VIRGIN ISLANDS

50252000 BONNE RESOLUTION GUT AT BONNE RESOLUTION, ST. THOMAS, VI

LOCATION.--Lat 18°21'57", long 64°57'34", Hydrologic Unit 21020001, on right bank near Hull Bay Road, 0.5 mi (0.8 km), upstream from mouth, and 2.5 mi (4.0 km) northwest of Fort Christian, Charlotte Amalie.

DRAINAGE AREA.--0.49 mi<sup>2</sup> (1.27 km<sup>2</sup>).

PERIOD OF RECORD.--December 1962 to February 1967, March 1979 to April 1981, May 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 280 ft (85 m), from topographic map. December 1962 to February 1967 and March 1979 to April 1981 at site about 100 ft (30 m), upstream at different datum.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 1     | .04   | .03  | .04  | .06  | .01  | .03  | .01  | .02  | .01  | .04  | .11  | .02   |
| 2     | .04   | .03  | .03  | .05  | .01  | .03  | .01  | .02  | .01  | .04  | .10  | .02   |
| 3     | .04   | .03  | .03  | .06  | .01  | .02  | .01  | .02  | .01  | .04  | .10  | .02   |
| 4     | .05   | .04  | .03  | .06  | .01  | .02  | .01  | .02  | .01  | .07  | .09  | .01   |
| 5     | .05   | .04  | .03  | .08  | .03  | .01  | .01  | .01  | .02  | .05  | .10  | .02   |
| 6     | .06   | .04  | .03  | .47  | .02  | .01  | .01  | .02  | .01  | .05  | .10  | .02   |
| 7     | .05   | .04  | .03  | .89  | .02  | .01  | .02  | .02  | .01  | .06  | .10  | .04   |
| 8     | .05   | .04  | .04  | .05  | .02  | .01  | .01  | .02  | .01  | .07  | .11  | .03   |
| 9     | .06   | .04  | .04  | .02  | .03  | .01  | .01  | .02  | .01  | .05  | .13  | .02   |
| 10    | .05   | .06  | .04  | .02  | .03  | .01  | .01  | .02  | .01  | .06  | .14  | .01   |
| 11    | .10   | .08  | .04  | .01  | .02  | .01  | .01  | .02  | .01  | .07  | .11  | .01   |
| 12    | .33   | .04  | .04  | .01  | .03  | .01  | .01  | .02  | .01  | .07  | .11  | .01   |
| 13    | 2.2   | .02  | .04  | .01  | .03  | .01  | .05  | .02  | .01  | .06  | .11  | .01   |
| 14    | 4.6   | .02  | .04  | .01  | .03  | .01  | .01  | .02  | .01  | .06  | .11  | .01   |
| 15    | 1.2   | .03  | .04  | .01  | .02  | .01  | .01  | .01  | .01  | .07  | .12  | .01   |
| 16    | .33   | .03  | .04  | .01  | .03  | .01  | .28  | .01  | .01  | .08  | .13  | .01   |
| 17    | .21   | .03  | .05  | .01  | .02  | .01  | .02  | .01  | .14  | .07  | .14  | .01   |
| 18    | .14   | .10  | .04  | .01  | .02  | .01  | .01  | .01  | .10  | .10  | .14  | .02   |
| 19    | .09   | .10  | .04  | .01  | .02  | .01  | .01  | .01  | .04  | .08  | .13  | .02   |
| 20    | .07   | .05  | .04  | .01  | .02  | .01  | .01  | .01  | .04  | .10  | .13  | .01   |
| 21    | .07   | .03  | .22  | .01  | .02  | .01  | .01  | .01  | .04  | .09  | .18  | 9.6   |
| 22    | .06   | .03  | .08  | .01  | .02  | .01  | .02  | .01  | .04  | .09  | .16  | 4.0   |
| 23    | .06   | .03  | .06  | .01  | .02  | .01  | .02  | .01  | .04  | .10  | .13  | .14   |
| 24    | .06   | .03  | .05  | .01  | .02  | .01  | .01  | .01  | .04  | .11  | .35  | .06   |
| 25    | .06   | .02  | .04  | .01  | .02  | .01  | .02  | .01  | .04  | .09  | .05  | .04   |
| 26    | .06   | .03  | .04  | .01  | .03  | .01  | .02  | .01  | .04  | .09  | .03  | .03   |
| 27    | .05   | .02  | .04  | .01  | .03  | .01  | .02  | .01  | .04  | .09  | .02  | .03   |
| 28    | .04   | .03  | .04  | .01  | .03  | .01  | .01  | .01  | .04  | .09  | .02  | .03   |
| 29    | .03   | .03  | .05  | .01  | ---  | .01  | .02  | .01  | .04  | .09  | .01  | .03   |
| 30    | .03   | .03  | .06  | .01  | ---  | .01  | .02  | .01  | .03  | .10  | .01  | .03   |
| 31    | .03   | ---  | .06  | .01  | ---  | .01  | ---  | .01  | ---  | .11  | .02  | ---   |
| TOTAL | 10.31 | 1.17 | 1.49 | 1.97 | 0.62 | 0.37 | 0.70 | 0.44 | 0.88 | 2.34 | 3.29 | 14.32 |
| MEAN  | .33   | .039 | .048 | .064 | .022 | .012 | .023 | .014 | .029 | .075 | .11  | .48   |
| MAX   | 4.6   | .10  | .22  | .89  | .03  | .03  | .28  | .02  | .14  | .11  | .35  | 9.6   |
| MIN   | .03   | .02  | .03  | .01  | .01  | .01  | .01  | .01  | .01  | .04  | .01  | .01   |
| AC-FT | 20    | 2.3  | 3.0  | 3.9  | 1.2  | .7   | 1.4  | .9   | 1.7  | 4.6  | 6.5  | 28    |
| CFSM  | .68   | .08  | .10  | .13  | .05  | .02  | .05  | .03  | .06  | .15  | .22  | .97   |
| IN.   | .78   | .09  | .11  | .15  | .05  | .03  | .05  | .03  | .07  | .18  | .25  | 1.09  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1998, BY WATER YEAR (WY)

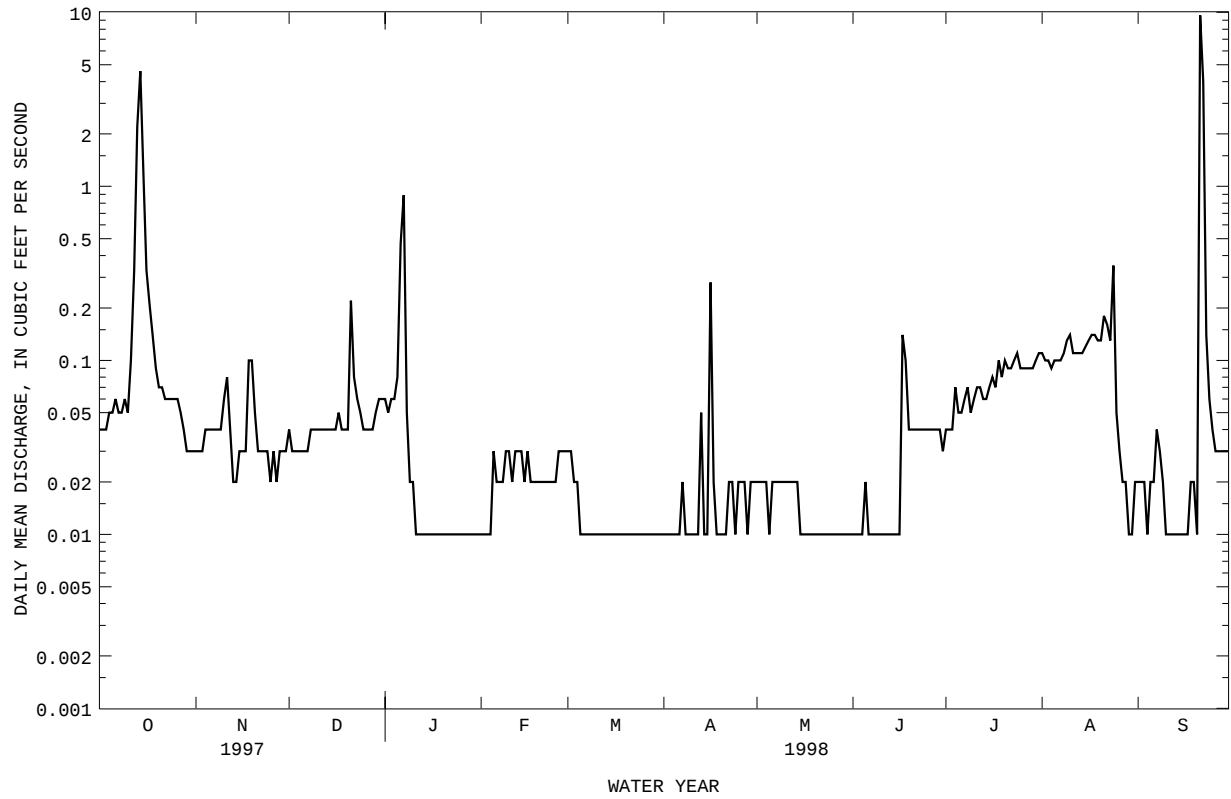
|      | MEAN | .47  | .71  | .061 | .067 | .058 | .048 | .060 | .31  | .12  | .046 | .058 | .94 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX  | 3.09 | 4.22 | .30  | .35  | .38  | .31  | .34  | 2.06 | .89  | .18  | .23  | 8.91 |     |
| (WY) | 1986 | 1988 | 1993 | 1992 | 1992 | 1987 | 1986 | 1987 | 1987 | 1988 | 1988 | 1989 |     |
| MIN  | .011 | .011 | .002 | .016 | .005 | .001 | .000 | .002 | .004 | .010 | .010 | .009 |     |
| (WY) | 1997 | 1995 | 1995 | 1986 | 1995 | 1995 | 1995 | 1995 | 1995 | 1994 | 1994 | 1994 |     |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1963 - 1998

|                          | ANNUAL TOTAL | 23.74 | 37.90  |  |  |      |        |  |      |      |        |      |  |
|--------------------------|--------------|-------|--------|--|--|------|--------|--|------|------|--------|------|--|
| ANNUAL MEAN              |              | .065  | .10    |  |  |      |        |  |      | .24  |        |      |  |
| HIGHEST ANNUAL MEAN      |              |       |        |  |  |      |        |  |      | .77  |        | 1989 |  |
| LOWEST ANNUAL MEAN       |              |       |        |  |  |      |        |  |      | .026 |        | 1969 |  |
| HIGHEST DAILY MEAN       |              | 4.6   | Oct 14 |  |  | 9.6  | Sep 21 |  | 169  |      | Apr 18 | 1983 |  |
| LOWEST DAILY MEAN        |              | .00   | Mar 25 |  |  | .01  | Jan 11 |  | .00  |      | Apr 11 | 1980 |  |
| ANNUAL SEVEN-DAY MINIMUM |              | .01   | Mar 19 |  |  | .01  | Jan 11 |  | .00  |      | Jan 31 | 1986 |  |
| INSTANTANEOUS PEAK FLOW  |              |       |        |  |  | 117  | Sep 21 |  | 1650 |      | Apr 18 | 1983 |  |
| INSTANTANEOUS PEAK STAGE |              |       |        |  |  | 2.98 | Sep 21 |  | 7.00 |      | Apr 18 | 1983 |  |
| ANNUAL RUNOFF (AC-FT)    |              | 47    |        |  |  | 75   |        |  | 186  |      |        |      |  |
| ANNUAL RUNOFF (CFSM)     |              | .13   |        |  |  | .21  |        |  | .49  |      |        |      |  |
| ANNUAL RUNOFF (INCHES)   |              | 1.80  |        |  |  | 2.88 |        |  | 6.65 |      |        |      |  |
| 10 PERCENT EXCEEDS       |              | .12   |        |  |  | .10  |        |  | .11  |      |        |      |  |
| 50 PERCENT EXCEEDS       |              | .03   |        |  |  | .03  |        |  | .02  |      |        |      |  |
| 90 PERCENT EXCEEDS       |              | .01   |        |  |  | .01  |        |  | .01  |      |        |      |  |

## ST. THOMAS, U.S. VIRGIN ISLANDS

50252000 BONNE RESOLUTION GUT AT BONNE RESOLUTION, ST. THOMAS, VI--Continued



## ST. THOMAS, U.S. VIRGIN ISLANDS

50274000 TURPENTINE RUN AT MOUNT ZION, ST. THOMAS, VI

LOCATION.--Lat 18°19'55", long 64°53'20", Hydrologic Unit 21020001, on left bank at Mount Zion, 0.6 mi (0.9 km), east southeast from Donoe School, 0.5 mi (0.8 km), northwest from Mariendal, and 0.4 mi (0.6 km) southeast from conjunction of roads 38 and 32.

DRAINAGE AREA.--2.33 mi<sup>2</sup> (6.03 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to December 1969, October 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft (36 m), from topographic map. Datum of gage for period of October 1992 to current year is 1.62 ft (0.49 m), higher than previous record.

REMARKS.--Records poor. Flow affected by three sewage treatment plants, Donoe, Old Tutu and New Tutu that discharges to a retention pond located 0.80 mi (1.28 km) upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT    | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP    |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1     | .26    | e.56  | .65   | .55   | .54   | .47   | .51   | .29   | .35   | e.66  | .19   | .23    |
| 2     | 1.1    | e.56  | .58   | .54   | .56   | .48   | .69   | .31   | .42   | e.66  | .19   | .48    |
| 3     | .54    | e.56  | .57   | .54   | .39   | .43   | .48   | .29   | .32   | e.77  | .15   | .27    |
| 4     | .41    | e.78  | .59   | .67   | .40   | .40   | .47   | .28   | .32   | e1.9  | .13   | .19    |
| 5     | .35    | e.78  | .62   | .66   | 1.1   | .43   | .40   | .19   | .38   | e.94  | .11   | .20    |
| 6     | .32    | e.78  | .61   | 2.6   | .46   | .47   | .42   | .19   | .39   | e.62  | .63   | .23    |
| 7     | .30    | e.78  | .61   | 6.3   | .41   | .49   | .48   | .20   | .41   | e.94  | 1.1   | .91    |
| 8     | .38    | e.78  | .58   | 1.2   | 1.0   | .46   | .45   | .24   | .30   | e.58  | .60   | .64    |
| 9     | .35    | e.78  | .52   | .93   | .94   | .42   | .44   | .17   | .26   | e.39  | .37   | .42    |
| 10    | .30    | e1.2  | .57   | .69   | .57   | .35   | .42   | .19   | .31   | e.35  | .34   | .29    |
| 11    | .80    | e1.7  | .52   | .98   | .53   | .33   | .41   | .22   | .28   | e.28  | .31   | .24    |
| 12    | 5.0    | e1.1  | .52   | 1.4   | .50   | .34   | 4.5   | .18   | e.39  | e.26  | .21   | .21    |
| 13    | 9.2    | .61   | .69   | 1.0   | .53   | .37   | 1.7   | .19   | e.38  | e.26  | .23   | .53    |
| 14    | 62     | .46   | .57   | .72   | .55   | .77   | .45   | .13   | e.40  | e.36  | .16   | .29    |
| 15    | 5.3    | .47   | .52   | .64   | .52   | .58   | .35   | .43   | e.40  | e.18  | .25   | .21    |
| 16    | 2.0    | .47   | .47   | .57   | .60   | .42   | .39   | .22   | e1.0  | e.16  | .54   | .19    |
| 17    | 2.3    | .44   | 3.0   | .58   | .51   | .44   | .36   | .19   | e1.9  | e.60  | .36   | .19    |
| 18    | 1.2    | 2.2   | 1.4   | .58   | .47   | .42   | .28   | .17   | e.85  | e.91  | 1.5   | .17    |
| 19    | 1.0    | 1.1   | .67   | .64   | .45   | .43   | .36   | .58   | e.45  | e.32  | .61   | .29    |
| 20    | .78    | .70   | 1.0   | .53   | .41   | .56   | .32   | .26   | e.45  | e.65  | .47   | .59    |
| 21    | .74    | .69   | 3.7   | .52   | .44   | .45   | .32   | .14   | e1.1  | e.18  | 3.9   | 83     |
| 22    | .68    | .69   | .85   | .46   | .46   | .44   | .39   | .22   | e1.1  | e.14  | .91   | 19     |
| 23    | .67    | .63   | .69   | .44   | .45   | .57   | .21   | .14   | e.44  | e.21  | .29   | 1.9    |
| 24    | .99    | 1.3   | .65   | .50   | .42   | .74   | .20   | .13   | e.45  | .20   | 6.6   | 1.1    |
| 25    | .76    | .79   | .61   | .50   | .44   | .54   | .31   | 1.2   | e.49  | .18   | 1.1   | .86    |
| 26    | .69    | 2.3   | .60   | .54   | .41   | .44   | .25   | .70   | e.53  | .20   | .70   | .78    |
| 27    | .66    | .87   | .56   | .46   | .44   | 1.4   | .24   | .37   | e.62  | .24   | 1.2   | 1.1    |
| 28    | .61    | .75   | .56   | .43   | .44   | 1.2   | .25   | .43   | e.35  | .30   | .42   | .73    |
| 29    | .56    | .71   | .57   | 1.0   | ---   | 2.2   | .28   | 2.1   | e.44  | .21   | .59   | .67    |
| 30    | .62    | .66   | .59   | .49   | ---   | 1.1   | .25   | 1.0   | e.64  | .37   | .31   | .65    |
| 31    | .59    | ---   | .57   | .45   | ---   | .63   | ---   | .44   | ---   | .20   | .27   | ---    |
| TOTAL | 101.46 | 26.20 | 25.21 | 28.11 | 14.94 | 18.77 | 16.58 | 11.79 | 16.12 | 14.22 | 24.74 | 116.56 |
| MEAN  | 3.27   | .87   | .81   | .91   | .53   | .61   | .55   | .38   | .54   | .46   | .80   | 3.89   |
| MAX   | 62     | 2.3   | 3.7   | 6.3   | 1.1   | 2.2   | 4.5   | 2.1   | 1.9   | 1.9   | 6.6   | 83     |
| MIN   | .26    | .44   | .47   | .43   | .39   | .33   | .20   | .13   | .26   | .14   | .11   | .17    |
| AC-FT | 201    | 52    | 50    | 56    | 30    | 37    | 33    | 23    | 32    | 28    | 49    | 231    |
| CFSM  | 1.40   | .37   | .35   | .39   | .23   | .26   | .24   | .16   | .23   | .20   | .34   | 1.67   |
| IN.   | 1.62   | .42   | .40   | .45   | .24   | .30   | .26   | .19   | .26   | .23   | .39   | 1.86   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

|      | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 1.17 | 2.42 | 1.37 | .63  | .38  | .31  | .41  | .37  | .76  | .41  | .45  | 8.92 |
| MAX  | 3.27 | 6.49 | 4.79 | .91  | .95  | .61  | .92  | .77  | 3.16 | .74  | .80  | 38.0 |
| (WY) | 1998 | 1993 | 1993 | 1998 | 1997 | 1998 | 1993 | 1993 | 1993 | 1996 | 1998 | 1995 |
| MIN  | .33  | .37  | .23  | .16  | .13  | .076 | .025 | .15  | .18  | .15  | .16  | .25  |
| (WY) | 1994 | 1996 | 1994 | 1994 | 1994 | 1995 | 1995 | 1995 | 1994 | 1994 | 1993 | 1994 |

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

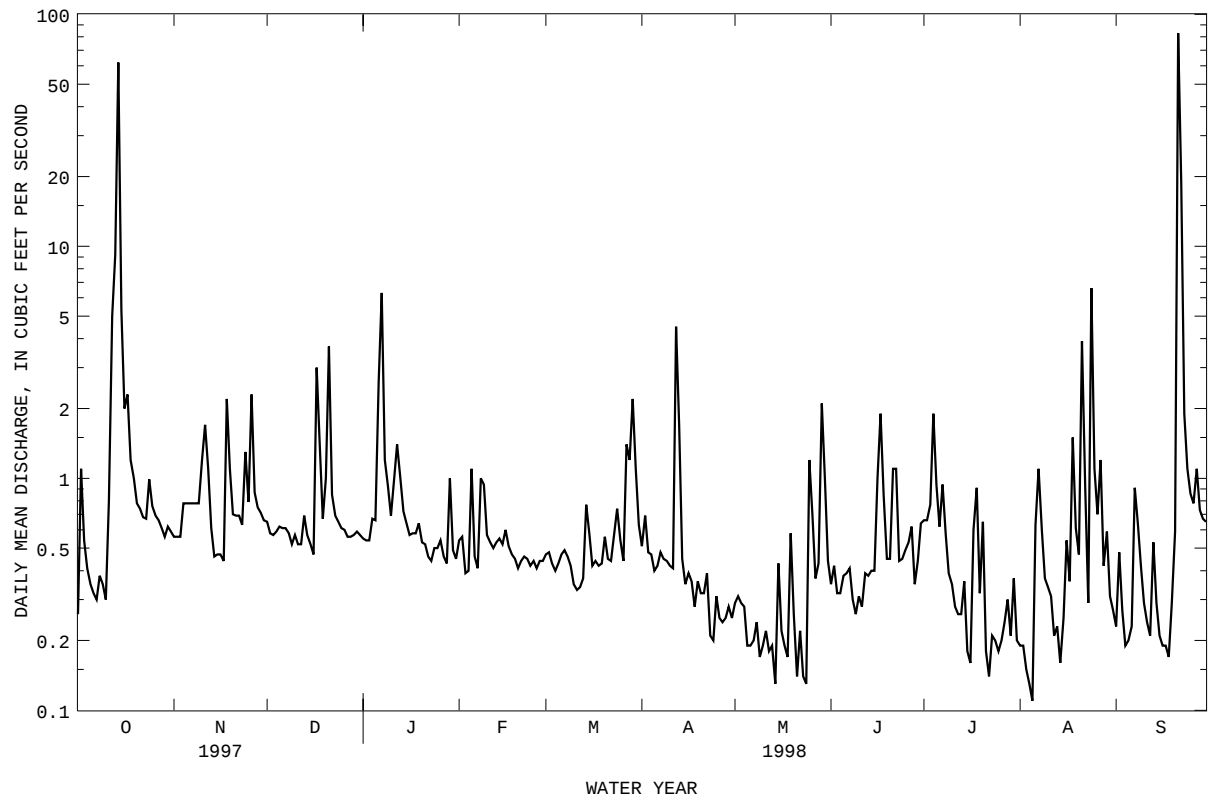
## WATER YEARS 1964 - 1998

|                          |        |        |      |
|--------------------------|--------|--------|------|
| ANNUAL TOTAL             | 295.89 | 414.70 |      |
| ANNUAL MEAN              | .81    | 1.14   | .81  |
| HIGHEST ANNUAL MEAN      |        |        | 3.43 |
| LOWEST ANNUAL MEAN       |        |        | .00  |
| HIGHEST DAILY MEAN       | 62     | Oct 14 | 802  |
| LOWEST DAILY MEAN        | .09    | Jul 31 | .00  |
| ANNUAL SEVEN-DAY MINIMUM | .12    | Jul 27 | .00  |
| INSTANTANEOUS PEAK FLOW  |        |        | 1060 |
| INSTANTANEOUS PEAK STAGE |        |        | 5.35 |
| ANNUAL RUNOFF (AC-FT)    | 587    | 823    | 1060 |
| ANNUAL RUNOFF (CFSM)     | .35    | .49    | .35  |
| ANNUAL RUNOFF (INCHES)   | 4.72   | 6.62   | 4.73 |
| 10 PERCENT EXCEEDS       | 1.1    | 1.1    | 1.0  |
| 50 PERCENT EXCEEDS       | .41    | .50    | .32  |
| 90 PERCENT EXCEEDS       | .19    | .21    | .10  |

e Estimated

## ST. THOMAS, U.S. VIRGIN ISLANDS

50274000 TURPENTINE RUN AT MOUNT ZION, ST. THOMAS, VI--Continued



## ST. JOHN, U.S. VIRGIN ISLANDS

50295000 GUINEA GUT AT BETHANY, ST. JOHN, VI

LOCATION.--Lat 18°19'55", long 64°46'50", Hydrologic Unit 21020001, 600 ft (183 m), southeast of Bethany Church, and 1.0 mi (1.6 km) east of Government House at Cruz Bay.

DRAINAGE AREA.--0.37 mi<sup>2</sup> (0.96 km<sup>2</sup>).

PERIOD OF RECORD.--January 1963 to October 1967, September 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 260 ft (79 m), from topographic map. Prior to September 1982, at datum 1.00 ft (0.30 m) higher.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT   | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 1     | .00   | .03  | .04  | .02  | .01  | .00  | .01  | .01  | e.01 | .02  | .00  | .00   |
| 2     | .02   | .02  | .03  | .02  | .01  | .01  | .01  | .01  | e.01 | .02  | .01  | .02   |
| 3     | .00   | .02  | .02  | .02  | .01  | .01  | .01  | .01  | e.01 | e.02 | .01  | .00   |
| 4     | .00   | .02  | .02  | .02  | .01  | .01  | .01  | .01  | e.01 | e.03 | .01  | .00   |
| 5     | .00   | .03  | .02  | .02  | .01  | .01  | .01  | .01  | e.02 | e.02 | .01  | .00   |
| 6     | .00   | .03  | .01  | .03  | .01  | .02  | .01  | .01  | e.01 | e.02 | e.01 | .00   |
| 7     | .00   | .03  | .01  | .02  | .01  | .02  | .05  | .01  | e.01 | e.02 | .01  | .00   |
| 8     | .00   | .03  | .01  | .02  | .01  | .02  | .01  | .01  | e.01 | e.02 | .00  | .00   |
| 9     | .00   | .03  | .01  | .01  | .01  | .01  | e.01 | .01  | e.01 | e.03 | .00  | .00   |
| 10    | .00   | .04  | .01  | .01  | .01  | .01  | e.01 | .01  | e.01 | e.02 | .00  | .00   |
| 11    | .00   | .03  | .01  | .01  | .01  | .01  | e.01 | .01  | e.01 | .02  | .00  | .00   |
| 12    | .42   | .02  | .01  | .01  | .01  | .01  | e.01 | .01  | e.01 | .02  | .00  | .00   |
| 13    | 2.2   | .02  | .02  | .01  | .01  | .01  | e.05 | .01  | e.01 | .02  | .00  | .00   |
| 14    | 8.6   | .01  | .02  | .01  | .01  | .01  | e.02 | .01  | e.01 | .02  | .00  | .00   |
| 15    | 1.2   | .02  | .01  | .01  | .01  | .01  | e.01 | .01  | e.01 | .02  | .00  | .00   |
| 16    | .27   | .01  | .02  | .01  | .01  | .01  | e.33 | .01  | e.01 | .01  | .00  | .00   |
| 17    | .11   | .01  | .02  | .01  | .01  | .01  | e.01 | .01  | e.02 | .01  | .00  | .00   |
| 18    | .06   | .04  | .02  | .01  | .00  | .01  | e.01 | .01  | e.01 | .01  | .00  | .00   |
| 19    | .04   | .04  | .02  | .01  | .00  | .01  | e.01 | .01  | .01  | .01  | .00  | .00   |
| 20    | .02   | .03  | .02  | .01  | .00  | .01  | e.01 | .01  | .01  | .00  | .00  | .00   |
| 21    | .02   | .03  | .02  | .01  | .00  | .01  | e.01 | .01  | .01  | .00  | .01  | 7.9   |
| 22    | .01   | .03  | .02  | .01  | .00  | .01  | e.03 | .01  | .01  | .00  | .01  | 4.1   |
| 23    | .01   | .03  | .02  | .01  | .00  | .01  | e.01 | .01  | .01  | .00  | .00  | .30   |
| 24    | .01   | .02  | .02  | .01  | .00  | .01  | e.01 | .01  | .01  | .01  | .01  | .08   |
| 25    | .01   | .01  | .02  | .01  | .00  | .01  | e.01 | .01  | .01  | .01  | .00  | .05   |
| 26    | .01   | .02  | .01  | .01  | .00  | .01  | e.01 | .01  | .01  | .01  | .00  | .03   |
| 27    | .01   | .01  | .01  | .01  | .01  | .01  | e.02 | .01  | .01  | .02  | .00  | 1.2   |
| 28    | .01   | .01  | .01  | .01  | .01  | .02  | e.01 | e.01 | .01  | .01  | .00  | .16   |
| 29    | .02   | .01  | .01  | .01  | ---  | .01  | .01  | .01  | .01  | .00  | .00  | .09   |
| 30    | .02   | .02  | .01  | .01  | ---  | .01  | .01  | .03  | .02  | .00  | .00  | .06   |
| 31    | .03   | ---  | .02  | .01  | ---  | .01  | ---  | e.01 | ---  | .00  | .00  | ---   |
| TOTAL | 13.10 | 0.70 | 0.52 | 0.40 | 0.19 | 0.34 | 0.74 | 0.33 | 0.33 | 0.42 | 0.09 | 13.99 |
| MEAN  | .42   | .023 | .017 | .013 | .007 | .011 | .025 | .011 | .011 | .014 | .003 | .47   |
| MAX   | 8.6   | .04  | .04  | .03  | .01  | .02  | .33  | .03  | .02  | .03  | .01  | 7.9   |
| MIN   | .00   | .01  | .01  | .01  | .00  | .00  | .01  | .01  | .01  | .00  | .00  | .00   |
| AC-FT | 26    | 1.4  | 1.0  | .8   | .4   | .7   | 1.5  | .7   | .7   | .8   | .2   | 28    |
| CFSM  | 1.14  | .06  | .05  | .03  | .02  | .03  | .07  | .03  | .03  | .04  | .01  | 1.26  |
| IN.   | 1.32  | .07  | .05  | .04  | .02  | .03  | .07  | .03  | .03  | .04  | .01  | 1.41  |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1998, BY WATER YEAR (WY)

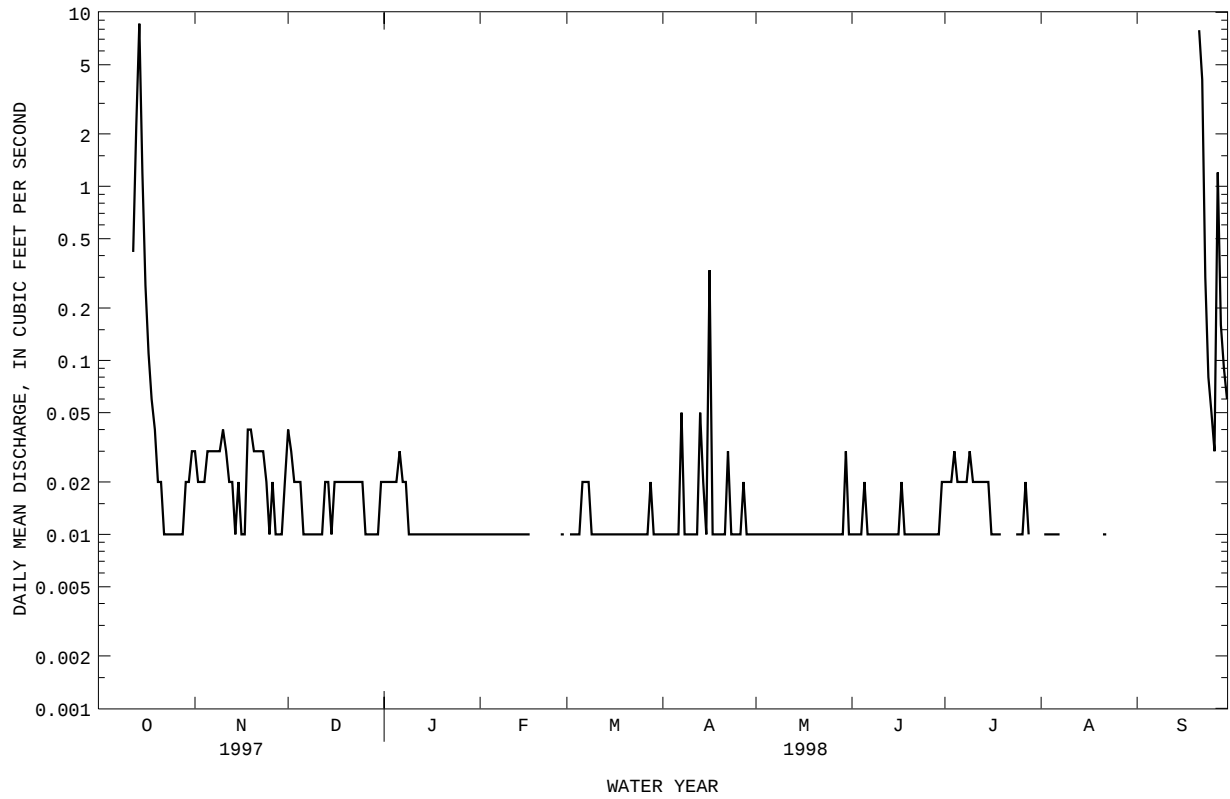
|      | MEAN | .071 | .33  | .028 | .016 | .008 | .006 | .27  | .084 | .010 | .011 | .014 | .31  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX  | .42  | 2.52 | .11  | .052 | .032 | .023 | .023 | 4.03 | .89  | .031 | .041 | .082 | 2.35 |
| (WY) | 1998 | 1985 | 1989 | 1997 | 1997 | 1996 | 1983 | 1986 | 1987 | 1996 | 1983 | 1989 |      |
| MIN  | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| (WY) | 1992 | 1992 | 1987 | 1992 | 1992 | 1986 | 1995 | 1994 | 1991 | 1987 | 1991 | 1991 |      |

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1963 - 1998

|                          | ANNUAL TOTAL | 19.06       | 31.15 |             |
|--------------------------|--------------|-------------|-------|-------------|
| ANNUAL MEAN              | .052         | .085        | .078  |             |
| HIGHEST ANNUAL MEAN      |              |             | .35   | 1983        |
| LOWEST ANNUAL MEAN       |              |             | .00   | 1967        |
| HIGHEST DAILY MEAN       | 8.6 Oct 14   | 8.6 Oct 14  | 110   | Apr 18 1983 |
| LOWEST DAILY MEAN        | .00 Mar 26   | .00 Oct 1   | .00   | Oct 3 1982  |
| ANNUAL SEVEN-DAY MINIMUM | .00 Aug 1    | .00 Oct 3   | .00   | Jan 9 1983  |
| INSTANTANEOUS PEAK FLOW  |              | 54 Oct 14   | 946   | Apr 18 1983 |
| INSTANTANEOUS PEAK STAGE |              | 2.48 Oct 14 | 5.33  | Apr 18 1983 |
| ANNUAL RUNOFF (AC-FT)    | 38           | 62          | 56    |             |
| ANNUAL RUNOFF (CFSM)     | .14          | .23         | .21   |             |
| ANNUAL RUNOFF (INCHES)   | 1.92         | 3.13        | 2.86  |             |
| 10 PERCENT EXCEEDS       | .05          | .03         | .04   |             |
| 50 PERCENT EXCEEDS       | .01          | .01         | .01   |             |
| 90 PERCENT EXCEEDS       | .00          | .00         | .00   |             |

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS  
50295000 GUINEA GUT AT BETHANY, ST. JOHN, VI--Continued



## ST. CROIX, U.S. VIRGIN ISLANDS

50345000 JOLLY HILL GUT AT JOLLY HILL, ST. CROIX, VI

LOCATION.--Lat 17°44'00", long 64°51'47", Hydrologic Unit 21020002, on Mahogany Road at Jolly Hill, 1.8 mi (2.9 km), northeast of Frederiksted.

DRAINAGE AREA.--2.10 mi<sup>2</sup> (5.44 km<sup>2</sup>).

PERIOD OF RECORD.--January 1963 to December 1968. Monthly measurements, 1962-69. October 1982 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested concrete control. Elevation of gage is 140 ft (43 m), from topographic map.

REMARKS.--Records poor. Low-water diversions upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

| DAY   | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP   |
|-------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 1     | .00  | .01  | e.08 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 2     | .00  | .01  | e.06 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 3     | .00  | .01  | e.03 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 4     | .00  | .02  | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 5     | .00  | .02  | .00  | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 6     | .00  | .07  | .00  | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | e.00 | .00   |
| 7     | .00  | .01  | .00  | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 8     | .00  | .01  | .00  | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 9     | .00  | .00  | .00  | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 10    | .00  | .00  | .00  | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 11    | .00  | .00  | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 12    | .00  | e.01 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 13    | .03  | e.03 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 14    | 1.3  | e.02 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 15    | 1.4  | e.04 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 16    | 1.0  | e.04 | e.00 | e.00 | .00  | .00  | .06  | .00  | .00  | .00  | .00  | .00   |
| 17    | .59  | e.69 | e.00 | e.00 | .00  | .00  | .00  | .00  | .10  | .00  | .00  | .00   |
| 18    | .24  | e.37 | e.00 | e.00 | .00  | .00  | .00  | .00  | .01  | .00  | .00  | .00   |
| 19    | .11  | e.41 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 20    | .08  | e.64 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| 21    | .07  | e.50 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | 3.6   |
| 22    | .06  | e.59 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | 5.1   |
| 23    | .05  | e.38 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | e.36  |
| 24    | .04  | e.33 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | e.30  |
| 25    | .04  | e.31 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | e.30  |
| 26    | .01  | e.26 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | e.29  |
| 27    | e.00 | e.18 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | e.30  |
| 28    | e.01 | e.13 | e.00 | e.00 | .00  | .00  | .00  | .00  | .00  | .00  | .00  | e.29  |
| 29    | .00  | e.34 | e.00 | e.00 | ---  | .00  | .00  | .00  | .00  | .00  | .00  | e.27  |
| 30    | .00  | e.17 | e.00 | .00  | ---  | .00  | .00  | .00  | .00  | .00  | .00  | .26   |
| 31    | .01  | ---  | e.00 | .00  | ---  | .00  | ---  | .00  | ---  | .00  | .00  | ---   |
| TOTAL | 5.04 | 5.60 | 0.17 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.11 | 0.00 | 0.00 | 11.07 |
| MEAN  | .16  | .19  | .005 | .000 | .000 | .000 | .002 | .000 | .004 | .000 | .000 | .37   |
| MAX   | 1.4  | .69  | .08  | .00  | .00  | .00  | .06  | .00  | .10  | .00  | .00  | 5.1   |
| MIN   | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00   |
| AC-FT | .10  | .11  | .3   | .00  | .00  | .00  | .1   | .00  | .2   | .00  | .00  | .22   |
| CFSM  | .08  | .09  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .18   |
| IN.   | .09  | .10  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .00  | .20   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1998, BY WATER YEAR (WY)

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | .86  | .73  | .46  | .27  | .18  | .088 | .063 | .086 | .16  | .077 | .027 | .71  |
| MAX  | 5.92 | 2.33 | 2.34 | .88  | .55  | .34  | .23  | .46  | 1.43 | .52  | .18  | 3.80 |
| (WY) | 1996 | 1988 | 1988 | 1988 | 1988 | 1990 | 1990 | 1992 | 1987 | 1987 | 1987 | 1995 |
| MIN  | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| (WY) | 1987 | 1992 | 1992 | 1992 | 1989 | 1989 | 1989 | 1989 | 1989 | 1989 | 1989 | 1991 |

## SUMMARY STATISTICS

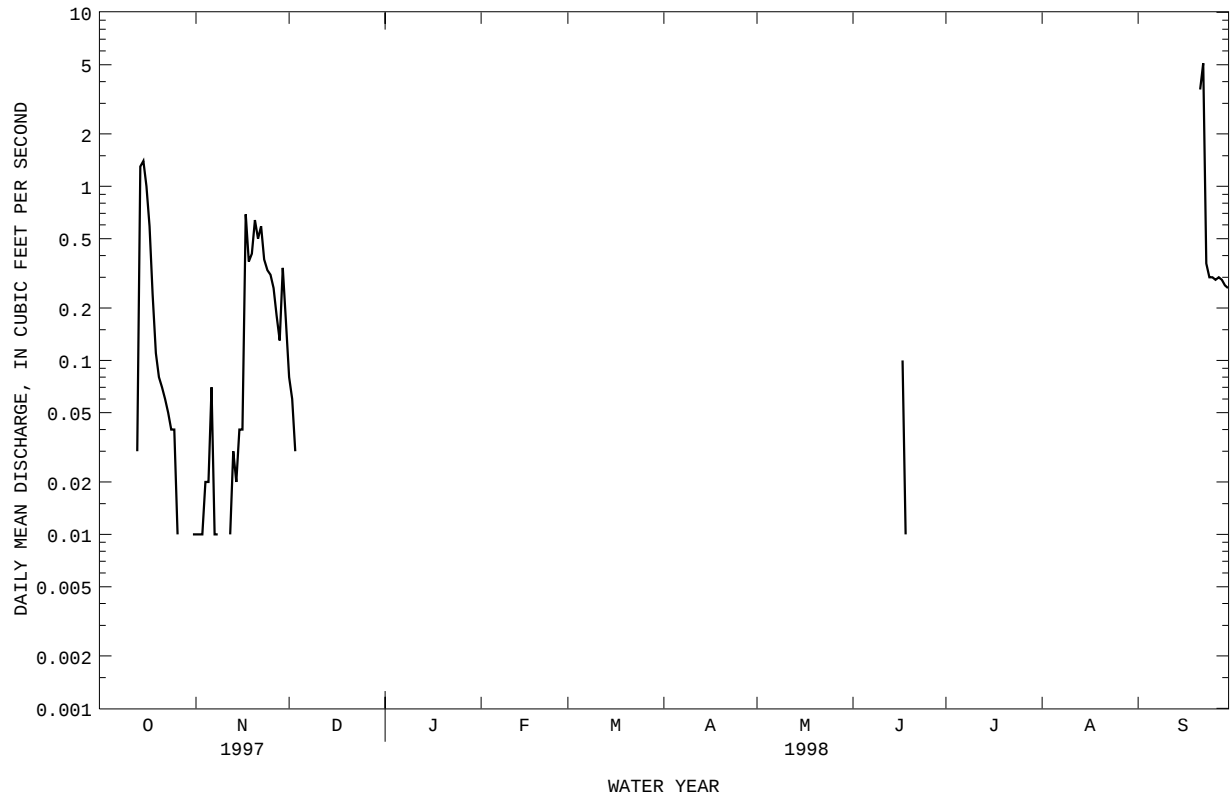
## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1964 - 1998

|                          |       |       |       |
|--------------------------|-------|-------|-------|
| ANNUAL TOTAL             | 38.51 | 22.05 |       |
| ANNUAL MEAN              | .11   | .060  | .22   |
| HIGHEST ANNUAL MEAN      |       |       | .94   |
| LOWEST ANNUAL MEAN       |       |       | .0003 |
| HIGHEST DAILY MEAN       | 1.4   | 5.1   | 62    |
| LOWEST DAILY MEAN        | .00   | .00   | .00   |
| ANNUAL SEVEN-DAY MINIMUM | .00   | .00   | .00   |
| INSTANTANEOUS PEAK FLOW  |       | 37    | 937   |
| INSTANTANEOUS PEAK STAGE |       | 2.15  | 5.38  |
| ANNUAL RUNOFF (AC-FT)    | 76    | 44    | 159   |
| ANNUAL RUNOFF (CFSM)     | .050  | .029  | .10   |
| ANNUAL RUNOFF (INCHES)   | .68   | .39   | 1.42  |
| 10 PERCENT EXCEEDS       | .29   | .06   | .59   |
| 50 PERCENT EXCEEDS       | .04   | .00   | .03   |
| 90 PERCENT EXCEEDS       | .00   | .00   | .00   |

e Estimated



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**Ground-Water Records  
for U.S. Virgin Islands**

## GROUND-WATER LEVELS

## ST. CROIX, U.S. VIRGIN ISLANDS

174225064472000. Local number, 2.

LOCATION.--Lat 17°42'25", long 64°47'20", Hydrologic Unit 21020002, 0.90 mi southeast of the Experimental Station, 0.6 mi southwest of Christiansted Plaza, and 0.18 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64.

Owner: US Virgin Islands Government, Name: USGS-10, Fairplains 2 (FP2).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 20 ft (6.10 m), above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at concrete base wall, 3.00 ft (0.91 m), above land-surface datum.

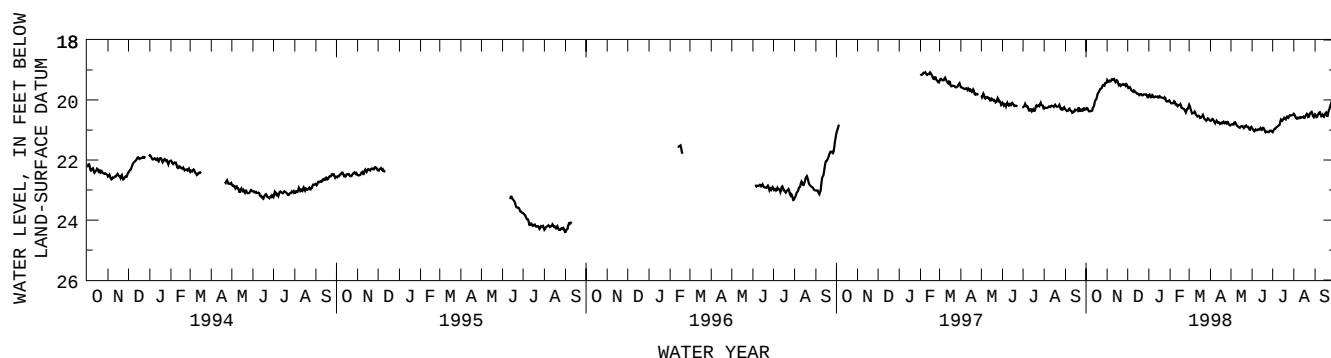
REMARKS.--Recording observation well. Water level affected by nearby pumping well.

PERIOD OF RECORD.--June 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.02 ft (5.80 m), below land-surface datum, Feb. 8, 1997; lowest water level recorded, 26.46 ft (8.06 m), below land-surface datum, Aug. 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY         | OCT        | NOV           | DEC               | JAN          | FEB          | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|-------------|------------|---------------|-------------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|
| 1           | 20.31      | 19.36         | 19.55             | 19.87        | 20.04        | 20.15 | 20.69 | 20.85 | 20.94 | 21.12 | 20.47 | 20.49 |
| 2           | 20.31      | 19.32         | 19.57             | 19.80        | 20.08        | 20.16 | 20.70 | 20.80 | 20.95 | 21.03 | 20.45 | 20.46 |
| 3           | 20.22      | 19.45         | 19.63             | 19.84        | 20.10        | 20.27 | 20.68 | 20.83 | 21.00 | 21.03 | 20.53 | 20.55 |
| 4           | 20.32      | 19.33         | 19.53             | 19.87        | 20.13        | 20.30 | 20.66 | 20.77 | 21.01 | 20.94 | 20.55 | 20.60 |
| 5           | 20.33      | 19.38         | 19.60             | 19.94        | 20.09        | 20.43 | 20.60 | 20.86 | 21.07 | 20.98 | 20.65 | 20.53 |
| 6           | 20.39      | 19.37         | 19.60             | 19.85        | 20.11        | 20.47 | 20.68 | 20.77 | 20.97 | 20.93 | 20.59 | 20.48 |
| 7           | 20.37      | 19.38         | 19.71             | 19.82        | 20.09        | 20.42 | 20.72 | 20.73 | 20.99 | 20.91 | 20.59 | 20.43 |
| 8           | 20.37      | 19.31         | 19.67             | 19.90        | 19.99        | 20.45 | 20.76 | 20.75 | 21.03 | 20.89 | 20.63 | 20.41 |
| 9           | 20.36      | 19.30         | 19.73             | 19.92        | 20.14        | 20.42 | 20.80 | 20.80 | 20.98 | 20.88 | 20.59 | 20.40 |
| 10          | 20.38      | 19.32         | 19.71             | 19.90        | 20.15        | 20.36 | 20.67 | 20.84 | 20.99 | 20.85 | 20.55 | 20.53 |
| 11          | 20.33      | 19.32         | 19.64             | 19.89        | 20.13        | 20.49 | 20.71 | 20.87 | 20.97 | 20.84 | 20.60 | 20.55 |
| 12          | 20.20      | 19.28         | 19.74             | 19.87        | 20.22        | 20.50 | 20.73 | 20.89 | 21.01 | 20.82 | 20.60 | 20.50 |
| 13          | 20.25      | 19.42         | 19.74             | 19.90        | 20.18        | 20.54 | 20.77 | 20.90 | 20.93 | 20.66 | 20.57 | 20.48 |
| 14          | 20.11      | 19.38         | 19.75             | 19.87        | 20.15        | 20.55 | 20.71 | 20.92 | 20.95 | 20.64 | 20.57 | 20.60 |
| 15          | 19.99      | 19.37         | 19.78             | 19.89        | 20.19        | 20.51 | 20.79 | 20.93 | 21.02 | 20.70 | 20.56 | 20.52 |
| 16          | 20.02      | 19.30         | 19.82             | 19.95        | 20.15        | 20.53 | 20.80 | 20.85 | 20.97 | 20.67 | 20.55 | 20.47 |
| 17          | 19.94      | 19.41         | 19.76             | 19.86        | 20.13        | 20.56 | 20.76 | 20.90 | 20.92 | 20.64 | 20.65 | 20.43 |
| 18          | 19.85      | 19.48         | 19.85             | 19.89        | 20.26        | 20.64 | 20.76 | 20.85 | 20.93 | 20.61 | 20.55 | 20.41 |
| 19          | 19.75      | 19.53         | 19.82             | 19.91        | 20.27        | 20.55 | 20.79 | 20.88 | 20.96 | 20.58 | 20.51 | 20.55 |
| 20          | 19.77      | 19.42         | 19.80             | 19.92        | 20.27        | 20.58 | 20.70 | 20.93 | 21.02 | 20.65 | 20.49 | 20.56 |
| 21          | 19.67      | 19.54         | 19.80             | 19.92        | 20.30        | 20.50 | 20.75 | 20.94 | 21.10 | 20.63 | 20.43 | 20.36 |
| 22          | 19.68      | 19.50         | 19.81             | 19.93        | 20.30        | 20.49 | 20.79 | 20.89 | 21.06 | 20.57 | 20.53 | 20.35 |
| 23          | 19.59      | 19.49         | 19.87             | 19.95        | 20.33        | 20.60 | 20.76 | 20.84 | 21.05 | 20.54 | 20.60 | 20.25 |
| 24          | 19.65      | 19.50         | 19.81             | 19.94        | 20.39        | 20.65 | 20.71 | 20.86 | 21.05 | 20.61 | 20.51 | 20.18 |
| 25          | 19.56      | 19.44         | 19.84             | 19.87        | 20.43        | 20.64 | 20.77 | 20.91 | 21.08 | 20.58 | 20.46 | 20.10 |
| 26          | 19.53      | 19.54         | 19.78             | 20.00        | 20.29        | 20.69 | 20.77 | 20.87 | 21.06 | 20.52 | 20.42 | 20.05 |
| 27          | 19.47      | 19.44         | 19.84             | 20.04        | 20.30        | 20.69 | 20.69 | 20.92 | 21.03 | 20.50 | 20.40 | 19.94 |
| 28          | 19.53      | 19.52         | 19.80             | 20.06        | 20.28        | 20.64 | 20.80 | 20.96 | 21.01 | 20.52 | 20.39 | 19.90 |
| 29          | 19.50      | 19.51         | 19.82             | 20.02        | ---          | 20.58 | 20.83 | 21.01 | 21.06 | 20.51 | 20.50 | 19.96 |
| 30          | 19.38      | 19.43         | 19.86             | 20.07        | ---          | 20.65 | 20.85 | 20.97 | 20.99 | 20.51 | 20.58 | 20.03 |
| 31          | 19.49      | ---           | 19.95             | 19.98        | ---          | 20.66 | ---   | 20.84 | ---   | 20.50 | 20.57 | ---   |
| MEAN        | 19.96      | 19.41         | 19.75             | 19.92        | 20.20        | 20.51 | 20.74 | 20.87 | 21.00 | 20.72 | 20.54 | 20.37 |
| WTR YR 1998 | MEAN 20.33 | HIGHEST 19.27 | NOV, 10, 12, 1997 | LOWEST 21.12 | JULY 1, 1998 |       |       |       |       |       |       |       |



## GROUND-WATER LEVELS

## ST. CROIX, U.S. VIRGIN ISLANDS

174243064475100. Local number, 3.

LOCATION.--Lat 17°42'43", long 64°47'51", Hydrologic Unit 21020002, 0.75 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 6.45 mi southwest of Christiansted Plaza, and 0.57 mi southwest of the Experimental Station.

Owner: US Virgin Islands Government, Name: Golden Grove - 6 (PW6).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m), above mean sea level, from topographic map.

Measuring point: Upper edge of hole at 8 in (0.20 m) casing, 4.20 ft (1.28 m), above land-surface datum.

REMARKS.--Recording observation well.

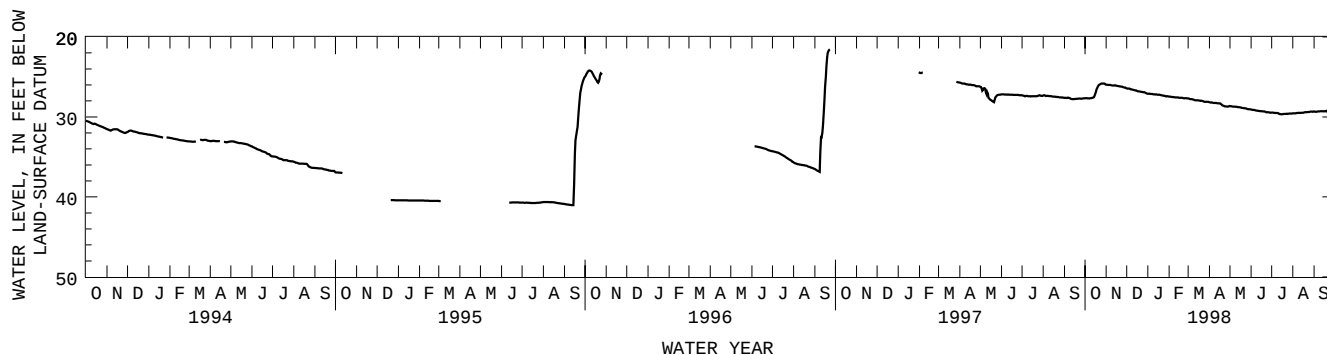
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.99 ft (3.96 m), below land-surface datum, Nov. 10, 1990; lowest water level recorded, 41.05 ft (12.5 m), below land-surface datum, Sept. 15, 1995.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

| INSTANTANEOUS OBSERVATION AT 1200 |       |       |       |       |       |       |       |       |       |       |       |       |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DAY                               | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
| 1                                 | 27.67 | 25.97 | 26.41 | 27.09 | 27.46 | 27.68 | 28.16 | 28.65 | 29.06 | 29.48 | 29.56 | 29.31 |
| 2                                 | 27.66 | 25.97 | 26.45 | 27.10 | 27.46 | 27.70 | 28.18 | 28.65 | 29.09 | 29.45 | 29.55 | 29.31 |
| 3                                 | 27.65 | 25.97 | 26.45 | 27.10 | 27.46 | 27.73 | 28.20 | 28.68 | 29.11 | 29.45 | 29.54 | 29.36 |
| 4                                 | 27.66 | 25.98 | 26.45 | 27.10 | 27.46 | 27.77 | 28.20 | 28.67 | 29.12 | 29.47 | 29.55 | 29.36 |
| 5                                 | 27.67 | 26.00 | 26.46 | 27.12 | 27.50 | 27.78 | 28.19 | 28.70 | 29.12 | 29.50 | 29.56 | 29.35 |
| 6                                 | 27.69 | 25.99 | 26.46 | 27.13 | 27.52 | 27.78 | 28.21 | 28.70 | 29.14 | 29.51 | 29.53 | 29.33 |
| 7                                 | 27.67 | 25.99 | 26.53 | 27.13 | 27.52 | 27.78 | 28.24 | 28.71 | 29.16 | 29.50 | 29.52 | 29.32 |
| 8                                 | 27.67 | 26.01 | 26.55 | 27.15 | 27.52 | 27.83 | 28.26 | 28.70 | 29.19 | 29.50 | 29.51 | 29.32 |
| 9                                 | 27.67 | 26.04 | 26.56 | 27.17 | 27.53 | 27.84 | 28.26 | 28.73 | 29.21 | 29.51 | 29.50 | 29.31 |
| 10                                | 27.65 | 26.07 | 26.58 | 27.17 | 27.55 | 27.86 | 28.24 | 28.73 | 29.22 | 29.51 | 29.49 | 29.31 |
| 11                                | 27.65 | 26.07 | 26.60 | 27.16 | 27.56 | 27.90 | 28.26 | 28.73 | 29.23 | 29.53 | 29.49 | 29.28 |
| 12                                | 27.63 | 26.08 | 26.64 | 27.19 | 27.57 | 27.92 | 28.26 | 28.76 | 29.24 | 29.59 | 29.50 | 29.28 |
| 13                                | 27.60 | 26.08 | 26.65 | 27.19 | 27.57 | 27.93 | 28.29 | 28.78 | 29.25 | 29.64 | 29.49 | 29.28 |
| 14                                | 27.55 | 26.04 | 26.67 | 27.18 | 27.55 | 27.93 | 28.31 | 28.78 | 29.27 | 29.65 | 29.47 | 29.29 |
| 15                                | 27.51 | 26.06 | 26.70 | 27.20 | 27.59 | 27.93 | 28.31 | 28.79 | 29.28 | 29.66 | 29.47 | 29.31 |
| 16                                | 27.26 | 26.08 | 26.71 | 27.23 | 27.61 | 27.93 | 28.31 | 28.80 | 29.29 | 29.66 | 29.49 | 29.30 |
| 17                                | 27.01 | 26.10 | 26.78 | 27.23 | 27.60 | 27.95 | 28.31 | 28.82 | 29.30 | 29.66 | 29.49 | 29.30 |
| 18                                | 26.66 | 26.13 | 26.78 | 27.23 | 27.63 | 27.96 | 28.35 | 28.85 | 29.30 | 29.64 | 29.43 | 29.29 |
| 19                                | 26.45 | 26.15 | 26.81 | 27.24 | 27.60 | 27.99 | 28.44 | 28.87 | 29.32 | 29.64 | 29.42 | 29.31 |
| 20                                | 26.28 | 26.16 | 26.81 | 27.26 | 27.61 | 27.99 | 28.52 | 28.89 | 29.32 | 29.62 | 29.41 | 29.33 |
| 21                                | 26.09 | 26.19 | 26.80 | 27.29 | 27.62 | 27.96 | 28.57 | 28.89 | 29.32 | 29.62 | 29.40 | 29.10 |
| 22                                | 26.00 | 26.20 | 26.86 | 27.30 | 27.66 | 28.00 | 28.59 | 28.90 | 29.35 | 29.62 | 29.41 | 29.33 |
| 23                                | 25.96 | 26.20 | 26.86 | 27.32 | 27.67 | 28.01 | 28.65 | 28.92 | 29.38 | 29.61 | 29.41 | 29.22 |
| 24                                | 25.91 | 26.22 | 26.87 | 27.34 | 27.67 | 28.08 | 28.68 | 28.92 | 29.42 | 29.61 | 29.36 | 28.94 |
| 25                                | 25.83 | 26.22 | 26.90 | 27.36 | 27.66 | 28.12 | 28.69 | 28.92 | 29.43 | 29.62 | 29.39 | 28.66 |
| 26                                | 25.83 | 26.27 | 26.91 | 27.37 | 27.64 | 28.12 | 28.69 | 29.00 | 29.41 | 29.60 | 29.38 | 28.40 |
| 27                                | 25.81 | 26.30 | 26.90 | 27.38 | 27.66 | 28.10 | 28.69 | 29.02 | 29.42 | 29.58 | 29.34 | 28.17 |
| 28                                | 25.83 | 26.32 | 26.94 | 27.45 | 27.69 | 28.12 | 28.71 | 29.02 | 29.44 | 29.58 | 29.33 | 28.03 |
| 29                                | 25.84 | 26.35 | 26.98 | 27.43 | ---   | 28.10 | 28.72 | 29.03 | 29.45 | 29.58 | 29.34 | 27.88 |
| 30                                | 25.84 | 26.34 | 27.02 | 27.41 | ---   | 28.11 | 28.65 | 29.05 | 29.47 | 29.58 | 29.35 | 27.87 |
| 31                                | 25.87 | ---   | 27.08 | 27.44 | ---   | 28.12 | ---   | 29.05 | ---   | 29.58 | 29.36 | ---   |
| MEAN                              | 26.87 | 26.12 | 26.72 | 27.24 | 27.58 | 27.94 | 28.40 | 28.83 | 29.28 | 29.57 | 29.45 | 29.06 |

WTR YR 1998 MEAN 28.09 HIGHEST 25.77 OCT. 27, 28, 1997 LOWEST 29.66 JULY 14-19, 1998



## GROUND-WATER LEVELS

## ST. CROIX, U.S. VIRGIN ISLANDS

174316064480800. Local number, 13.

LOCATION.--Lat 17°43'16", long 64°48'08", Hydrologic Unit 21020002, 5.25 mi east of Fort Frederick at Frederickstead, 0.95 mi southeast of Holy Cross Church, and 0.65 mi northeast of Adventure Ruins. Owner: US Virgin Islands Water and Power Authority, Name: WAPA-17 at Adventure well field.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-95.0 ft (0-29.0 m), screened 10-40.0 ft (3.05-12.2 m). Depth 95.0 ft (29.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 75.0 ft (22.9 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.33 ft (0.71 m), above land-surface datum.

REMARKS.--Recording observation well.

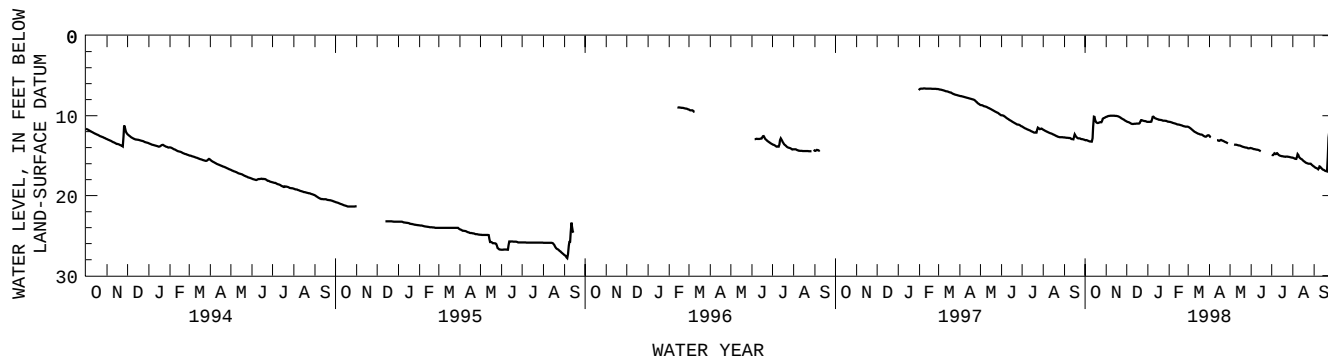
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.27 ft (0.08 m), below land-surface datum, Sept. 10, 1996; lowest water level recorded, 27.88 ft (8.50 m), below land-surface datum, Sept. 6, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 13.04 | 10.17 | 10.70 | 10.78 | 10.77 | 11.38 | 12.45 | ---   | 14.05 | 14.90 | 15.25 | 16.34 |
| 2    | 13.07 | 10.15 | 10.76 | 10.78 | 10.77 | 11.42 | 12.62 | ---   | 14.07 | 14.92 | 15.28 | 16.39 |
| 3    | 13.07 | 10.11 | 10.80 | 10.78 | 10.79 | 11.47 | 12.68 | ---   | 14.10 | 14.93 | 15.31 | 16.48 |
| 4    | 13.06 | 10.07 | 10.80 | 10.78 | 10.83 | 11.52 | 12.73 | ---   | 14.14 | 14.93 | 15.36 | 16.52 |
| 5    | 13.10 | 10.05 | 10.84 | 10.78 | 10.83 | 11.62 | ---   | ---   | 14.16 | 14.71 | 15.40 | 16.57 |
| 6    | 13.15 | 10.03 | 10.89 | 10.78 | 10.86 | 11.68 | ---   | ---   | 14.19 | 14.73 | 15.41 | 16.61 |
| 7    | 13.17 | 10.02 | 10.96 | 10.70 | 10.91 | 11.76 | ---   | 13.61 | 14.20 | 14.82 | 15.43 | 16.67 |
| 8    | 13.21 | 10.02 | 10.99 | 10.20 | 10.94 | 11.80 | ---   | 13.62 | 14.22 | 14.79 | 14.82 | 16.73 |
| 9    | 13.22 | 10.02 | 11.03 | 10.11 | 10.96 | 11.89 | ---   | 13.62 | 14.24 | 14.64 | 14.80 | 16.37 |
| 10   | 13.24 | 10.02 | 11.03 | 10.15 | 10.98 | 11.95 | ---   | 13.63 | 14.25 | 14.73 | 15.07 | 16.34 |
| 11   | 13.24 | 10.02 | 11.03 | 10.26 | 11.01 | 12.03 | ---   | 13.64 | 14.27 | 14.85 | 15.21 | 16.46 |
| 12   | 13.24 | 10.02 | 11.03 | 10.35 | 11.04 | 12.08 | 13.07 | 13.67 | 14.30 | 14.94 | 15.30 | 16.54 |
| 13   | 12.40 | 10.02 | 11.01 | 10.35 | 11.08 | 12.13 | 13.07 | 13.69 | 14.32 | 14.97 | 15.39 | 16.64 |
| 14   | 10.36 | 10.02 | 11.01 | 10.39 | 11.10 | 12.18 | 13.10 | 13.72 | 14.39 | 15.01 | 15.43 | 16.73 |
| 15   | 9.88  | 10.03 | 11.00 | 10.43 | 11.11 | 12.21 | 13.13 | 13.72 | 14.43 | 15.03 | 15.50 | 16.75 |
| 16   | 10.41 | 10.03 | 11.00 | 10.43 | 11.13 | 12.27 | 13.18 | 13.74 | 14.47 | 15.06 | 15.57 | 16.80 |
| 17   | 10.76 | 10.05 | 10.99 | 10.50 | 11.13 | 12.28 | 13.08 | 13.78 | ---   | 15.06 | 15.67 | 16.85 |
| 18   | 10.83 | 10.07 | 10.98 | 10.50 | 11.18 | 12.31 | 13.02 | 13.82 | ---   | 15.08 | 15.71 | 16.92 |
| 19   | 10.91 | 10.09 | 10.98 | 10.53 | 11.21 | 12.36 | 13.03 | 13.84 | ---   | 15.10 | 15.79 | 16.94 |
| 20   | 10.93 | 10.13 | 10.98 | 10.53 | 11.22 | 12.36 | 13.11 | 13.88 | ---   | 15.12 | 15.85 | 16.96 |
| 21   | 10.93 | 10.18 | 10.89 | 10.53 | 11.26 | 12.37 | 13.13 | 13.91 | ---   | 15.14 | 15.91 | 16.98 |
| 22   | 10.87 | 10.20 | 10.55 | 10.57 | 11.28 | 12.41 | 13.18 | 13.93 | ---   | 15.13 | 15.93 | 13.41 |
| 23   | 10.83 | 10.28 | 10.55 | 10.61 | 11.31 | 12.47 | 13.24 | 13.96 | ---   | 15.13 | 15.97 | 12.10 |
| 24   | 10.83 | 10.34 | 10.58 | 10.63 | 11.34 | 12.52 | 13.28 | 13.97 | ---   | 15.13 | 16.02 | 12.19 |
| 25   | 10.82 | 10.38 | 10.62 | 10.63 | 11.37 | 12.57 | 13.31 | 13.99 | ---   | 15.13 | 16.02 | 12.59 |
| 26   | 10.82 | 10.44 | 10.64 | 10.63 | 11.37 | 12.61 | 13.35 | 14.01 | ---   | 15.14 | 16.02 | 12.74 |
| 27   | 10.44 | 10.50 | 10.67 | 10.64 | 11.37 | 12.63 | 13.38 | 14.04 | ---   | 15.15 | 16.02 | 12.89 |
| 28   | 10.36 | 10.54 | 10.68 | 10.66 | 11.37 | 12.63 | 13.43 | 14.07 | ---   | 15.18 | 16.02 | 12.75 |
| 29   | 10.30 | 10.61 | 10.68 | 10.67 | ---   | 12.48 | 13.48 | 14.09 | ---   | 15.20 | 16.14 | 12.79 |
| 30   | 10.30 | 10.66 | 10.75 | 10.74 | ---   | 12.48 | ---   | 14.10 | ---   | 15.24 | 16.22 | 12.87 |
| 31   | 10.21 | ---   | 10.76 | 10.75 | ---   | 12.44 | ---   | 14.04 | ---   | 15.24 | 16.28 | ---   |
| MEAN | 11.65 | 10.18 | 10.84 | 10.55 | 11.09 | 12.14 | 13.09 | 13.84 | 14.24 | 15.00 | 15.62 | 15.46 |

WTR YR 1998 MEAN 12.73 HIGHEST 9.83 OCT. 15, 1997 LOWEST 16.98 SEPT. 20, 21, 1998



## GROUND-WATER LEVELS

## ST. THOMAS, U.S. VIRGIN ISLANDS

182038064550300. Local number, 6.

LOCATION.--Lat 18°20'38", long 64°55'03", Hydrologic Unit 21020001, 1.12 mi east of Charlotte Amalie, 0.75 mi southwest of Winterberg Peak, and 1.08 mi southeast of Canaan. Owner: US Virgin Islands Government, Name: Grade School 3.

AQUIFER.--Volcanic breccia.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 70.0 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m), above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.30 ft (0.40 m), above land-surface datum.

Prior to June 27, 1983, top of 6 in (0.15 m) casing, 2.90 ft (0.88 m), above land-surface datum.

REMARKS.--Recording observation well.

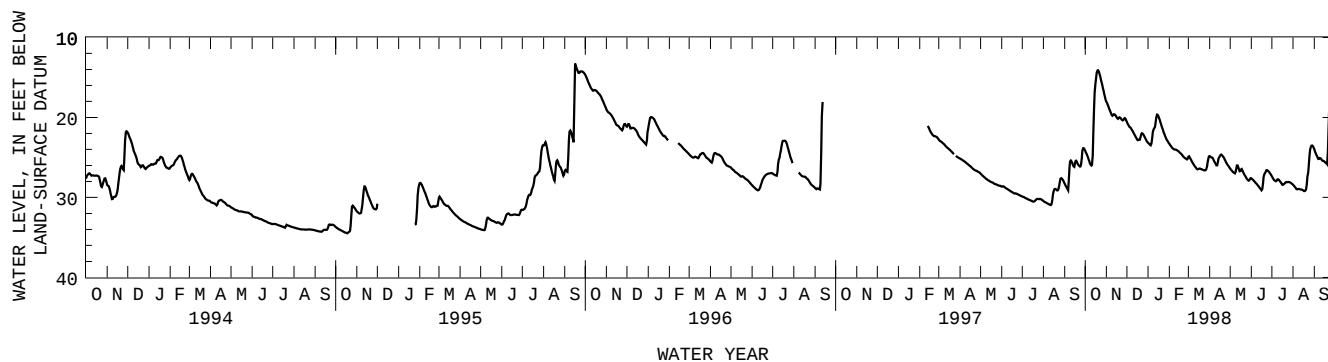
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.53 ft (0.47 m), below land-surface datum, Oct. 1, 1989; lowest water level recorded, 35.38 ft (10.8 m), below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 24.06 | 17.95 | 20.47 | 23.13 | 23.23 | 25.01 | 24.81 | 26.34 | 27.58 | 27.27 | 28.36 | 23.85 |
| 2    | 24.30 | 18.12 | 20.66 | 23.21 | 23.36 | 24.79 | 24.83 | 26.46 | 27.66 | 27.42 | 28.44 | 24.09 |
| 3    | 24.46 | 18.31 | 20.84 | 23.31 | 23.47 | 24.90 | 24.93 | 26.56 | 27.73 | 27.58 | 28.55 | 24.36 |
| 4    | 24.64 | 18.53 | 20.99 | 23.39 | 23.59 | 25.08 | 25.00 | 26.66 | 27.81 | 27.75 | 28.66 | 24.55 |
| 5    | 24.85 | 18.77 | 21.17 | 23.50 | 23.73 | 25.26 | 24.98 | 26.75 | 27.90 | 27.87 | 28.77 | 24.73 |
| 6    | 25.09 | 18.98 | 21.24 | 23.50 | 23.81 | 25.42 | 25.08 | 26.84 | 28.00 | 27.91 | 28.90 | 24.94 |
| 7    | 25.33 | 19.19 | 21.26 | 23.02 | 23.87 | 25.57 | 25.26 | 26.91 | 28.09 | 27.95 | 29.00 | 25.14 |
| 8    | 25.60 | 19.40 | 21.43 | 22.03 | 23.95 | 25.72 | 25.44 | 26.98 | 28.20 | 27.98 | 28.99 | 25.25 |
| 9    | 25.84 | 19.62 | 21.59 | 21.58 | 24.01 | 25.87 | 25.60 | 27.01 | 28.29 | 27.81 | 28.94 | 25.09 |
| 10   | 25.96 | 19.83 | 21.70 | 21.39 | 24.00 | 26.00 | 25.75 | 26.63 | 28.40 | 27.73 | 28.92 | 25.06 |
| 11   | 26.06 | 19.75 | 21.86 | 21.30 | 24.01 | 26.12 | 25.91 | 26.10 | 28.50 | 27.75 | 28.95 | 25.12 |
| 12   | 25.82 | 19.60 | 22.03 | 21.12 | 24.05 | 26.24 | 26.07 | 25.91 | 28.62 | 27.84 | 29.01 | 25.23 |
| 13   | 23.77 | 19.60 | 22.19 | 20.32 | 24.11 | 26.37 | 25.89 | 26.10 | 28.72 | 27.94 | 29.02 | 25.40 |
| 14   | 20.10 | 19.63 | 22.37 | 19.69 | 24.16 | 26.47 | 25.27 | 26.37 | 28.82 | 28.06 | 29.02 | 25.44 |
| 15   | 17.55 | 19.74 | 22.52 | 19.62 | 24.25 | 26.50 | 25.00 | 26.65 | 28.94 | 28.18 | 29.05 | 25.42 |
| 16   | 16.23 | 19.87 | 22.69 | 19.74 | 24.33 | 26.45 | 24.93 | 26.82 | 29.04 | 28.32 | 29.10 | 25.47 |
| 17   | 15.35 | 20.03 | 22.85 | 19.94 | 24.41 | 26.41 | 24.74 | 26.61 | 29.15 | 28.44 | 29.17 | 25.57 |
| 18   | 14.58 | 20.18 | 22.81 | 20.16 | 24.47 | 26.39 | 24.63 | 26.38 | 28.75 | 28.44 | 29.22 | 25.69 |
| 19   | 14.18 | 20.17 | 22.76 | 20.42 | 24.57 | 26.40 | 24.65 | 26.52 | 27.68 | 28.33 | 29.19 | 25.68 |
| 20   | 14.08 | 19.99 | 22.80 | 20.70 | 24.67 | 26.46 | 24.75 | 26.74 | 27.17 | 28.28 | 29.10 | 25.82 |
| 21   | 14.15 | 19.96 | 22.76 | 20.98 | 24.77 | 26.48 | 24.86 | 26.93 | 27.02 | 28.16 | 28.92 | 25.88 |
| 22   | 14.39 | 20.05 | 22.17 | 21.24 | 24.87 | 26.52 | 25.00 | 27.08 | 26.93 | 28.07 | 27.76 | 22.33 |
| 23   | 14.68 | 20.15 | 21.97 | 21.53 | 24.97 | 26.57 | 25.15 | 27.23 | 26.65 | 28.08 | 27.04 | 19.28 |
| 24   | 15.02 | 20.28 | 21.97 | 21.78 | 25.05 | 26.60 | 25.32 | 27.39 | 26.57 | 28.13 | 26.84 | 18.08 |
| 25   | 15.39 | 20.35 | 22.07 | 22.02 | 25.13 | 26.60 | 25.51 | 27.54 | 26.61 | 28.08 | 25.32 | 17.48 |
| 26   | 15.78 | 20.41 | 22.19 | 22.23 | 25.14 | 26.60 | 25.67 | 27.69 | 26.69 | 28.06 | 24.24 | 17.20 |
| 27   | 16.15 | 20.21 | 22.34 | 22.44 | 25.20 | 26.60 | 25.82 | 27.79 | 26.78 | 28.09 | 23.83 | 17.13 |
| 28   | 16.52 | 20.05 | 22.53 | 22.65 | 25.27 | 26.37 | 25.94 | 27.86 | 26.89 | 28.11 | 23.57 | 17.18 |
| 29   | 16.90 | 20.10 | 22.71 | 22.81 | ---   | 25.96 | 26.06 | 27.93 | 27.00 | 28.16 | 23.48 | 17.35 |
| 30   | 17.27 | 20.25 | 22.88 | 22.96 | ---   | 25.39 | 26.20 | 27.82 | 27.13 | 28.23 | 23.53 | 17.60 |
| 31   | 17.65 | ---   | 23.03 | 23.11 | ---   | 24.94 | ---   | 27.62 | ---   | 28.29 | 23.67 | ---   |
| MEAN | 19.73 | 19.64 | 22.03 | 21.77 | 24.30 | 26.00 | 25.30 | 26.91 | 27.78 | 28.01 | 27.63 | 23.05 |

WTR YR 1998 MEAN 24.35 HIGHEST 14.07 OCT. 20, 1997 LOWEST 29.24 AUG. 18, 19, 1998



## GROUND-WATER LEVELS

## ST. THOMAS, U.S. VIRGIN ISLANDS

182038064580000. Local number, 8.

LOCATION.--Lat 18°20'38", long 64°58'00", Hydrologic Unit 21020001, 2.08 mi northwest of Charlotte Amalie, 0.50 mi northeast of Harry S. Truman Airport entrance on Hwy 302, and 1.15 mi southwest of Dorothea. Owner: US Virgin Islands Water and Power Authority, Name: Kirwan Terrace, VIE0-6.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-56 in (0-17.1 m), screened 56-76.0 ft (17.1-23.2 m). Depth 76.0 ft (23.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 35.0 ft (10.7 m), above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well. Drilled on July 1, 1991.

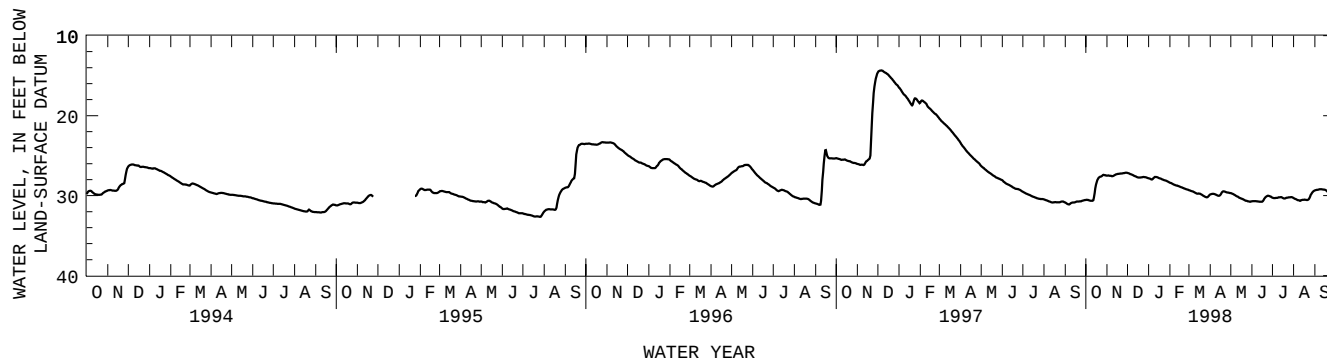
PERIOD OF RECORD.--October 2, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.3 ft (4.37 m), below land-surface datum, Dec. 6, 7, 1996; lowest water level recorded, 32.7 ft (9.96 m), below land-surface datum, July 27, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV   | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 30.55 | 27.50 | 27.14 | 27.83 | 28.37 | 29.29 | 29.86 | 29.68 | 30.70 | 30.23 | 30.28 | 29.36 |
| 2    | 30.54 | 27.49 | 27.18 | 27.84 | 28.40 | 29.34 | 29.84 | 29.70 | 30.70 | 30.26 | 30.33 | 29.31 |
| 3    | 30.52 | 27.48 | 27.19 | 27.88 | 28.42 | 29.36 | 29.81 | 29.73 | 30.69 | 30.28 | 30.37 | 29.31 |
| 4    | 30.53 | 27.48 | 27.24 | 27.89 | 28.46 | 29.40 | 29.79 | 29.75 | 30.68 | 30.31 | 30.41 | 29.29 |
| 5    | 30.54 | 27.51 | 27.28 | 27.95 | 28.51 | 29.43 | 29.78 | 29.80 | 30.68 | 30.31 | 30.45 | 29.27 |
| 6    | 30.57 | 27.51 | 27.32 | 28.00 | 28.56 | 29.46 | 29.76 | 29.85 | 30.70 | 30.29 | 30.50 | 29.26 |
| 7    | 30.60 | 27.51 | 27.35 | 27.95 | 28.59 | 29.48 | 29.80 | 29.90 | 30.69 | 30.28 | 30.55 | 29.24 |
| 8    | 30.62 | 27.55 | 27.37 | 27.86 | 28.64 | 29.52 | 29.81 | 29.95 | 30.70 | 30.30 | 30.57 | 29.21 |
| 9    | 30.65 | 27.57 | 27.41 | 27.76 | 28.67 | 29.56 | 29.84 | 30.01 | 30.71 | 30.27 | 30.57 | 29.21 |
| 10   | 30.65 | 27.55 | 27.46 | 27.69 | 28.71 | 29.62 | 29.88 | 30.06 | 30.72 | 30.22 | 30.63 | 29.20 |
| 11   | 30.65 | 27.52 | 27.51 | 27.66 | 28.74 | 29.66 | 29.92 | 30.10 | 30.74 | 30.22 | 30.67 | 29.21 |
| 12   | 30.63 | 27.48 | 27.54 | 27.66 | 28.74 | 29.71 | 29.98 | 30.14 | 30.75 | 30.20 | 30.59 | 29.21 |
| 13   | 30.49 | 27.44 | 27.58 | 27.69 | 28.77 | 29.75 | 30.02 | 30.20 | 30.76 | 30.20 | 30.56 | 29.22 |
| 14   | 30.01 | 27.37 | 27.62 | 27.69 | 28.81 | 29.77 | 30.02 | 30.25 | 30.76 | 30.18 | 30.52 | 29.24 |
| 15   | 29.37 | 27.33 | 27.67 | 27.74 | 28.84 | 29.74 | 29.99 | 30.30 | 30.77 | 30.21 | 30.52 | 29.25 |
| 16   | 28.84 | 27.32 | 27.70 | 27.79 | 28.88 | 29.73 | 29.96 | 30.33 | 30.76 | 30.27 | 30.53 | 29.25 |
| 17   | 28.43 | 27.30 | 27.72 | 27.82 | 28.91 | 29.75 | 29.81 | 30.37 | 30.76 | 30.30 | 30.51 | 29.29 |
| 18   | 28.15 | 27.28 | 27.73 | 27.85 | 28.94 | 29.77 | 29.67 | 30.40 | 30.63 | 30.34 | 30.50 | 29.34 |
| 19   | 27.94 | 27.28 | 27.74 | 27.87 | 28.97 | 29.83 | 29.54 | 30.43 | 30.47 | 30.36 | 30.52 | 29.40 |
| 20   | 27.81 | 27.25 | 27.74 | 27.91 | 29.01 | 29.87 | 29.49 | 30.46 | 30.33 | 30.33 | 30.53 | 29.52 |
| 21   | 27.71 | 27.24 | 27.72 | 27.96 | 29.04 | 29.93 | 29.45 | 30.51 | 30.23 | 30.31 | 30.55 | 29.54 |
| 22   | 27.66 | 27.24 | 27.72 | 27.99 | 29.08 | 30.00 | 29.47 | 30.56 | 30.15 | 30.27 | 30.55 | 29.32 |
| 23   | 27.62 | 27.23 | 27.69 | 28.02 | 29.11 | 30.02 | 29.49 | 30.62 | 30.08 | 30.25 | 30.49 | 28.88 |
| 24   | 27.61 | 27.22 | 27.67 | 28.06 | 29.15 | 30.09 | 29.53 | 30.64 | 30.04 | 30.24 | 30.41 | 28.55 |
| 25   | 27.55 | 27.19 | 27.66 | 28.09 | 29.18 | 30.14 | 29.57 | 30.66 | 30.01 | 30.22 | 30.24 | 28.28 |
| 26   | 27.48 | 27.20 | 27.68 | 28.11 | 29.20 | 30.17 | 29.59 | 30.69 | 30.02 | 30.22 | 30.02 | 28.06 |
| 27   | 27.39 | 27.17 | 27.68 | 28.13 | 29.23 | 30.20 | 29.61 | 30.72 | 30.05 | 30.22 | 29.83 | 27.92 |
| 28   | 27.41 | 27.14 | 27.70 | 28.17 | 29.26 | 30.21 | 29.62 | 30.72 | 30.10 | 30.21 | 29.70 | 27.77 |
| 29   | 27.44 | 27.14 | 27.71 | 28.21 | ---   | 30.17 | 29.64 | 30.75 | 30.11 | 30.18 | 29.60 | 27.69 |
| 30   | 27.45 | 27.13 | 27.76 | 28.25 | ---   | 30.07 | 29.66 | 30.76 | 30.18 | 30.21 | 29.48 | 27.63 |
| 31   | 27.47 | ---   | 27.79 | 28.32 | ---   | 29.96 | ---   | 30.74 | ---   | 30.23 | 29.41 | ---   |
| MEAN | 29.06 | 27.35 | 27.56 | 27.92 | 28.83 | 29.77 | 29.74 | 30.28 | 30.49 | 30.26 | 30.34 | 28.97 |

WTR YR 1998 MEAN 29.22 HIGHEST 27.12 NOV. 28, DEC. 1, 1997 LOWEST 30.77 JUNE 14, 15, 16, 1998



## GROUND-WATER LEVELS

## ST. JOHN, U.S. VIRGIN ISLANDS

181956064464500. Local number, 11.

LOCATION.--Lat 18°19'56", long 64°46'45", Hydrologic Unit 21020001, 1.05 mi southeast of Cruz Bay plaza, 0.25 mi southeast of Bethany Church, and 0.48 mi southeast of Margaret Hill. Owner: US Virgin Islands Government, Name: Guinea Gut Well.

AQUIFER.--Louisenhoj Formation (Donnelly, 1959).

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85.0 ft (25.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 280 ft (85.36 m), above mean sea level, from topographic map.

Measuring point: Bottom of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.50 ft (0.46 m), above land-surface datum. Prior to June 28, 1983, top of 6 in (0.15 m) casing, 1.80 ft (0.55 m), above land-surface datum.

REMARKS.--Recording observation well.

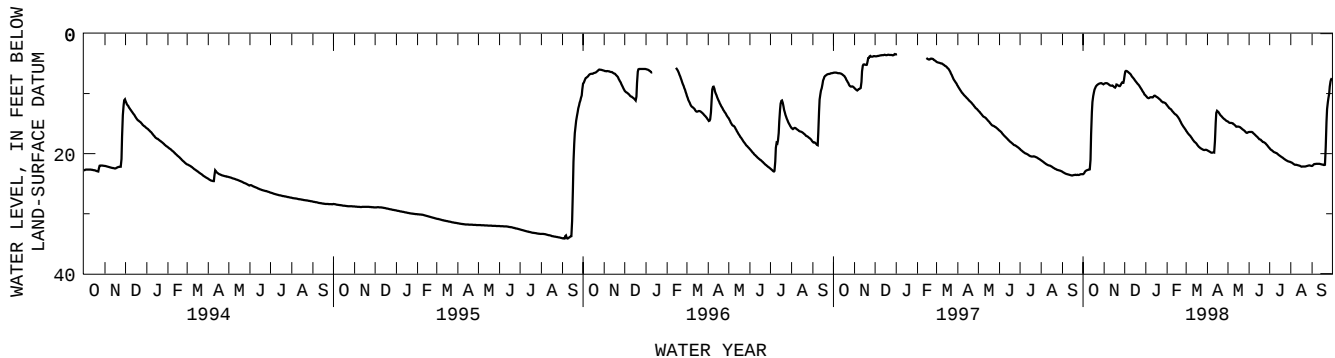
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.71 ft (0.79 m), below land-surface datum, Jan. 3, 1990; lowest water level recorded, 34.18 ft (10.4 m), below land-surface datum, Sept. 6, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
INSTANTANEOUS OBSERVATION AT 1200

| DAY  | OCT   | NOV  | DEC   | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL   | AUG   | SEP   |
|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | 23.41 | 8.43 | 7.31  | 10.28 | 11.87 | 16.10 | 19.43 | 14.60 | 16.39 | 19.05 | 21.39 | 22.06 |
| 2    | 23.41 | 8.29 | 6.36  | 10.43 | 12.03 | 16.27 | 19.51 | 14.69 | 16.39 | 19.18 | 21.46 | 22.06 |
| 3    | 23.29 | 8.26 | 6.22  | 10.56 | 12.15 | 16.42 | 19.54 | 14.82 | 16.39 | 19.30 | 21.51 | 21.89 |
| 4    | 23.09 | 8.26 | 6.21  | 10.67 | 12.32 | 16.60 | 19.61 | 14.90 | 16.40 | 19.39 | 21.58 | 21.81 |
| 5    | 22.93 | 8.23 | 6.25  | 10.75 | 12.45 | 16.76 | 19.68 | 14.86 | 16.38 | 19.46 | 21.68 | 21.74 |
| 6    | 22.85 | 8.28 | 6.33  | 10.78 | 12.50 | 16.91 | 19.76 | 14.87 | 16.39 | 19.55 | 21.76 | 21.73 |
| 7    | 22.78 | 8.35 | 6.45  | 10.67 | 12.57 | 16.97 | 19.84 | 14.91 | 16.52 | 19.67 | 21.84 | 21.72 |
| 8    | 22.75 | 8.44 | 6.55  | 10.58 | 12.74 | 17.13 | 19.84 | 14.90 | 16.61 | 19.77 | 21.86 | 21.70 |
| 9    | 22.71 | 8.53 | 6.62  | 10.58 | 12.90 | 17.31 | 19.81 | 15.02 | 16.74 | 19.80 | 21.85 | 21.69 |
| 10   | 22.67 | 8.64 | 6.75  | 10.61 | 13.02 | 17.46 | 19.78 | 15.10 | 16.83 | 19.84 | 21.86 | 21.69 |
| 11   | 22.64 | 8.63 | 6.90  | 10.61 | 13.16 | 17.63 | 19.80 | 15.17 | 16.96 | 19.88 | 21.90 | 21.68 |
| 12   | 22.60 | 8.71 | 7.13  | 10.62 | 13.29 | 17.80 | 19.82 | 15.31 | 17.06 | 19.96 | 21.93 | 21.69 |
| 13   | 19.45 | 8.63 | 7.30  | 10.41 | 13.41 | 17.95 | 16.05 | 15.43 | 17.15 | 20.04 | 21.95 | 21.72 |
| 14   | 14.11 | 8.67 | 7.36  | 10.30 | 13.44 | 18.07 | 13.61 | 15.53 | 17.28 | 20.15 | 21.99 | 21.74 |
| 15   | 12.04 | 8.75 | 7.54  | 10.35 | 13.57 | 18.15 | 12.81 | 15.49 | 17.42 | 20.23 | 22.05 | 21.78 |
| 16   | 10.77 | 8.90 | 7.70  | 10.45 | 13.71 | 18.29 | 12.94 | 15.46 | 17.55 | 20.32 | 22.13 | 21.81 |
| 17   | 10.00 | 8.96 | 7.86  | 10.52 | 13.83 | 18.41 | 12.98 | 15.49 | 17.63 | 20.41 | 22.16 | 21.82 |
| 18   | 9.48  | 9.05 | 8.00  | 10.59 | 14.00 | 18.60 | 13.15 | 15.52 | 17.65 | 20.48 | 22.16 | 21.86 |
| 19   | 9.14  | 8.53 | 8.15  | 10.67 | 14.17 | 18.74 | 13.31 | 15.58 | 17.76 | 20.57 | 22.12 | 21.89 |
| 20   | 8.91  | 8.46 | 8.29  | 10.74 | 14.39 | 18.85 | 13.50 | 15.67 | 17.87 | 20.64 | 22.16 | 21.91 |
| 21   | 8.72  | 8.57 | 8.41  | 10.87 | 14.60 | 18.96 | 13.63 | 15.75 | 18.00 | 20.72 | 22.13 | 21.82 |
| 22   | 8.58  | 8.63 | 8.57  | 10.93 | 14.84 | 19.07 | 13.77 | 15.87 | 18.08 | 20.82 | 22.15 | 16.15 |
| 23   | 8.49  | 8.71 | 8.71  | 11.09 | 15.05 | 19.14 | 13.89 | 15.95 | 18.10 | 20.89 | 22.13 | 13.31 |
| 24   | 8.43  | 8.76 | 8.89  | 11.26 | 15.26 | 19.20 | 14.01 | 16.04 | 18.14 | 20.97 | 22.11 | 11.85 |
| 25   | 8.32  | 8.71 | 9.07  | 11.31 | 15.43 | 19.25 | 14.13 | 16.12 | 18.26 | 21.05 | 22.06 | 11.02 |
| 26   | 8.29  | 8.52 | 9.26  | 11.43 | 15.59 | 19.33 | 14.24 | 16.22 | 18.36 | 21.13 | 22.02 | 10.49 |
| 27   | 8.28  | 8.16 | 9.43  | 11.48 | 15.74 | 19.38 | 14.28 | 16.35 | 18.49 | 21.20 | 21.99 | 9.47  |
| 28   | 8.23  | 8.16 | 9.64  | 11.44 | 15.92 | 19.43 | 14.40 | 16.46 | 18.62 | 21.26 | 21.96 | 8.22  |
| 29   | 8.27  | 8.20 | 9.83  | 11.52 | ---   | 19.37 | 14.50 | 16.56 | 18.76 | 21.31 | 21.97 | 7.72  |
| 30   | 8.34  | 8.19 | 10.03 | 11.59 | ---   | 19.36 | 14.59 | 16.54 | 18.91 | 21.34 | 21.99 | 7.51  |
| 31   | 8.45  | ---  | 10.23 | 11.72 | ---   | 19.38 | ---   | 16.45 | ---   | 21.36 | 22.04 | ---   |
| MEAN | 14.88 | 8.52 | 7.85  | 10.83 | 13.71 | 18.14 | 16.21 | 15.54 | 17.44 | 20.31 | 21.93 | 18.45 |

WTR YR 1998 MEAN 15.33 HIGHEST 6.04 DEC. 2, 1997 LOWEST 23.42 OCT. 1, 2, 1997



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# CONVERSION FACTORS AND VERTICAL DATUM

| Multiply                                           | By                     | To obtain                  |
|----------------------------------------------------|------------------------|----------------------------|
| <i>Length</i>                                      |                        |                            |
| inch (in.)                                         | $2.54 \times 10^1$     | millimeter                 |
|                                                    | $2.54 \times 10^{-2}$  | meter                      |
| foot (ft)                                          | $3.048 \times 10^{-1}$ | meter                      |
| mile (mi)                                          | $1.609 \times 10^0$    | kilometer                  |
| <i>Area</i>                                        |                        |                            |
| acre                                               | $4.047 \times 10^3$    | square meter               |
|                                                    | $4.047 \times 10^{-1}$ | square hectometer          |
|                                                    | $4.047 \times 10^{-3}$ | square kilometer           |
| square mile (mi <sup>2</sup> )                     | $2.590 \times 10^0$    | square kilometer           |
| <i>Volume</i>                                      |                        |                            |
| gallon (gal)                                       | $3.785 \times 10^0$    | liter                      |
|                                                    | $3.785 \times 10^0$    | cubic decimeter            |
|                                                    | $3.785 \times 10^{-3}$ | cubic meter                |
| million gallons (Mgal)                             | $3.785 \times 10^3$    | cubic meter                |
|                                                    | $3.785 \times 10^{-3}$ | cubic hectometer           |
| cubic foot (ft <sup>3</sup> )                      | $2.832 \times 10^1$    | cubic decimeter            |
|                                                    | $2.832 \times 10^{-2}$ | cubic meter                |
| cubic-foot-per-second day [(ft <sup>3</sup> /s) d] | $2.447 \times 10^3$    | cubic meter                |
|                                                    | $2.447 \times 10^{-3}$ | cubic hectometer           |
| acre-foot (acre-ft)                                | $1.233 \times 10^3$    | cubic meter                |
|                                                    | $1.233 \times 10^{-3}$ | cubic hectometer           |
|                                                    | $1.233 \times 10^{-6}$ | cubic kilometer            |
| <i>Flow</i>                                        |                        |                            |
| cubic foot per second (ft <sup>3</sup> /s)         | $2.832 \times 10^1$    | liter per second           |
|                                                    | $2.832 \times 10^1$    | cubic decimeter per second |
|                                                    | $2.832 \times 10^{-2}$ | cubic meter per second     |
| gallon per minute (gal/min)                        | $6.309 \times 10^{-2}$ | liter per second           |
|                                                    | $6.309 \times 10^{-2}$ | cubic decimeter per second |
|                                                    | $6.309 \times 10^{-5}$ | cubic meter per second     |
| million gallons per day (Mgal/d)                   | $4.381 \times 10^1$    | cubic decimeter per second |
|                                                    | $4.381 \times 10^{-2}$ | cubic meter per second     |
| <i>Mass</i>                                        |                        |                            |
| ton (short)                                        | $9.072 \times 10^{-1}$ | megagram or metric ton     |

*Sea level:* In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

U.S. DEPARTMENT OF THE INTERIOR  
U.S. Geological Survey, WRD  
GSA Center, 651 Federal Dr., Suite 400-15  
Guaynabo PR 00965