FIFTH SAMPLING REPORT
FEBRUARY 1992
TUTU WELLS SITE
ST. THOMAS, U.S. VIRGIN ISLANDS

May 1992

Prepared for

Tutu Environmental Investigation Committee
San Juan, Puerto Rico

Prepared by

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May 15, 1992

Geraghty & Miller, Inc. is submitting this report to the Tutu Environmental Investigation Committee for work performed at the Tutu Wells Site in St. Thomas, U.S. Virgin Islands. The report was prepared in conformance with Geraghty & Miller's strict quality assurance/quality control procedures to ensure that the report meets the highest standards in terms of the methods used and the information presented. If you have any questions or comments concerning this report, please contact one of the individuals listed below.

Respectfully submitted,

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INTRODUCTION

In April 1990, Geraghty & Miller, Inc. was retained by the Tutu Environmental Investigation Committee (TEIC), which is comprised of Texaco Caribbean Inc. (Texaco) and Esso U.S. Virgin Islands (Esso), to prepare a sampling, analysis, and monitoring plan (SAMP) for the Tutu Wells Site, St. Thomas, U.S. Virgin Islands. This report for the fifth sampling event (February 1992) at the Tutu Wells Site was prepared in accordance with the Administrative Order (AO), effective March 22, 1990, and with the requirements detailed in the "Sampling, Analysis, and Monitoring Plan for Wells, Tutu Wells Site, St. Thomas, U.S. Virgin Islands," prepared in September 1990 (Geraghty & Miller, Inc. 1990). The SAMP was approved by the U.S. Environmental Protection Agency (USEPA) in its September 21, 1990 letter to the TEIC.

The first three ground-water sampling events were performed in September/October 1990, February 1991, and June 1991. Geraghty & Miller and Soil Tech Corporation, Inc. (Soil Tech) of San Juan, Puerto Rico conducted the sampling activities. For each of these three sampling events, Geraghty & Miller prepared reports (Geraghty & Miller, Inc. 1991a; 1991b; 1991c) that were submitted to the USEPA and the U.S. Virgin Islands Department of Planning and Natural Resources (DPNR).

Due to cumulative quality control (QC) problems caused by the previous laboratory, Geraghty & Miller recommended that Enseco East Incorporated (Enseco) of Somerset, New Jersey be retained as the laboratory subcontractor after the third sampling event (Geraghty & Miller, Inc. 1991c). A meeting was held with the USEPA on July 15, 1991 to discuss the new laboratory and to clarify the sampling and analytical procedures. A revised SAMP (Geraghty & Miller, Inc. 1991d), which was submitted to the USEPA in September 1991, incorporated clarifications of the sampling and analytical procedures and included the

change in the analytical laboratory. The revised SAMP (Geraghty & Miller, Inc. 1991d) became effective prior to the fourth sampling event, which took place in October 1991 (Geraghty & Miller, Inc. 1991e).

The objectives of the SAMP (Geraghty & Miller, Inc. 1990) and the revised SAMP (Geraghty & Miller, Inc. 1991d) are to identify, quantify, and monitor the occurrence of gasoline constituents and tetrachloroethene (commonly referred to as perchloroethylene and abbreviated as PCE) and its breakdown products in particular water supply wells in the vicinity of Route 38 within the Tutu Wells Site (see Figure 1).

SAMPLING AND ANALYTICAL PROCEDURES

The fifth sampling event was conducted from February 3 through 6, 1992 by Soil Tech and Geraghty & Miller. Ms. Ana Gloria Ramos, Designated Coordinator for TEIC, was present throughout the sampling event. Ms. Caroline Kwan of the USEPA-Region II was present on February 5 and 6, 1992.

Sampling and analysis were performed as described in the revised SAMP (Geraghty & Miller, Inc. 1991d), with the exception of the few deviations outlined in the following section. Table 1 lists the sample locations and analytical parameters for the February 1992 sampling. In brief, the wells were sampled and analyzed for the Target Compound List (TCL) volatile organic compounds (VOCs) in accordance with a modified version of USEPA Method 524.2, Revision 3.0 to achieve lower detection levels, TCL base neutral/acid extractable (BNA) compounds, Target Analyte List (TAL) metals, and cyanide. All analyses were performed using contract laboratory protocol (CLP) procedures. Enseco performed the laboratory analyses.

All 19 samples obtained during the February 1992 sampling event were collected utilizing the permanent pumps and piping systems installed in the well, with the exception of the following two samples:

- The Gassett well, which is not equipped with a permanent pump, was purged using a submersible pump powered by a portable generator. After 2,260 gallons (approximately 8.5 well volumes) were purged from the Gassett well, the submersible pump was removed and a sample was collected using a Teflon bailer.

- The Water and Power Authority (WAPA) sample was collected from a stand-pipe located at the Virgin Islands Housing Authority (VIHA) property, located on Route 38 in Tutu. This sample was collected to characterize the water quality of desalinated seawater provided by the WAPA distribution system. Geraghty & Miller anticipates that this water will be used for steam cleaning and drilling during the upcoming subsurface investigation.

Sample names shown on the tables that require explanation are as follows:

- Two blind field replicate samples were collected during the sampling event. One field replicate was collected at the LaPlace well and was labelled "Verde." The other field replicate was collected at the Gassett well and was labelled "CHKAN." On the validated tables, sample "Verde" was renamed "LaPlace FR" and "CHKAN" was renamed "Gassett FR."

- Matrix spike (MS) and matrix spike duplicate (MSD) samples were collected from the Gassett well. These samples were identified as Gassett MS and Gassett MSD.

- On February 4, 1992, the distilled and deionized water provided by Enseco was used to prepare an equipment blank and a water blank. The equipment blank sample was collected by rinsing the distilled and deionized water through the clean Teflon bailer, which was later used to sample the Gassett well. The water blank was collected by pouring the distilled and deionized

water from the laboratory-supplied containers to the sample containers. The equipment blank and the water blank were analyzed for all required parameters (see Table 1).

Trip blank samples were prepared by Enseco and shipped to Soil Tech with the other sample vials. The objective of a trip blank is to measure potential cross-contamination of samples during vial preparation, shipment, and analysis. A trip blank sample (two 40-milliliter vials) was included in each shipment from the Tutu Wells Site to Enseco. Trip blank samples were analyzed for TCL VOCs.

Prior to sampling the Gassett well, a Teflon bailer was decontaminated using the following procedures:

1. Non-phosphate detergent wash.
2. Tap water rinse.
3. Methanol rinse.
4. Hexane rinse.
5. Air dry.
6. Distilled and deionized water rinse.
7. Air dry.
8. Wrap in aluminum foil (shiny side out).

Geraghty & Miller validated the analytical data in accordance with the USEPA Standard Operating Procedures (SOP) No. HW-2, January 1992, for metal parameters (USEPA 1992a) and SOP No. HW-6, January 1992, for organic compounds (USEPA 1992b). The data validation summary is provided in Appendix A. The analytical results for VOCs, BNAs, TAL metals, and cyanide for the fifth sampling event (February 1992) are summarized in Tables 2, 3, 4, and 5, respectively. Details of the sampling and analysis procedures, data validation requirements, and reporting requirements are provided in the revised SAMP (Geraghty & Miller, Inc. 1991d).

PROCEDURAL DEVIATIONS

Deviations from the scope of work and procedures during the fifth sampling event are explained below.

1. VIHA I, VIHA II, and VIHA III wells were not sampled due to inoperable pumps. The VIHA III well pump was turned on momentarily, but stopped because of an electrical malfunction.

2. The Bryan and Lockhart wells were not sampled because the property was inaccessible. Despite several attempts, Geraghty & Miller and Soil Tech were unable to contact the property owners prior to or during the sampling event.

3. Due to the presence of air bubbles in the trip blanks received from Enseco, all trip blank samples were refilled on-site using the distilled and deionized water provided by Enseco.

4. The detection of carbon disulfide and methylene chloride in all four trip blanks (2-3-92 through 2-6-92) and the detection of toluene in trip blank 2-4-92 indicates cross contamination of these parameters. In addition, the water blank is reported to contain carbon disulfide and methylene chloride and the equipment blank is reported to contain acetone, carbon disulfide, methylene chloride, toluene, and xylenes (total). The detection of these compounds at low concentrations is likely due to cross-contamination during laboratory preparation of the trip blank, shipment to and from the site, or laboratory analysis. Table 6 presents a summary of contaminated blanks and associated samples for VOCs in the fifth sampling event. A complete explanation of the data validation qualifiers applied to these data is presented in Item 2 of Appendix A.

5. Due to laboratory contamination of blank samples, sample data were qualified for acetone, carbon disulfide, methylene chloride, toluene, and xylenes (total). The complete data validation based upon blank contamination is discussed in Item 2 of Appendix A.

6. A Method Detection Limit (MDL) study was performed by Enseco on July 29, 1991 for TCL analytes. Five analytes (methylene chloride, 2-butanone, dibromochloromethane, trans-1, 3-dichloropropane, and bromoform) did not meet the accuracy criteria of between 80 to 120 percent mean accuracy. These five parameters are not parameters of concern at the Tutu Wells Site. In accordance with data validation guidelines, qualification of results based upon the MDL study is not appropriate; thus no results were qualified.

7. Five laboratory fortified blanks (LFBs) had analyte recoveries outside the required QC guidelines for four parameters (bromoform, chloroethane, chloromethane, 1,1,2- trichloroethane). The associated sample data for these compounds are qualified as estimated at the quantitation limit (UJ).

8. Holding times for cyanide analyses were exceeded by 1 day for samples Eglin I, Eglin II, and Eglin III, Hartman II, Hartman III, and Harvey. Table 7 presents the metals and cyanide holding time summary for the fifth sampling event.

The VOC parameters detected in ground-water samples collected during the fifth sampling event are summarized in Table 2. The complete VOC validated data for the fifth sampling event are presented in Table 8.

DATA VALIDATION

The organic data have been evaluated according to USEPA Region II SOP No. HW-6, Revision No. 8 (USEPA 1992b), in conjunction with the USEPA Draft National Functional Guidelines for Organic Review (USEPA 1991) and the appropriate, corresponding methodology. Because the VOC analyses were not performed in accordance with the CLP Statement of Work (SOW), the SOP for organic data review is not directly applicable, but the SOP was used, along with USEPA Method 524.2, Revision 3.0 (USEPA 1989) and the additional QC requirements outlined in the revised SAMP (Geraghty & Miller, Inc. 1991d), to conform to the USEPA Region II data validation protocol (USEPA 1992b). The inorganic data have been evaluated according to USEPA Region II SOP No. HW-2, Revision No. 11 (USEPA 1992a). All of the data have been tabulated and assigned the appropriate qualifier codes, if required. Metals were analyzed according to methodology contained in the March 1990 USEPA CLP SOW for Inorganics Analysis, Multi-Media, Multi-Concentration (USEPA 1990a). A discussion of the data validation findings is provided in Appendix A.

DATA QUALITY EXCEPTIONS

Overall, Enseco has provided valid data of acceptable completeness. The QC deficiencies are minor and, therefore, the data are usable with minor qualifications. Sample data have not been rejected when qualified as estimated due to more than one deficiency.

Overall, Enseco has presented data of good quality and acceptable completeness. All of the organic data generated for the samples in this case, aside from the BNA data for sample WAPA, are valid and usable. All of the BNA data for sample WAPA are unusable and rejected due to unacceptably low surrogate recoveries.

Sample data for chloroethane and bromoform are estimated at the quantitation limit due to poor LFB recoveries. All of the positive data for methylene chloride, carbon

disulfide, and bis(2-ethylhexyl)phthalate are negated due to blank contamination. Most of the positive data for toluene and some of the data for total xylenes are negated due to blank contamination. Some data for acetone, di-n-octylphthalate, hexachlorocyclopentadiene, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol are estimated at the quantitation limit due to minor calibration deficiencies. Analytes quantitated using a secondary dilution are qualified as such (D).

The LFBs did not meet all of the method criteria as required. In accordance with the USEPA Method 524.2, Revision 3.0 (USEPA 1989), all deficiencies should be located and remedied prior to sample analysis.

The laboratory has failed to provide Form I's for those samples that required dilution. Dilutions were required to accurately quantitate compounds that exceeded the linear range of calibration upon initial analysis. Sample data from secondary dilutions are incorporated into the Form I's that were provided and flagged "D" by the laboratory. In some cases, the laboratory diluted samples prior to the original analysis.

RESULTS

The validated analytical results are discussed below. The organic results (i.e., VOCs and BNAs) are discussed first, followed by a discussion of the metal results.

ORGANIC ANALYTICAL RESULTS

All VOC analyses were performed within the required holding time, as shown in Table 9. Table 10 presents a summary of detected VOC parameters for the first five sampling events (September/October 1990, February 1991, June 1991, October 1991, and February 1992). The complete validated VOC data results for these five events are presented in Table 11, and Table 12 presents a summary of federal drinking water standards promulgated by the USEPA for VOCs.

VOCs were analyzed according to USEPA Method 524.2, Revision 3.0 (USEPA 1989). BNAs were analyzed according to methodology contained in the March 1990 USEPA CLP SOW for Organics Analysis, Multi-Media, Multi-Concentration (USEPA 1990b).

VOCs constitute the chief analyte group of concern at the Tutu Wells Site. The compounds that were consistently detected in site samples are PCE, trichloroethene (TCE), and total 1,2-dichloroethene (1,2-DCE). PCE was detected in all samples, except the Four Winds II, Gassett, Leonard, and WAPA samples. The PCE concentrations ranged from 1.2 parts per billion [ppb] in the Hartman III sample to 500 ppb (secondary dilution) in the Harvey sample. TCE was detected in all samples, except the Leonard and the WAPA samples. The TCE concentrations range from an estimated value of 0.08 ppb in the Hartman III sample to 29 ppb in the Steele sample. 1,2-DCE was detected in all samples, except the Leonard and WAPA samples. The 1,2-DCE concentration range from an estimated value of 0.11 ppb in the Gassett sample to 150 ppb (secondary dilution) in the Four Winds I sample.

The other VOCs detected in the February 1992 sampling event were chloroform, xylenes (total), benzene, vinyl chloride, bromodichloromethane, chloromethane, toluene, 1,1,-dichloroethene, bromoform, and dibromochloromethane. With the exception of PCE, 1,2-DCE, and TCE, chloroform was detected in the nine samples (Eglin III, Four Winds I, Four Winds II, Harvey, LaPlace, Matthias, Ramsay, Tillett, and WAPA) ranging from an estimated value of 0.4 ppb in the LaPlace sample to 5.3 ppb in the Tillett sample. Vinyl chloride was detected in three samples (Four Winds I, Harvey, and Steele) ranging from an estimated value of 0.22 ppb in the Four Winds I sample to 2.2 ppb in the Harvey sample.

Petroleum compounds, such as benzene, toluene, ethylbenzene, and xylenes (BTEX) have not been detected in the majority of the wells. Benzene was detected in five samples (Four Winds I, Four Winds II, Gassett, Tillett, and LaPlace) ranging from an estimated value of 0.06 ppb in the Gassett sample to 2.7 ppb in the Four Winds II sample.

Estimated concentrations of toluene (ranging from 0.05 ppb to 0.11 ppb) were detected in samples Eglin I, Harvey, LaPlace, Tillett, and WAPA. Estimated concentrations of total xylenes (0.4 ppb and 0.1 ppb, respectively) were detected in two samples: Four Winds II and the equipment blank.

Table 3 presents a summary of detected BNAs for the fifth sampling event, and Table 13 presents all concentrations of BNAs for the fifth sampling event. A summary of detected BNAs in ground-water samples collected from September 1990 through February 1992 is presented in Table 14. Table 15 presents all BNA concentrations in ground-water samples collected from September 1990 through February 1992.

BNAs were not detected, except for bis(2-ethylhexyl)phthalate, which was detected in three samples (LaPlace, LaPlace field replicate, and Leonard). Bis(2-ethylhexyl) phthalate is a common plasticizer and is a common laboratory artifact. Table 16 presents a summary of contaminated blanks and associated samples from BNA compounds for the fifth sampling event, and a holding time compliance summary for BNAs during the fifth sampling event is presented in Table 17.

INORGANIC RESULTS

Table 4 presents the concentrations of metals in ground-water samples collected in the fifth sampling event. Table 18 presents the concentrations of metals in ground-water samples collected from September 1990 through February 1992.

All metal reported concentrations for the fifth sampling event except for two compounds, were below the USEPA Maximum Contaminant Levels (MCLs), proposed MCLs, Maximum Contaminant Level Goals (MCLGs), and secondary MCLs for drinking water.

Table 19 presents a summary of federal drinking water standards and goals promulgated by the USEPA for metal parameters. Aluminum was detected above the Secondary MCL (50 ppb) in all samples except Eglin III, Four Winds I, Four Winds II, and Hartman III. Chromium was detected at a concentration of 109 ppb in the Matthias sample, which is above the MCL of 100 ppb.

DISCUSSION

The sample locations should be limited to the wells listed in Table 20 because previous sampling results indicate that nine wells (Bryan, Dede, Demitri, Dench, Devcon I, Devcon III, Leonard, Rodriguez, and VIHA-III) have demonstrated the absence of parameters of concern at the Tutu Wells Site.

The geographical and hydrogeologic reasons for removing these nine wells from further sampling efforts are as follows:

- They are all located outside of the central portion of the Tutu valley where VOC impact has been documented.

- The Bryan well is located in the Donne valley, a completely separate drainage basin from the Tutu valley.

- The Dimitri and Leonard wells are located upgradient and to the west of the central portion of the Tutu valley; VIHA III is similarly upgradient of this area of concern.

- The Rodriguez well is situated near the axis of a tributary drainage basin to the Tutu valley and hence receives significant contribution from this valley.

- Dede, Dench, Devcon I, and Devcon II are all located at least one-half mile to the southeast of the area of concern, in a portion of the Turpentine River basin that receives significantly more contribution from other areas than from the central Tutu valley.

The absence of the VOCs of concern in these nine wells during the first two sampling events (see Tables 6 and 7) confirms the geographical and hydrogeologic reasons for removing them from future sampling (Geraghty & Miller, Inc. 1991b).

Three of these nine wells (Dede, Leonard, and Rodriquez) were sampled during the fifth sampling event. These three wells are the closest of the nine wells to the Tutu Wells Site. No VOCs were detected in the Rodriquez and Dede samples. The only VOCs reported in the Leonard sample were estimated concentrations of chloromethane (0.99 ppb) and 1,1-dichloroethene (0.13 ppb). Chloromethane and 1,1-dichloroethene were not reported in any samples collected from the northern portion of the Tutu Wells Site (e.g., Ramsay, Four Winds I, Four Winds II, Tillett). The absence of these parameters in samples collected near the Leonard Well indicates that their isolated occurrence in the Leonard sample (at estimated values of less than 1 ppb) is not attributable to the Tutu Wells Site. The analytical results for the Dede, Rodriquez, and Leonard well samples are consistent with previous results. The results of the fifth sampling event indicate that the nine wells should not be included in any further sampling.

RECOMMENDATIONS

The February 1992 sampling results meet the prescribed objectives of the revised SAMP (Geraghty & Miller, Inc. 1991d). Geraghty & Miller recommends that the revised SAMP (Geraghty & Miller, Inc. 1991d) continue to be followed, but that the revisions discussed below be implemented.

- The sixth sampling event (scheduled to begin May 27, 1992) should include only the analytical parameters and locations discussed below and outlined in Table 2.

- The analytical parameters for the sixth sampling event (May 1992) should include TCL VOCs using USEPA Method 524.2 Revision 3.0 following CLP protocol.

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TVD:ce/rma/ak
#PR00801-#2/5thQTR.RPT

Table 1. List of Sample Locations and Analytical Parameters for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Sample ID	Proposed Analytes
Dede	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Eglin I	TCL VOCs, TCL BNA, TAL Metals, and Cyanide
Eglin II	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Eglin III	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Four Winds I	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Four Winds II	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Gassett	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Hartman II	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Hartman III	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Harvey	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
LaPlace	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Leonard	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Matthias	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Ramsay	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Rodriguez	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Smith	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Steele	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Tillett	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
VIHA I, VIHA II, or VIHA III (if possible)	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide
Water and Power Authority (WAPA)	TCL VOCs, TCL BNAs, TAL Metals, and Cyanide

TCL Target compound list.
TAL Target analyte list.
VOCs Volatile organic compounds.
VOC analysis was performed using modified USEPA Method 524.2.
BNAs Base neutral and acid extractable compounds.
VIHA I, VIHA II, and VIHA III were not sampled due to inoperable pumps.
The WAPA sample was collected from the standpipe at the VIHA property located on Route 38 in Tutu.

TD:ce/rma
#PR00801-#2/5thqtr.rpt

Table 2. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92	Leonard 6-Feb-92
1,2-Dichloroethene (cis/trans)		17	20	39	150 D	130	0.11 J	NA	4.2	0.19 J	39	140 D	140 D	NA
Trichloroethene		7	6.7	16	21	15	0.09 J	NA	0.95	0.08 J	23	23	23	NA
Tetrachloroethene		16	16	41 D	75 D	NA	NA	NA	5.3	1.2	500 D	84 D	81 D	NA
Toluene		0.06 J	NA	NA	NA	NA	NA	NA	NA	NA	0.06 J	0.11 J	NA	NA
Chloroform		NA	NA	0.09 J	1.2	0.5 J	NA	NA	NA	NA	0.1 J	0.4 J	0.41 J	NA
Vinyl chloride		NA	NA	NA	0.22 J	NA	NA	NA	NA	NA	2.2	NA	NA	NA
Bromodichloromethane		NA	NA	NA	0.09 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene		NA	NA	NA	0.8	2.7	0.06 J	0.07 J	NA	NA	NA	0.15 J	0.14 J	NA
Xylenes (total)		NA	NA	NA	NA	0.4 J	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane		NA	NA	NA	NA	NA	0.99	NA	NA	NA	NA	NA	NA	0.99
1,1-Dichloroethene		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.06 J	NA	NA	0.13 J
1,1-Dichloroethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.06 J	0.07 J	NA
Dibromochloromethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 2. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Matthias Date: 5-Feb-92	Ramsay 4-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Trip Blank 3-Feb-92	Trip Blank 4-Feb-92	Trip Blank 5-Feb-92	Trip Blank 6-Feb-92
1,2-Dichloroethene (cis/trans)	17	17	48 D	110	23	NA	NA	NA	NA	NA	NA
Trichloroethene	7.5	3.7	21	29	6.3	NA	NA	NA	NA	NA	NA
Tetrachloroethene	60 D	23	230 D	55	23	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	0.05 J	NA	0.05 J	0.11 J	NA	NA	0.05 J	NA	NA
Chloroform	0.09 J	1.1	0.32 J	NA	5.3	0.61	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	1.4 J	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	0.5	NA	NA	NA	2.8	NA	NA	NA	NA	NA
Benzene	NA	NA	0.07 J	NA	1.7	NA	NA	NA	NA	NA	NA
Xylenes (total)	NA	NA	NA	NA	NA	NA	0.1 J	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	0.06 J	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	13	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	34	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	7	0.29 J	0.33 J	0.29 J	0.33 J
Acetone	NA	NA	NA	NA	NA	NA	7.6	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	0.57	0.23 J	1.8	1

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 3. Summary of Detected Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Eglin I Date: 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92	Leonard 6-Feb-92
Di-n-octyl phthalate	1 J	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	680 D	190 D	1 J

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 4. Concentrations of Metals in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
Aluminum		235	173 B	134 B	39.5 B	35.5 U	46.4 B	388	231	35.6 U	54.6 B	289	76.9 B	68.4 B
Antimony		18.2 U	17.7 U	17.7 U	17.7 U	18.2 U	18.2 U	18.2 U	18.2 U	17.7 U	17.7 U	17.7 U	18 U	18 U
Arsenic		1 U	1.6 B	1 U	1 U	1 B	1 U	3.1 B	2.9 B	1 U	1 U	1.1 B	1 U	1 U
Barium		7.9 B	30.8 B	14.3 B	39.7 B	3.4 B	1.1 B	23.1 B	21.6 B	1.8 B	0.7 U	32.1 B	5.1 B	5.4 B
Beryllium		0.25 U	0.53 U	0.53 U	0.53 U	0.25 U	0.25 U	0.25 U	0.25 U	0.53 U	0.5 U	0.53 U	1 U	1 U
Cadmium		2 U	2.1 U	2.1 U	2.1 U	2 U	2 U	2.5 B	2.4 B	2.1 U	2.1 U	2.1 U	3 U	3 U
Calcium		25100	80000	80800	81700	46600	50700	21700	22200	44300	46600	62500	44900	45400
Chromium		6.6 B	3.9 U	4.9 B	3.9 U	3.5 U	3.5 U	4.6 B	3.5 U	3.9 U	3.9 U	3.9 U	4 U	4 U
Cobalt		4.4 B	3.4 U	4.4 B	3.4 U	3.8 U	3.8 U	3.8 U	3.8 U	3.4 U	3.4 U	3.4 U	4 U	4 U
Copper		21.3 B	3.6 B	3.9 B	2.8 U	2.7 U	4.8 B	83.4	82.7	4.2 B	2.8 U	5.8 B	3 U	3 U
Iron		250 J	186 J	232 J	11.7 B	7 BJ	61.6 BJ	R	R	12 BJ	36.2 BJ	431 J	60.4 BJ	46.7 BJ
Lead		2.3 B	1.6 BJ	1.6 B	1 UJ	3.1	3.3	39.7 S	33.3	1.6 B	1 U	3 J	1 UJ	1 UJ
Magnesium		27100	56200	61200	55800	32600	36800	15300	15500	37000	32300	46600	35100	35500
Manganese		364	12.1 B	118	22.9	33	6.8 B	68	78.9	0.91 U	0.91 U	120	2.8 B	2.9 B
Mercury		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.23
Nickel		7.1 U	9.5 U	9.5 U	9.5 U	7.1 U	7.1 U	7.1 U	7.1 U	9.5 U	9.5 U	9.5 U	10 U	10 U
Potassium		2410 B	1820 B	1990 B	2180 B	8980	2350 B	1670 B	1520 B	1230 B	1730 B	2100 B	1010 B	1090 B
Selenium		2 UJ	5.1 J	9.2	4.3 BS	2 U	2 U	2 U	2 U	3 B	2 U	2.3 B	2 U	2 UJ
Silver		9.2 U	3.3 U	3.3 U	3.3 U	9.2 U	9.2 U	9.2 U	9.2 U	3.3 U	3.3 U	3.3 U	4 U	4 U
Sodium		357000	363000	338000	396000	232000	236000	160000	164000	323000	233000	251000	268000	272000
Thallium		3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ
Vanadium		10 U	30.3 B	32.6 B	13.1 B	59.1	59.2	10 U	10 U	24.7 B	116	21.6 B	34.4 B	36.4 B
Zinc		6.9 BE	25.5 J	78.8 J	19 B	8.8 BE	10.4 BE	178 J	175 J	1.6 U	2.1 B	139 J	8.1 B	8 B

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 4. Concentrations of Metals in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Leonard 6-Feb-92	Matthias 5-Feb-92	Ramsay 4-Feb-92	Rodriguez 5-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Water Blank 4-Feb-92
Aluminum		69.9 B	9580 J	145 B	196 B	4070 J	267	696 J	76.9 B	184 B	35.5 U
Antimony		18 U	18.2 U	18.2 U	19 B	18.2 U	18.2 U	18.2 U	18 U	18.2 U	18.2 U
Arsenic		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium		1.5 B	187 B	3.7 B	13.7 B	86.5 B	19.8 B	44.9 B	3.9 B	3.1 B	0.8 U
Beryllium		1 U	1 B	0.25 U	1 B	0.25 U	0.25 U	0.25 U	1 U	0.25 U	0.25 U
Cadmium		3 U	2 U	2 U	2.1 B	2 U	2 U	2 U	3 U	2 U	2 U
Calcium		39700	49500	49800	39200	43500	46200	52000	3390 B	65.4 B	43 B
Chromium		4 U	109	3.5 U	5.2 B	48.4	3.5 U	11.4	6.1 B	5.7 B	3.5 U
Cobalt		4 U	14 B	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	4 U	3.8 U	3.8 U
Copper		3 U	114	5.1 B	7.8 B	48.3	4.1 B	12.3 B	18.4 B	2.7 U	2.7 U
Iron		60.3 BJ	11700 J	141 J	246 J	4670 J	377 J	901 J	546 J	205 J	20.9 BJ
Lead		1 UJ	1 U	1.9 B	2.5 B	3.1	1.4 BJ	2 B	1 BJ	1 UJ	1 U
Magnesium		24700	46900	37000	37400	42500	43800	36000	1760 B	295 B	45.9 U
Manganese		1.3 B	269	2 B	132	108	17.8	1110	2.8 B	3.2 B	0.83 U
Mercury		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22	0.2 U	0.2 U	0.2 U	0.2 U
Nickel		10 U	53.7	7.1 U	7.1 U	18.4 B	7.1 U	7.1 U	10 U	7.1 U	7.1 U
Potassium		997 B	6380	1070 B	2170 B	3310 B	1270 B	3280 B	997 B	810 U	810 U
Selenium		2.7 BJ	2.6 BJ	2 UJ	2 UJ	2.6 BJ	2.5 B	2 U	2 U	2 U	2 U
Silver		4 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	4 U	9.2 U	9.2 U
Sodium		341000	385000	240000	300000	396000	334000	198000	18400	1400 B	660 B
Thallium		3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ
Vanadium		116	42.6 B	54.1	10 U	16.3 B	10 U	58.5	6.8 B	10 U	10 U
Zinc		4.1 B	29.8 J	12.4 BE	19.4 BE	99.6 J	6.4 BE	26.2 J	8.7 B	3.9 BE	3.7 BE

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 5. Concentrations of Total Cyanide in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

	Sample ID:	Dede	Eglin I	Eglin II	Eglin III	Four Winds I	Four Winds II	Gassett	Gassett FR	Hartman II	Hartman III	Harvey	LaPlace	LaPlace FR
Analyte	Date:	5-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	6-Feb-92	6-Feb-92
Total Cyanide		5 U	R	R	R	5 U	5 U	5 U	5 U	R	R	R	5 U	5 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 5. Concentrations of Total Cyanide in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

	Sample ID:	Leonard	Matthias	Ramsay	Rodriguez	Smith	Steele	Tillett	WAPA	Equipment Blank	Water Blank
Analyte	Date:	6-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	6-Feb-92	4-Feb-92	4-Feb-92
Total Cyanide		5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 6. Summary of Contaminated Blanks and Associated Samples from Volatile Organic Analyses for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Blank Identifier	Date Sampled	Date Analyzed	Associated Sample(s)
Equipment blank	04-Feb-92	13-Feb-92	Gassett, Gassett FR
Trip blank	03-Feb-92	12-Feb-92	Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, Harvey
Trip blank	04-Feb-92	13-Feb-92	Four Winds I, Four Winds II, Gassett FR Ramsay, Steele, Water Blank, Equipment Blank
Trip blank	05-Feb-92	14-Feb-92	Dede, Matthias, Rodriguez, Smith, Tillett
Trip blank	06-Feb-92	14-Feb-92	LaPlace, LaPlace FR, Leonard, WAPA
VBLK01	N/A	05-Feb-92	Eglin III, Harvey
VBLK01	N/A	06-Feb-92	Steele
VBLK01	N/A	08-Feb-92	Matthias, Rodriguez, WAPA
VBLK02	N/A	06-Feb-92	Eglin III DL, Harvey DL
VBLK02	N/A	09-Feb-92	Matthias DL, Tillett
Water blank	04-Feb-92	14-Feb-92	Equipment Blank

FR Field replicate.
DL Dilution.
N/A Not applicable.

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Table 7. Metals and Cyanide Holding Time Summary for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Sample Identifier	Date Collected	Date Analyzed (AA)	Date Analyzed (ICP)	Date Analyzed (Mercury)	Date Analyzed (Cyanide)	Days from Collection to Analysis (AA)	Days from Collection To Analysis (ICP)	Days from Collection To Analysis (Mercury)	Days from Collection To Analysis (Cyanide)
Hartman III	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Hartman II	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Harvey	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Eglin I	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Eglin II	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Eglin III	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Steele	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Ramsay	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Four Winds I	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Four Winds II	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Gassett	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Equipment Blank	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Water Blank	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Gassett FR	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Rodriguez	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Dede	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Smith	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Matthias	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Tillett	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Leonard	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12
LaPlace	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12
LaPlace FR	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12
WAPA	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12

AA Atomic absorption.
ICP Inductively coupled plasma.
FR Field replicate.
* Cyanide holding time exceeded by one day.

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Table 8. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
Chloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 Uj	0.99	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.22 J	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.2	0.5 U	0.5 U
Chloroethane		0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	2.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
Methylene chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon disulfide		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.9 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.06 J	0.5 U	0.5 U
1,1-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.06 J	0.07 J
1,2-Dichloroethene (cis/trans)		0.5 U	17	20	39	150 D	130	0.11 J	0.5 U	4.2	0.19 J	39	140 D	140 D
Chloroform		0.5 U	0.5 U	0.5 U	0.09 J	1.2	0.5 J	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.4 J	0.41 J
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,1-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.09 J	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene		0.5 U	7	6.7	16	21	15	0.09 J	0.5 U	0.95	0.08 J	23	23	23
Dibromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	0.5 U	0.5 U	0.5 U	0.8	2.7	0.06 J	0.07 J	0.5 U	0.5 U	0.5 U	0.15 J	0.14 J
cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	2.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
4-Methyl-2-pentanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-Hexanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene		0.5 U	16	16	41 D	75 D	2.5 U	0.5 U	0.5 U	5.3	1.2	500 D	84 D	81 D
Toluene		0.5 U	0.06 J	0.5 U	0.5 U	0.5 U	2.5 U	0.78 U	0.76 U	0.5 U	0.5 U	0.06 J	0.11 J	0.5 U
Chlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
FR Field replicate of previous sample.

Table 8. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Leonard 6-Feb-92	Matthias 5-Feb-92	Ramsay 4-Feb-92	Rodriguez 5-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Trip Blank 3-Feb-92	Trip Blank 4-Feb-92	Trip Blank 5-Feb-92	Trip Blank 6-Feb-92
Chloromethane		0.99	0.5 U	0.5 U	0.5 U	0.5 U	2.5 Uj	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	2.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Methylene chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	7	0.29 J	0.33 J	0.29 J	0.33 J
Acetone		2 U	2 U	2 U	2 U	2 U	10 UJ	2 U	2 U	7.6	2 U	2 U	2 U	2 U
Carbon disulfide		0.5 U	0.5 U	2 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.57	0.23 J	1.8	1
1,1-Dichloroethene		0.13 J	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.06 J	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (cis/trans)		0.5 U	17	17	0.5 U	48 D	110	23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform		0.5 U	0.09 J	1.1	0.5 U	0.32 J	2.5 U	5.3	0.61	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,1-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	0.5 U	0.5	0.5 U	0.5 U	2.5 U	0.5 U	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene		0.5 U	7.5	3.7	0.5 U	21	29	6.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	0.5 U	0.5 U	0.5 U	0.07 J	2.5 U	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	34	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-Hexanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene		0.5 U	60 D	23	0.5 U	230 D	55	23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene		0.5 U	0.5 U	0.5 U	0.5 U	0.05 J	2.5 U	0.05 J	0.11 J	0.5 U	0.5 U	0.05 J	0.5 U	0.5 U
Chlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
FR Field replicate of previous sample.

Table 8. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Water Blank Date: 4-Feb-92
Chloromethane	0.5 U
Bromomethane	0.5 U
Vinyl chloride	0.5 U
Chloroethane	0.5 U
Methylene chloride	0.5 U
Acetone	2 U
Carbon disulfide	0.5 U
1,1-Dichloroethene	0.5 U
1,1-Dichloroethane	0.5 U
1,2-Dichloroethene (cis/trans)	0.5 U
Chloroform	0.5 U
1,2-Dichloroethane	0.5 U
2-Butanone	2 U
1,1,1-Trichloroethane	0.5 U
Carbon tetrachloride	0.5 U
Bromodichloromethane	0.5 U
1,2-Dichloropropane	0.5 U
trans-1,3-Dichloropropene	0.5 U
Trichloroethene	0.5 U
Dibromochloromethane	0.5 U
1,1,2-Trichloroethane	0.5 U
Benzene	0.5 U
cis-1,3-Dichloropropene	0.5 U
Bromoform	0.5 U
4-Methyl-2-pentanone	2 U
2-Hexanone	2 U
1,1,2,2-Tetrachloroethane	0.5 U
Tetrachloroethene	0.5 U
Toluene	0.5 U
Chlorobenzene	0.5 U
Ethylbenzene	0.5 U
Styrene	0.5 U
Xylenes (total)	0.5 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
FR Field replicate of previous sample.

Table 9. Volatile Organic Analysis Holding Time Compliance Summary for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Sample Identifier	Matrix	Preserved	Date Collected	Date Received	Date Analyzed	Days from Collection to Analysis	Days Holding Time Exceeded
Hartman III	Aqueous	Yes	03-Feb-92	04-Feb-92	12-Feb-92	9	0
Trip Blank	Aqueous	Yes	03-Feb-92	04-Feb-92	12-Feb-92	9	0
Hartman II	Aqueous	Yes	03-Feb-92	04-Feb-92	12-Feb-92	9	0
Harvey	Aqueous	No	03-Feb-92	04-Feb-92	05-Feb-92	2	0
Eglin I	Aqueous	Yes	03-Feb-92	04-Feb-92	12-Feb-92	9	0
Eglin II	Aqueous	Yes	03-Feb-92	04-Feb-92	12-Feb-92	9	0
Eglin III	Aqueous	No	03-Feb-92	04-Feb-92	05-Feb-92	2	0
Steele	Aqueous	No	04-Feb-92	05-Feb-92	06-Feb-92	2	0
Ramsay	Aqueous	Yes	04-Feb-92	05-Feb-92	13-Feb-92	9	0
Four Winds I	Aqueous	Yes	04-Feb-92	05-Feb-92	13-Feb-92	9	0
Four Winds II	Aqueous	Yes	04-Feb-92	05-Feb-92	7-Feb-92	3	0
Gassett	Aqueous	Yes	04-Feb-92	05-Feb-92	13-Feb-92	9	0
Equipment Blank	Aqueous	Yes	04-Feb-92	05-Feb-92	13-Feb-92	9	0
Water Blank	Aqueous	Yes	04-Feb-92	05-Feb-92	14-Feb-92	10	0
Trip Blank	Aqueous	Yes	04-Feb-92	05-Feb-92	13-Feb-92	9	0
Gassett FR	Aqueous	Yes	04-Feb-92	05-Feb-92	13-Feb-92	9	0
Rodriguez	Aqueous	No	05-Feb-92	06-Feb-92	08-Feb-92	3	0
Dede	Aqueous	Yes	05-Feb-92	06-Feb-92	12-Feb-92	7	0
Smith	Aqueous	Yes	05-Feb-92	06-Feb-92	13-Feb-92	8	0
Matthias	Aqueous	No	05-Feb-92	06-Feb-92	08-Feb-92	3	0
Tillett	Aqueous	No	05-Feb-92	06-Feb-92	09-Feb-92	4	0
Trip Blank	Aqueous	Yes	05-Feb-92	06-Feb-92	14-Feb-92	9	0
Trip Blank	Aqueous	Yes	06-Feb-92	07-Feb-92	14-Feb-92	8	0
Leonard	Aqueous	Yes	06-Feb-92	07-Feb-92	14-Feb-92	8	0
LaPlace	Aqueous	Yes	06-Feb-92	07-Feb-92	14-Feb-92	8	0
LaPlace FR	Aqueous	Yes	06-Feb-92	07-Feb-92	14-Feb-92	8	0
WAPA	Aqueous	No	06-Feb-92	07-Feb-92	08-Feb-92	2	0

FR Field replicate.

#PR00801/0408tbl1.wks

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Dede 5-Feb-91	Dench 25-Sep-90	Eglin I 2-Oct-90	Eglin I 5-Feb-91	Eglin I 5-Jun-91	Eglin I 2-Oct-91	Eglin I 3-Feb-92	Eglin II 27-Sep-90	Eglin II 5-Feb-91	Eglin II 5-Jun-91	Eglin II 2-Oct-91	Eglin II 3-Feb-92	Eglin III 27-Sep-90
Chloromethane		0.9 J	1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane		0.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)		NA	NA	68 J	60 J	68 DJ	45	17	120 J	72 DJ	130 DJ	67	20	52 J
Trichloroethene		NA	NA	10 J	8	10 J	7.5	7	22 J	19	19 J	18	6.7	14
Tetrachloroethene		NA	NA	32 J	26	32 J	24	16	71 J	34 DJ	61 DJ	54	16	44 J
Xylenes (total)		NA	NA	NA	1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane		NA	NA	NA	NA	1 J	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform		NA	NA	NA	NA	NA	0.1 J	NA	NA	NA	NA	0.12 J	NA	NA
Toluene		NA	NA	NA	NA	NA	NA	0.06 J	NA	NA	NA	NA	NA	NA
Acetone		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22 J
1,1-Dichloroethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Eglin III 5-Feb-91	Eglin III FR 5-Feb-91	Eglin III 5-Jun-91	Eglin III 2-Oct-91	Eglin III 3-Feb-92	Four Winds I 2-Oct-91	Four Winds I 4-Feb-92	Four Winds II 26-Sep-90	Four Winds II FR 26-Sep-90	Four Winds II 5-Feb-91	Four Winds II 5-Jun-91	Four Winds II 2-Oct-91	Four Winds II 4-Feb-92
Chloromethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)		45 J	45 J	69 DJ	51	39	89 D	150 D	75 J	61 J	230 D	130 DJ	190	130
Trichloroethene		11	13	15 J	12	16	9.8	21	6 J	4 J	21	12 J	25	15
Tetrachloroethene		35	36	40 J	36	41 D	36	75 D	25 J	18 J	90 D	34 DJ	80	NA
Xylenes (total)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4 J
1,1,2-Trichloroethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform		NA	NA	NA	0.11 J	0.09 J	0.28 J	1.2	NA	NA	NA	NA	NA	0.5 J
Toluene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane		NA	NA	NA	0.05 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene		NA	NA	NA	0.05 J	NA	0.33 J	0.8	NA	NA	NA	NA	NA	2.7
Vinyl chloride		NA	NA	NA	NA	NA	NA	0.22 J	NA	NA	NA	NA	NA	NA
Bromodichloromethane		NA	NA	NA	NA	NA	NA	0.09 J	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Gassett	Gassett	Gassett	Gassett FR	Hartman II	Hartman II	Hartman II	Hartman II	Hartman II	Hartman III	Hartman III	Hartman III	Hartman III
	Date: 5-Feb-91	1-Oct-91	4-Feb-92	4-Feb-92	26-Sep-90	5-Feb-91	4-Jun-91	1-Oct-91	3-Feb-92	26-Sep-90	5-Feb-91	1-Oct-91	3-Feb-92
Chloromethane	NA	NA	0.99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)	NA	NA	0.11 J	NA	5 J	5 J	6 J	3.1	4.2	2	NA	0.08 J	0.19 J
Trichloroethene	1	0.11 J	0.09 J	NA	1 J	2	1 J	0.77	0.95	NA	NA	NA	0.08 J
Tetrachloroethene	NA	NA	NA	NA	7 J	9	7 J	4.7	5.3	1 J	1	0.83	1.2
Xylenes (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	44 D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	0.06 J	0.07 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Harvey	Harvey	Harvey	Harvey	Harvey	LaPlace	LaPlace	LaPlace FR	LaPlace	LaPlace FR	LaPlace	LaPlace	LaPlace FR
	Date: 26-Sep-90	5-Feb-91	4-Jun-91	2-Oct-91	3-Feb-92	2-Oct-90	5-Feb-91	5-Feb-91	6-Jun-91	6-Jun-91	3-Oct-91	6-Feb-92	6-Feb-92
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)	NA	160	80 DJ	38	39	140 J	200 D	190 D	250 DEJ	170 DJ	170 D	140 D	140 D
Trichloroethene	NA	60 J	36 DJ	25	23	24 J	32	31	31 D	32 J	30	23	23
Tetrachloroethene	890 J	1500	530 DEJ	670 D	500 D	98 J	110 D	100 D	88 DJ	64 DJ	100 D	84 D	81 D
Xylenes (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA
Chloroform	NA	NA	NA	0.15 J	0.1 J	NA	1	NA	2	0.8 J	0.6 J	0.4 J	0.41 J
Toluene	NA	NA	NA	NA	0.06 J	NA	NA	NA	NA	NA	NA	0.11 J	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.06 J	0.07 J
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 J	0.14 J
Vinyl chloride	NA	NA	3	2.1	2.2	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	0.06 J	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2 J	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Leonard	Matthias	Matthias	Matthias	Matthias	Matthias	Ramsay	Ramsay	Ramsay	Ramsay	Ramsay	Smith	Smith
	Date: 6-Feb-92	3-Oct-91	1-Oct-90	5-Feb-91	6-Jun-91	5-Feb-92	1-Oct-90	5-Feb-91	5-Jun-91	1-Oct-91	4-Feb-92	25-Sep-90	5-Feb-91
Chloromethane	0.99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)	NA	19	22	21	36 J	17	NA	1 J	2 J	2.8	17	58	42 J
Trichloroethene	NA	8.6	11	7 J	12	7.5	NA	1	NA	1.6	3.7	20	23
Tetrachloroethene	NA	81	120 J	76	59 DJ	60 D	3 J	16	16	19	23	330 J	160 J
Xylenes (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	5
Chloroform	NA	0.12 J	NA	NA	NA	0.09 J	NA	NA	1 J	1.1	1.1	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	15 J	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.39 J	0.5	NA	NA
1,1-Dichloroethene	0.13 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Smith	Smith	Smith	Steele	Steele	Steele	Steele	Steele	Tillett	Tillett FR	Tillett	Tillett	Tillett
	Date: 6-Jun-91	3-Oct-91	5-Feb-92	25-Sep-90	5-Feb-91	5-Jun-91	1-Oct-91	4-Feb-92	2-Oct-90	2-Oct-90	5-Feb-91	5-Jun-91	2-Oct-91
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)	62 D	56 D	48 D	120	44	180 DJ	150 D	110	280 J	270 J	200 D	400 DEJ	150
Trichloroethene	26	20	21	48	12	42 DJ	29	29	56 J	47 J	36	72 DJ	38
Tetrachloroethene	190 D	250 D	230 D	130 J	65	150 DJ	54 D	55	120 J	98 J	100 D	180 DJ	66
Xylenes (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6 J
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA
Chloroform	NA	0.35 J	0.32 J	NA	NA	NA	NA	NA	NA	NA	NA	0.9	NA
Toluene	NA	NA	0.05 J	NA	NA	NA	NA	NA	NA	NA	1	0.8 J	3 J
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	0.06 J	0.06 J	NA	NA	NA	0.11 J	NA	NA	NA	NA	NA	NA
Benzene	NA	0.1 J	0.07 J	NA	NA	NA	0.08 J	NA	32 J	26 J	27	3 J	71 J
Vinyl chloride	NA	NA	NA	NA	NA	4	2.5	1.4 J	17 J	12 J	7	5	17 J
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	0.12 J	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	0.13 J	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	NA	17
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Tillett FR 2-Oct-91	Tillett 5-Feb-92	VIHA I 27-Sep-90	VIHA III 26-Sep-90	WAPA 6-Feb-92	Deionized Water 4-Jun-91	Equipment Blank 4-Jun-91	Equipment Blank 4-Feb-92	Field Blank 5-Feb-91	Trip Blank 24-Sep-90	Trip Blank 25-Sep-90	Trip Blank 26-Sep-90	Trip Blank 27-Sep-90
Chloromethane		NA	NA	NA	NA	NA	0.9 J	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane		NA	NA	NA	NA	NA	1	1 J	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)		140 D	23	6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene		35	6.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene		63 D	23	5 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)		2.7 J	NA	NA	NA	NA	NA	NA	0.1 J	NA	8	7	NA	NA
1,1,2-Trichloroethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform		NA	5.3	NA	3 J	0.61	53 D	NA	NA	NA	NA	NA	NA	NA
Toluene		2.1 J	0.05 J	NA	NA	0.11 J	NA	NA	NA	NA	NA	1 J	NA	NA
Acetone		NA	NA	NA	NA	NA	8 J	7 J	7.6	NA	12 J	42 J	4 J	NA
1,1-Dichloroethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene		58 DJ	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride		11 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane		NA	NA	NA	NA	2.8	18	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride		NA	NA	NA	NA	NA	1	1 J	7	2	25 J	34 J	24 J	16 J
Carbon disulfide		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene		0.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane		NA	NA	NA	NA	13	5	NA	NA	NA	NA	NA	NA	NA
Bromoform		NA	NA	NA	NA	34	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Trip Blank Date: 1-Oct-90	Trip Blank 2-Oct-90	Trip Blank 4-Feb-91	Trip Blank 5-Feb-91	Trip Blank 6-Feb-91	Trip Blank 7-Feb-91	Trip Blank 4-Jun-91	Trip Blank 5-Jun-91	Trip Blank 6-Jun-91	Trip Blank 1-Oct-91	Trip Blank 2-Oct-91	Trip Blank 3-Oct-91	Trip Blank 3-Feb-92
Chloromethane	NA	NA	NA	NA	1 J	1 J	9 J	2 J	6 J	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	2	1 J	2	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 J	NA	NA
Xylenes (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.28 J	0.11 J	0.25 J	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	2	NA	2	0.1 J	NA	NA	NA
Acetone	6 J	7 J	NA	NA	NA	NA	11 J	NA	8 J	NA	3.2	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	13 J	14 J	2	3	2	2	0.8 J	NA	0.9 J	NA	0.6	0.17 J	0.29 J
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 J	1.4 J	0.25 J	0.57
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	0.8 J	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 10. Summary of Detected Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Trip Blank Date: 4-Feb-92	Trip Blank 5-Feb-92	Trip Blank 6-Feb-92	Water Blank 3-Oct-91
Chloromethane	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA
1,2-Dichloroethene (cis/trans)	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA
Xylenes (total)	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA
Toluene	0.05 J	NA	NA	0.05 J
Acetone	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA
Benzene	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA
Methylene chloride	0.33 J	0.29 J	0.33 J	0.26 J
Carbon disulfide	0.23 J	1.8	1	0.73 J
Chlorobenzene	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not a[illegible]e.

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Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Bryan Date: 1-Oct-90	Bryan 5-Feb-91	Dede 25-Sep-90	Dede 5-Feb-91	Dede 5-Feb-92	Demitri 1-Oct-90	Demitri 5-Feb-91	Dench 25-Sep-90	Dench 5-Feb-91	Dench FR 5-Feb-91	Devcon I 24-Sep-90	Devcon I 5-Feb-91	Devcon III 24-Sep-90
Chloromethane	2 U	2 UJ	2 U	0.9 J	0.5 U	2 UJ	2 UJ	1 J	2 UJ	2 UJ	2 UJ	R	2 U
Bromomethane	2 U	R	2 U	R	0.5 U	2 UJ	R	2 UJ	R	R	2 U	R	2 U
Vinyl chloride	2 U	R	2 U	R	0.5 U	2 UJ	R	2 UJ	R	R	2 U	R	2 U
Chloroethane	2 U	R	2 U	R	0.5 UJ	2 UJ	R	2 UJ	R	R	2 UJ	R	2 U
Methylene chloride	2 UJ	1 U	2 UJ	1 U	0.5 U	2 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	8 UJ
Acetone	R	R	R	R	2 U	R	R	R	R	R	R	R	R
Carbon disulfide	1 UJ	1 UJ	1 UJ	1 UJ	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	R	1 UJ
1,1-Dichloroethene	1 UJ	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
1,1-Dichloroethane	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
1,2-Dichloroethene (cis/trans)	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	R	1 UJ
Chloroform	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
1,2-Dichloroethane	1 UJ	1 U	1 UJ	0.6 J	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	R	1 UJ
2-Butanone	R	R	R	R	2 U	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	R	1 UJ
Carbon tetrachloride	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
Bromodichloromethane	1 U	1 U	1 U	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	R	1 U
1,2-Dichloropropane	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
cis-1,3-Dichloropropene	1 U	R	1 U	1 U	0.5 U	1 UJ	R	1 UJ	1 U	1 U	1 UJ	R	1 U
Trichloroethene	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
Dibromochloromethane	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	R	1 UJ
1,1,2-Trichloroethane	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
Benzene	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	R	1 UJ
trans-1,3-Dichloropropene	1 U	1 U	1 UJ	R	0.5 U	R	1 U	1 UJ	R	R	1 UJ	R	1 UJ
Bromoform	1 U	1 U	1 UJ	R	0.5 UJ	1 UJ	1 U	1 UJ	R	R	1 UJ	R	1 UJ
4-Methyl-2-pentanone	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	R	2 UJ
2-Hexanone	R	R	R	2 UJ	2 U	R	R	R	2 UJ	2 UJ	R	R	R
Tetrachloroethene	1 UJ	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
1,1,2,2-Tetrachloroethane	1 UJ	1 U	1 UJ	R	0.5 U	1 UJ	1 U	1 UJ	R	R	1 UJ	R	1 UJ
Toluene	1 U	1 U	1 U	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	R	1 U
Chlorobenzene	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	R	1 UJ
Ethylbenzene	1 U	1 U	1 U	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	R	1 U
Styrene	1 U	1 U	1 UJ	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	R	1 UJ
Xylenes (total)	1 U	1 U	1 U	1 U	0.5 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	R	1 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of [illegible]

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Devcon III 5-Feb-91	Eglin I 2-Oct-90	Eglin I 5-Feb-91	Eglin I 5-Jun-91	Eglin I 2-Oct-91	Eglin I 3-Feb-92	Eglin II 27-Sep-90	Eglin II 5-Feb-91	Eglin II 5-Jun-91	Eglin II 2-Oct-91	Eglin II 3-Feb-92	Eglin III 27-Sep-90	Eglin III 5-Feb-91
Chloromethane		2 UJ	R	2 UJ	R	1 U	0.5 U	10 UJ	2 UJ	R	1.2 U	0.5 U	10 UJ	2 UJ
Bromomethane		R	R	R	R	1 U	0.5 U	10 UJ	R	R	1.2 U	0.5 U	10 UJ	R
Vinyl chloride		R	R	R	R	1 U	0.5 U	10 UJ	R	R	1.2 U	0.5 U	10 UJ	R
Chloroethane		R	R	R	R	1 U	0.5 U	10 UJ	R	R	1.2 U	0.5 UJ	10 UJ	R
Methylene chloride		1 U	R	1 U	R	1.1 U	0.5 U	5 UJ	1 U	R	1.8 U	0.5 U	10 UJ	1 U
Acetone		R	R	R	R	4 U	2 U	R	R	R	5 U	2 U	22 J	R
Carbon disulfide		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	5 U	0.5 U	5 UJ	1 UJ
1,1-Dichloroethene		1 U	R	1 U	R	1 U	0.5 U	5 UJ	1 U	R	1.2 U	0.5 U	5 UJ	1 U
1,1-Dichloroethane		1 U	R	1 U	R	1 U	0.5 U	5 UJ	1 U	R	1.2 U	0.5 U	5 U	1 U
1,2-Dichloroethene (cis/trans)		1 UJ	68 J	60 J	68 DJ	45	17	120 J	72 DJ	130 DJ	67	20	52 J	45 J
Chloroform		1 U	R	1 U	R	0.1 J	0.5 U	5 UJ	1 U	R	0.12 J	0.5 U	5 U	1 U
1,2-Dichloroethane		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ
2-Butanone		R	R	R	R	4 U	2 U	R	R	R	5 U	2 U	R	R
1,1,1-Trichloroethane		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 U	1 UJ
Carbon tetrachloride		1 U	R	1 U	R	1 U	0.5 U	5 UJ	1 U	R	1.2 U	0.5 U	5 U	1 U
Bromodichloromethane		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ
1,2-Dichloropropane		1 U	R	1 U	R	1 U	0.5 U	5 UJ	1 U	R	1.2 U	0.5 U	5 UJ	1 U
cis-1,3-Dichloropropene		1 U	R	1 U	R	1 U	0.5 U	5 UJ	1 U	R	1.2 U	0.5 U	5 UJ	1 U
Trichloroethene		1 U	10 J	8	10 J	7.5	7	22 J	19	19 J	18	6.7	14	11
Dibromochloromethane		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ
1,1,2-Trichloroethane		1 U	R	1 U	1 J	1 U	0.5 U	5 UJ	1 U	R	1.2 U	0.5 U	5 UJ	1 U
Benzene		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ
trans-1,3-Dichloropropene		R	R	R	R	1 UJ	0.5 U	5 UJ	R	R	1.2 UJ	0.5 U	5 UJ	R
Bromoform		R	R	R	R	1 UJ	0.5 U	5 UJ	R	R	1.2 UJ	0.5 UJ	5 UJ	R
4-Methyl-2-pentanone		2 UJ	R	2 UJ	R	4 U	2 U	10 UJ	2 UJ	R	5 U	2 U	10 UJ	2 UJ
2-Hexanone		2 UJ	R	2 UJ	R	4 U	2 U	R	2 UJ	R	5 U	2 U	R	2 UJ
Tetrachloroethene		1 U	32 J	26	32 J	24	16	71 J	34 DJ	61 DJ	54	16	44 J	35
1,1,2,2-Tetrachloroethane		R	R	R	R	1 U	0.5 U	5 UJ	R	R	1.2 U	0.5 U	5 UJ	R
Toluene		1 UJ	R	1 UJ	R	1 U	0.06 J	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ
Chlorobenzene		1 U	R	1 U	R	1 U	0.5 U	5 UJ	1 U	R	1.2 U	0.5 U	5 UJ	1 U
Ethylbenzene		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ
Styrene		1 UJ	R	1 UJ	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ
Xylenes (total)		1 UJ	R	1 J	R	1 U	0.5 U	5 UJ	1 UJ	R	1.2 U	0.5 U	5 UJ	1 UJ

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Eglin III FR 5-Feb-91	Eglin III 5-Jun-91	Eglin III 2-Oct-91	Eglin III 3-Feb-92	Four Winds I 2-Oct-91	Four Winds I 4-Feb-92	Four Winds II 26-Sep-90	Four Winds II FR 26-Sep-90	Four Winds II 5-Feb-91	Four Winds II 5-Jun-91	Four Winds II 2-Oct-91	Four Winds II 4-Feb-92	Gassett 5-Feb-91
Chloromethane		2 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	5 UJ	5 UJ	2 U	1 UJ	5 U	2.5 Uj	2 U
Bromomethane		2 UJ	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	5 UJ	5 UJ	2 UJ	1 UJ	5 U	2.5 U	2 U
Vinyl chloride		2 UJ	1 UJ	0.5 U	0.5 U	0.5 U	0.22 J	5 UJ	5 UJ	2 UJ	1 UJ	5 U	2.5 U	2 U
Chloroethane		2 UJ	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	5 UJ	5 UJ	2 UJ	1 UJ	5 U	2.5 U	R
Methylene chloride		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	14 UJ	10 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
Acetone		R	2 UJ	2 U	2 U	2 U	2 U	R	R	R	R	20 U	10 U	R
Carbon disulfide		1 UJ	0.5 UJ	2 U	0.5 U	2 U	0.5 U	2 UJ	2 UJ	1 UJ	0.5 UJ	20 U	2.5 U	1 UJ
1,1-Dichloroethene		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
1,1-Dichloroethane		1 U	0.5 UJ	0.05 J	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
1,2-Dichloroethene (cis/trans)		45 J	69 DJ	51	39	89 D	150 D	75 J	61 J	230 D	130 DJ	190	130	1 U
Chloroform		1 U	0.5 UJ	0.11 J	0.09 J	0.28 J	1.2	2 UJ	2 UJ	1 U	0.5 UJ	5 U	0.5 J	1 U
1,2-Dichloroethane		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
2-Butanone		R	R	2 U	2 U	2 U	2 U	R	R	R	R	20 U	10 U	R
1,1,1-Trichloroethane		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
Carbon tetrachloride		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
Bromodichloromethane		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.09 J	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
1,2-Dichloropropane		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
cis-1,3-Dichloropropene		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	R
Trichloroethene		13	15 J	12	16	9.8	21	6 J	4 J	21	12 J	25	15	1
Dibromochloromethane		1 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
1,1,2-Trichloroethane		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
Benzene		1 U	0.5 UJ	0.05 J	0.5 U	0.33 J	0.8	2 UJ	2 UJ	1 UJ	0.5 UJ	5 U	2.7	1 U
trans-1,3-Dichloropropene		R	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	2 UJ	2 UJ	R	0.5 UJ	5 UJ	2.5 U	1 U
Bromoform		1 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 UJ	2.5 U	1 U
4-Methyl-2-pentanone		2 UJ	1 UJ	2 U	2 U	2 U	2 U	5 UJ	5 UJ	2 UJ	1 UJ	20 U	10 U	2 UJ
2-Hexanone		2 UJ	1 UJ	2 U	2 U	2 U	2 U	R	R	2 UJ	1 UJ	20 U	10 U	2 UJ
Tetrachloroethene		36	40 J	36	41 D	36	75 D	25 J	18 J	90 D	34 DJ	80	2.5 U	1 U
1,1,2,2-Tetrachloroethane		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 UJ	5 U	2.5 U	1 U
Toluene		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 UJ	0.5 UJ	5 U	2.5 U	44 D
Chlorobenzene		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 UJ	0.5 UJ	5 U	2.5 U	1 U
Ethylbenzene		1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 UJ	0.5 UJ	5 U	2.5 U	1 U
Styrene		1 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 UJ	0.5 UJ	5 U	2.5 U	1 U
Xylenes (total)		1 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 UJ	0.5 UJ	5 U	0.4 J	1 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Gassett Date: 4-Jun-91	Gassett 1-Oct-91	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 26-Sep-90	Hartman II 5-Feb-91	Hartman II 4-Jun-91	Hartman II 1-Oct-91	Hartman II 3-Feb-92	Hartman III 26-Sep-90	Hartman III 5-Feb-91	Hartman III 4-Jun-91	Hartman III 1-Oct-91
Chloromethane	2 UJ	0.5 U	0.99	0.5 U	2 UJ	2 U	1 UJ	0.5 U	0.5 U	2 UJ	2 U	1 U	0.5 U
Bromomethane	1 UJ	0.5 U	0.5 U	0.5 U	2 U	2 U	1 UJ	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 U
Vinyl chloride	1 UJ	0.5 U	0.5 U	0.5 U	2 U	2 U	1 UJ	0.5 U	0.5 U	2 UJ	2 UJ	1 UJ	0.5 U
Chloroethane	1 UJ	0.5 U	0.5 U	0.5 UJ	2 UJ	2 U	1 UJ	0.5 U	0.5 UJ	2 UJ	2 UJ	1 U	0.5 U
Methylene chloride	2 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	3 UJ	1 U	2 U	0.5 U
Acetone	10 UJ	2 U	2 U	2 U	R	R	R	2 U	2 U	R	R	8 UJ	2 U
Carbon disulfide	0.5 UJ	2 U	0.5 U	0.5 U	1 UJ	1 UJ	0.5 UJ	2 U	0.5 U	1 UJ	1 UJ	0.5 UJ	2 U
1,1-Dichloroethene	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U
1,1-Dichloroethane	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
1,2-Dichloroethene (cis/trans)	0.5 UJ	0.5 U	0.11 J	0.5 U	5 J	5 J	6 J	3.1	4.2	2	1 U	0.5 U	0.08 J
Chloroform	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	0.5 U	0.5 U
1,2-Dichloroethane	1 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	1 U	0.5 U
2-Butanone	R	2 U	2 U	2 U	R	R	R	2 U	2 U	R	R	R	2 U
1,1,1-Trichloroethane	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U
Carbon tetrachloride	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 UJ	0.5 U
Bromodichloromethane	0.5 UJ	0.5 U	0.5 U	0.5 U	1 U	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	R	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	0.5 U	0.5 U
Trichloroethene	0.5 UJ	0.11 J	0.09 J	0.5 U	1 J	2	1 J	0.77	0.95	1 U	1 U	0.5 UJ	0.5 U
Dibromochloromethane	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
Benzene	0.5 UJ	0.5 U	0.06 J	0.07 J	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 UJ	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 UJ	0.5 U	1 UJ	R	0.5 U	0.5 UJ
Bromoform	0.5 UJ	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 UJ	0.5 UJ	1 UJ	1 U	0.5 U	0.5 UJ
4-Methyl-2-pentanone	1 UJ	2 U	2 U	2 U	2 UJ	2 UJ	1 UJ	2 U	2 U	2 UJ	2 UJ	1 U	2 U
2-Hexanone	1 UJ	2 U	2 U	2 U	R	2 UJ	1 UJ	2 U	2 U	R	2 UJ	1 U	2 U
Tetrachloroethene	0.5 UJ	0.5 U	0.5 U	0.5 U	7 J	9	7 J	4.7	5.3	1 J	1	0.5 U	0.83
1,1,2,2-Tetrachloroethane	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 UJ	1 U	0.5 U	0.5 U
Toluene	0.5 UJ	0.5 U	0.78 U	0.76 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 UJ	0.5 U
Chlorobenzene	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
Ethylbenzene	0.5 UJ	0.5 U	0.5 U	0.5 U	1 U	1 U	0.5 UJ	0.5 U	0.5 U	1 U	1 U	0.5 U	0.5 U
Styrene	0.5 UJ	0.5 U	0.5 U	0.5 U	1 U	1 U	0.5 UJ	0.5 U	0.5 U	1 UJ	1 UJ	0.5 U	0.5 U
Xylenes (total)	0.5 UJ	0.5 U	0.5 U	0.5 U	1 U	1 U	0.5 UJ	0.5 U	0.5 U	1 UJ	1 UJ	0.5 U	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Hartman III 3-Feb-92	Harvey 26-Sep-90	Harvey 5-Feb-91	Harvey 4-Jun-91	Harvey 2-Oct-91	Harvey 3-Feb-92	LaPlace 2-Oct-90	LaPlace 5-Feb-91	LaPlace FR 5-Feb-91	LaPlace 6-Jun-91	LaPlace FR 6-Jun-91	LaPlace 3-Oct-91	LaPlace 6-Feb-92
Chloromethane		0.5 U	100 U	200 U	1 U	0.5 U	0.5 U	R	2 U	2 U	1 UJ	1 UJ	2.5 U	0.5 U
Bromomethane		0.5 U	100 U	200 U	1 U	0.5 U	0.5 U	R	2 U	2 U	1 UJ	1 UJ	2.5 U	0.5 U
Vinyl chloride		0.5 U	100 UJ	200 U	3	2.1	2.2	R	2 U	2 U	1 UJ	1 UJ	2.5 U	0.5 U
Chloroethane		0.5 UJ	100 U	200 U	1 U	0.5 U	0.5 U	R	R	R	1 UJ	1 UJ	2.5 U	0.5 U
Methylene chloride		0.5 U	150 UJ	100 U	7 U	0.5 U	0.5 U	R	1 U	1 U	3 UJ	1 UJ	4.6	0.5 U
Acetone		2 U	R	200 U	R	2 U	2 U	R	R	R	R	R	10 U	2 U
Carbon disulfide		0.5 U	50 UJ	100 U	0.5 U	2 U	0.5 U	R	1 UJ	1 UJ	0.5 UJ	0.5 UJ	2.2 J	0.5 U
1,1-Dichloroethene		0.5 U	50 UJ	100 U	0.5 U	0.5 U	0.06 J	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.5 U
1,1-Dichloroethane		0.5 U	50 U	100 U	0.5 U	0.5 U	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.06 J
1,2-Dichloroethene (cis/trans)		0.19 J	50 UJ	160	80 DJ	38	39	140 J	200 D	190 D	250 DEJ	170 DJ	170 D	140 D
Chloroform		0.5 U	50 U	100 U	0.5 U	0.15 J	0.1 J	R	1	1 U	2	0.8 J	0.6 J	0.4 J
1,2-Dichloroethane		0.5 U	50 UJ	100 U	0.5 U	0.5 U	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.5 U
2-Butanone		2 U	R	200 U	R	2 U	2 U	R	R	R	R	R	10 U	2 U
1,1,1-Trichloroethane		0.5 U	50 U	100 U	0.5 U	0.5 U	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.5 U
Carbon tetrachloride		0.5 U	50 U	100 U	0.5 UJ	0.5 U	0.5 U	R	1 U	1 U	0.5 UJ	0.5 UJ	2.5 U	0.5 U
Bromodichloromethane		0.5 U	50 UJ	100 U	0.5 U	0.5 U	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.5 U
1,2-Dichloropropane		0.5 U	50 U	100 U	0.5 U	0.5 U	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.5 U
cis-1,3-Dichloropropene		0.5 U	50 UJ	100 U	0.5 U	0.5 U	0.5 U	R	R	R	0.5 U	0.5 UJ	2.5 U	0.5 U
Trichloroethene		0.08 J	50 U	60 J	36 DJ	25	23	24 J	32	31	31 D	32 J	30	23
Dibromochloromethane		0.5 U	50 U	100 U	0.5 U	0.5 UJ	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	50 U	100 U	0.5 U	0.5 U	0.5 U	R	1 U	1 U	5	0.5 UJ	2.5 U	0.5 U
Benzene		0.5 U	50 U	100 U	0.5 UJ	0.5 U	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.15 J
trans-1,3-Dichloropropene		0.5 U	50 U	100 U	0.5 U	0.5 UJ	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 UJ	0.5 U
Bromoform		0.5 UJ	50 UJ	100 U	0.5 U	0.5 UJ	0.5 UJ	R	1 U	1 U	0.5 UJ	0.5 UJ	2.5 UJ	0.5 U
4-Methyl-2-pentanone		2 U	100 UJ	200 U	1 U	2 U	2 U	R	2 UJ	2 UJ	1 U	1 UJ	10 U	2 U
2-Hexanone		2 U	R	200 U	1 U	2 U	2 U	R	2 UJ	2 UJ	1 U	1 UJ	10 U	2 U
Tetrachloroethene		1.2	890 J	1500	530 DEJ	670 D	500 D	98 J	110 D	100 D	88 DJ	64 DJ	100 D	84 D
1,1,2,2-Tetrachloroethane		0.5 U	50 UJ	100 U	0.5 U	0.5 U	0.5 U	R	1 U	1 U	0.5 U	0.5 UJ	2.5 U	0.5 U
Toluene		0.5 U	50 U	100 U	0.5 UJ	0.5 U	0.06 J	R	1 U	1 U	4 UJ	3 UJ	2.5 U	0.11 J
Chlorobenzene		0.5 U	50 U	100 U	0.5 UJ	0.5 U	0.5 U	R	1 U	1 U	0.5 UJ	0.5 UJ	2.5 U	0.5 U
Ethylbenzene		0.5 U	50 U	100 U	0.5 UJ	0.5 U	0.5 U	R	1 U	1 U	0.5 UJ	0.5 UJ	2.5 U	0.5 U
Styrene		0.5 U	50 U	100 U	0.5 UJ	0.5 U	0.5 U	R	1 U	1 U	0.5 UJ	0.5 UJ	2.5 U	0.5 U
Xylenes (total)		0.5 U	50 UJ	100 U	0.5 UJ	0.5 U	0.5 U	R	1 U	1 U	0.5 UJ	0.5 UJ	2.5 U	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	LaPlace FR 6-Feb-92	Leonard 26-Sep-90	Leonard 5-Feb-91	Leonard 6-Feb-92	Matthias 3-Oct-91	Matthias 1-Oct-90	Matthias 5-Feb-91	Matthias 6-Jun-91	Matthias 5-Feb-92	Ramsay 1-Oct-90	Ramsay 5-Feb-91	Ramsay 5-Jun-91	Ramsay 1-Oct-91
Chloromethane		0.5 U	2 UJ	2 U	0.99	1.2 U	2 UJ	25 U	1 UJ	0.5 U	4 UJ	2 UJ	2 UJ	0.5 U
Bromomethane		0.5 U	2 UJ	2 U	0.5 U	1.2 U	2 UJ	25 U	1 UJ	0.5 U	4 UJ	R	R	0.5 U
Vinyl chloride		0.5 U	2 UJ	2 U	0.5 U	1.2 U	2 UJ	25 U	1 UJ	0.5 U	4 UJ	R	R	0.5 U
Chloroethane		0.5 U	2 UJ	R	0.5 U	1.2 U	2 UJ	25 U	1 UJ	0.5 U	4 UJ	R	R	0.5 U
Methylene chloride		0.5 U	2 UJ	1 U	0.5 U	1.9	9 UJ	25 U	2 UJ	0.5 U	17 UJ	1 U	R	0.5 U
Acetone		2 U	R	R	2 U	5 U	R	25 U	2 UJ	2 U	R	R	15 J	2 U
Carbon disulfide		1.9 U	1 UJ	1 UJ	0.5 U	5 U	1 UJ	12 UJ	0.5 UJ	0.5 U	2 UJ	1 UJ	R	2 U
1,1-Dichloroethene		0.5 U	1 UJ	1 U	0.13 J	1.2 U	1 UJ	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 U
1,1-Dichloroethane		0.07 J	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 U
1,2-Dichloroethene (cis/trans)		140 D	1 UJ	1 U	0.5 U	19	22	21	36 J	17	2 UJ	1 J	2 J	2.8
Chloroform		0.41 J	1 UJ	1 U	0.5 U	0.12 J	1 UJ	12 U	0.5 U	0.09 J	2 UJ	1 U	1 J	1.1
1,2-Dichloroethane		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 UJ	12 U	0.5 U	0.5 U	2 UJ	1 U	1 UJ	0.5 U
2-Butanone		2 U	R	R	2 U	5 U	R	25 U	R	2 U	R	R	R	2 U
1,1,1-Trichloroethane		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 UJ	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 U
Carbon tetrachloride		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 UJ	0.5 U	2 UJ	1 U	R	0.5 U
Bromodichloromethane		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.39 J
1,2-Dichloropropane		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 U
cis-1,3-Dichloropropene		0.5 U	1 UJ	R	0.5 U	1.2 U	1 UJ	12 U	0.5 U	0.5 U	2 UJ	R	R	0.5 U
Trichloroethene		23	1 UJ	1 U	0.5 U	8.6	11	7 J	12	7.5	2 UJ	1	R	1.6
Dibromochloromethane		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 U
1,1,2-Trichloroethane		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	4	0.5 U	2 UJ	1 U	R	0.5 U
Benzene		0.14 J	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 U
trans-1,3-Dichloropropene		0.5 U	1 UJ	1 U	0.5 U	1.2 UJ	1 UJ	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 UJ
Bromoform		0.5 U	1 UJ	1 U	0.5 U	1.2 UJ	1 U	12 U	0.5 UJ	0.5 U	2 UJ	1 U	R	0.5 UJ
4-Methyl-2-pentanone		2 U	2 UJ	2 UJ	2 U	5 U	2 UJ	25 U	1 U	2 U	4 UJ	2 UJ	R	2 U
2-Hexanone		2 U	R	2 UJ	2 U	5 U	R	25 U	1 U	2 U	R	R	R	2 U
Tetrachloroethene		81 D	1 UJ	1 U	0.5 U	81	120 J	76	59 DJ	60 D	3 J	16	16	19
1,1,2,2-Tetrachloroethane		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 UJ	12 U	0.5 U	0.5 U	2 UJ	1 U	R	0.5 U
Toluene		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 UJ	0.5 U	2 UJ	1 U	R	0.5 U
Chlorobenzene		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 UJ	0.5 U	2 UJ	1 U	R	0.5 U
Ethylbenzene		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 U	12 U	0.5 UJ	0.5 U	2 UJ	1 U	R	0.5 U
Styrene		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 UJ	12 U	0.5 UJ	0.5 U	2 UJ	1 U	R	0.5 U
Xylenes (total)		0.5 U	1 UJ	1 U	0.5 U	1.2 U	1 UJ	12 U	0.5 UJ	0.5 U	2 UJ	1 U	R	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

	Sample ID: Ramsay	Rodriguez	Rodriguez	Rodriguez	Smith	Smith	Smith	Smith	Smith	Steele	Steele	Steele	Steele
Analyte	Date: 4-Feb-92	24-Sep-90	5-Feb-91	5-Feb-92	25-Sep-90	5-Feb-91	6-Jun-91	3-Oct-91	5-Feb-92	25-Sep-90	5-Feb-91	5-Jun-91	1-Oct-91
Chloromethane	0.5 U	2 UJ	2 UJ	0.5 U	25 U	2 UJ	1 UJ	0.5 U	0.5 U	17 UJ	10 U	1 UJ	0.5 U
Bromomethane	0.5 U	2 UJ	2 U	0.5 U	25 U	R	1 UJ	0.5 U	0.5 U	17 UJ	10 U	1 U	0.5 U
Vinyl chloride	0.5 U	2 UJ	2 U	0.5 U	25 U	R	1 UJ	0.5 U	0.5 U	17 UJ	10 U	4	2.5
Chloroethane	0.5 UJ	2 UJ	2 U	0.5 U	25 U	R	1 UJ	0.5 U	0.5 UJ	17 UJ	10 U	1 UJ	0.5 U
Methylene chloride	0.5 U	2 UJ	1 U	0.5 U	12 UJ	1 U	1 UJ	0.5 U	0.5 U	140 UJ	5 U	0.5 UJ	0.5 U
Acetone	2 U	R	R	2 U	25 UJ	R	R	2 U	2 U	R	10 U	R	2 U
Carbon disulfide	2 U	1 UJ	1 UJ	0.5 U	12 UJ	1 UJ	0.5 UJ	2 U	0.5 U	8 UJ	5 U	0.5 U	2 U
1,1-Dichloroethene	0.5 U	1 UJ	1 U	0.5 U	12 UJ	1 U	0.5 UJ	0.5 U	0.5 U	8 UJ	5 U	0.5 U	0.12 J
1,1-Dichloroethane	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.06 J	0.06 J	8 U	5 U	0.5 U	0.11 J
1,2-Dichloroethene (cis/trans)	17	1 UJ	1 U	0.5 U	58	42 J	62 D	56 D	48 D	120	44	180 DJ	150 D
Chloroform	1.1	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.35 J	0.32 J	8 UJ	5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	1 UJ	1 U	0.5 U	12 UJ	1 U	0.5 UJ	0.5 U	0.5 U	8 UJ	5 U	0.5 U	0.5 U
2-Butanone	2 U	R	R	2 U	25 UJ	R	R	2 U	2 U	R	10 U	R	2 U
1,1,1-Trichloroethane	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.5 U	8 UJ	5 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.5 U	8 U	5 U	0.5 U	0.5 U
Bromodichloromethane	0.5	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.5 U	8 U	5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.5 U	8 U	5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	1 UJ	R	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.5 U	8 UJ	5 U	0.5 U	0.5 U
Trichloroethene	3.7	1 UJ	1 U	0.5 U	20	23	26	20	21	48	12	42 DJ	29
Dibromochloromethane	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.5 UJ	0.5 U	8 U	5 U	0.5 U	0.5 UJ
1,1,2-Trichloroethane	0.5 U	1 UJ	1 U	0.5 U	12 U	5	0.5 UJ	0.5 U	0.5 U	8 U	5 U	0.5 U	0.5 U
Benzene	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.1 J	0.07 J	8 U	5 U	0.5 U	0.08 J
trans-1,3-Dichloropropene	0.5 U	1 UJ	1 UJ	0.5 U	R	R	0.5 UJ	0.5 UJ	0.5 U	8 UJ	5 U	0.5 U	0.5 UJ
Bromoform	0.5 U	1 UJ	1 U	0.5 U	12 UJ	1 U	0.5 UJ	0.5 UJ	0.5 U	8 UJ	5 U	0.5 U	0.5 UJ
4-Methyl-2-pentanone	2 U	2 UJ	2 UJ	2 U	25 UJ	2 UJ	1 UJ	2 U	2 U	17 UJ	10 U	1 U	2 U
2-Hexanone	2 U	R	2 UJ	2 U	25 UJ	2 UJ	1 UJ	2 U	2 U	R	10 U	1 U	2 U
Tetrachloroethene	23	1 UJ	1 U	0.5 U	330 J	160 J	190 D	250 D	230 D	130 J	65	150 DJ	54 D
1,1,2,2-Tetrachloroethane	0.5 U	1 UJ	1 UJ	0.5 U	12 UJ	1 U	0.5 UJ	0.5 U	0.5 U	8 UJ	5 U	0.5 U	0.5 U
Toluene	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.05 J	8 U	5 U	0.5 UJ	0.5 U
Chlorobenzene	0.5 U	1 UJ	1 U	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.5 U	8 U	5 U	0.5 UJ	0.13 J
Ethylbenzene	0.5 U	1 UJ	1 UJ	0.5 U	12 U	1 U	0.5 UJ	0.5 U	0.5 U	8 U	5 U	0.5 UJ	0.5 U
Styrene	0.5 U	1 UJ	1 U	0.5 U	12 U	1 UJ	0.5 UJ	0.5 U	0.5 U	8 UJ	5 U	0.5 UJ	0.5 U
Xylenes (total)	0.5 U	1 UJ	1 U	0.5 U	12 U	1 UJ	0.5 UJ	0.5 U	0.5 U	8 UJ	5 U	0.5 UJ	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Steele	Tillett	Tillett FR	Tillett	Tillett	Tillett	Tillett FR	Tillett	VIHA I	VIHA III	VIHA III	WAPA	Deionized Water
	Date: 4-Feb-92	2-Oct-90	2-Oct-90	5-Feb-91	5-Jun-91	2-Oct-91	2-Oct-91	5-Feb-92	27-Sep-90	26-Sep-90	5-Feb-91	6-Feb-92	4-Jun-91
Chloromethane	2.5 Uj	R	R	2 U	1 U	2.5 U	0.5 U	0.5 U	2 UJ	2 UJ	2 UJ	0.5 U	0.9 J
Bromomethane	2.5 U	R	R	2 U	1 U	2.5 U	0.5 U	0.5 U	2 UJ	2 UJ	R	0.5 U	1 U
Vinyl chloride	1.4 J	17 J	12 J	7	5	17 J	11 J	0.5 U	2 UJ	2 UJ	R	0.5 U	1 U
Chloroethane	2.5 U	R	R	2 U	1 U	2.5 U	0.5 U	0.5 U	2 UJ	2 UJ	R	0.5 U	1 U
Methylene chloride	2.5 U	R	R	1 U	5 U	2.5 U	0.5 U	0.5 U	2 UJ	2 UJ	1 U	0.5 U	1
Acetone	10 UJ	R	R	R	R	10 U	2 U	2 U	R	R	R	2 U	8 J
Carbon disulfide	2.5 U	R	R	1 UJ	0.5 U	10 U	2 U	0.5 U	1 UJ	1 UJ	1 UJ	0.5 U	0.5 U
1,1-Dichloroethene	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 UJ	1 U	0.5 U	0.5 U
1,1-Dichloroethane	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 U	1 U	0.5 U	0.5 U
1,2-Dichloroethene (cis/trans)	110	280 J	270 J	200 D	400 DEJ	150	140 D	23	6 J	1 U	1 U	0.5 U	0.5 U
Chloroform	2.5 U	R	R	1 U	0.9	2.5 U	0.5 U	5.3	1 UJ	3 J	1 U	0.61	53 D
1,2-Dichloroethane	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 UJ	1 U	0.5 U	1
2-Butanone	10 U	R	R	R	R	10 U	2 U	2 U	R	R	R	2 U	R
1,1,1-Trichloroethane	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 UJ	1 U	0.5 U	0.5 U
Carbon tetrachloride	2.5 U	R	R	1 U	0.5 UJ	2.5 U	0.5 U	0.5 U	1 UJ	1 U	1 U	0.5 U	0.5 U
Bromodichloromethane	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 U	1 U	2.8	18
1,2-Dichloropropane	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 U	1 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	2.5 U	R	R	R	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 UJ	R	0.5 U	0.5 U
Trichloroethene	29	56 J	47 J	36	72 DJ	38	35	6.3	1 UJ	1 U	1 U	0.5 U	0.5 U
Dibromochloromethane	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 UJ	0.5 U	1 UJ	1 U	1 U	13	5
1,1,2-Trichloroethane	2.5 U	R	R	1 U	4	2.5 U	0.5 U	0.5 U	1 UJ	1 U	1 U	0.5 U	0.5 U
Benzene	2.5 U	32 J	26 J	27	3 J	71 J	58 DJ	1.7	1 UJ	1 U	1 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	2.5 U	R	R	1 U	0.5 U	2.5 UJ	0.5 UJ	0.5 U	1 UJ	1 UJ	1 U	0.5 U	0.5 U
Bromoform	2.5 U	R	R	1 U	0.5 U	2.5 UJ	0.5 UJ	0.5 U	1 UJ	1 UJ	1 U	34	0.5 U
4-Methyl-2-pentanone	10 U	R	R	2 UJ	1 U	10 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	1 U
2-Hexanone	10 U	R	R	2 UJ	1 U	10 U	2 U	2 U	R	R	R	2 U	1 U
Tetrachloroethene	55	120 J	98 J	100 D	180 DJ	66	63 D	23	5 J	1 UJ	1 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	2.5 U	R	R	1 U	0.5 U	2.5 U	0.5 U	0.5 U	1 UJ	1 UJ	1 U	0.5 U	0.5 U
Toluene	2.5 U	R	R	1	0.8 J	3 J	2.1 J	0.05 J	1 UJ	1 U	1 U	0.11 J	0.5 U
Chlorobenzene	2.5 U	R	R	1 U	0.5 UJ	2.5 U	0.2 J	0.5 U	1 UJ	1 U	1 U	0.5 U	0.5 U
Ethylbenzene	2.5 U	R	R	1	0.5 UJ	17	14	0.5 U	1 UJ	1 U	1 U	0.5 U	0.5 U
Styrene	2.5 U	R	R	1 U	0.5 UJ	2.5 U	0.5 U	0.5 U	1 UJ	1 UJ	1 U	0.5 U	0.5 U
Xylenes (total)	2.5 U	R	R	1 U	0.5 UJ	3.6 J	2.7 J	0.5 U	1 UJ	1 UJ	1 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Equipment Blank	Equipment Blank	Field Blank	Field Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
	Date: 4-Jun-91	4-Feb-92	5-Feb-91	1-Oct-91	24-Sep-90	25-Sep-90	26-Sep-90	27-Sep-90	1-Oct-90	2-Oct-90	3-Oct-90	4-Feb-91	5-Feb-91
Chloromethane	1 UJ	0.5 U	2 U	0.5 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Bromomethane	1 UJ	0.5 U	2 U	0.5 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	R	R
Vinyl chloride	1 UJ	0.5 U	2 U	0.5 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	R	R
Chloroethane	1 UJ	0.5 UJ	R	0.5 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	R	R
Methylene chloride	1 J	7	2	0.5 U	25 J	34 J	24 J	16 J	13 J	14 J	1 UJ	2	3
Acetone	7 J	7.6	R	2 U	12 J	42 J	4 J	R	6 J	7 J	R	R	R
Carbon disulfide	0.5 UJ	0.5 U	1 UJ	2 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
1,1-Dichloroethene	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U
1,1-Dichloroethane	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
1,2-Dichloroethene (cis/trans)	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Chloroform	43 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
1,2-Dichloroethane	1 J	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
2-Butanone	R	2 U	R	2 U	R	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Carbon tetrachloride	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Bromodichloromethane	14 UJ	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
1,2-Dichloropropane	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
cis-1,3-Dichloropropene	0.5 UJ	0.5 U	R	0.5 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Trichloroethene	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Dibromochloromethane	4 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2-Trichloroethane	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U
Benzene	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
trans-1,3-Dichloropropene	0.5 UJ	0.5 U	1 U	0.5 UJ	1 UJ	1 UJ	1 UJ	1 UJ	R	R	1 UJ	R	R
Bromoform	0.5 UJ	0.5 U	1 U	0.5 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	R	R
4-Methyl-2-pentanone	1 UJ	2 U	2 UJ	2 U	2 UJ	2 UJ	1 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
2-Hexanone	1 UJ	2 U	2 UJ	2 U	R	R	R	R	R	R	R	2 UJ	2 UJ
Tetrachloroethene	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U
1,1,2,2-Tetrachloroethane	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	R	R
Toluene	0.5 UJ	0.5 U	1 U	0.5 U	1 U	1 J	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Chlorobenzene	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Ethylbenzene	0.5 UJ	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Styrene	0.5 UJ	0.5 U	1 U	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Xylenes (total)	0.5 UJ	0.1 J	1 U	0.5 U	8	7	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Trip Blank Date: 6-Feb-91	Trip Blank 7-Feb-91	Trip Blank 4-Jun-91	Trip Blank 5-Jun-91	Trip Blank 6-Jun-91	Trip Blank 1-Oct-91	Trip Blank 2-Oct-91	Trip Blank 3-Oct-91	Trip Blank 3-Feb-92	Trip Blank 4-Feb-92	Trip Blank 5-Feb-92	Trip Blank 6-Feb-92	Water Blank 26-Sep-90
Chloromethane	1 J	1 J	9 J	2 J	6 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ
Bromomethane	2 U	2 U	1 UJ	1 UJ	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ
Vinyl chloride	2 U	2 U	1 UJ	1 UJ	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 UJ
Chloroethane	2 U	2 U	1 UJ	1 UJ	1 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	2 UJ
Methylene chloride	2	2	0.8 J	1 UJ	0.9 J	0.5 U	0.6	0.17 J	0.29 J	0.33 J	0.29 J	0.33 J	2 UJ
Acetone	R	R	11 J	R	8 J	2 U	3.2	2 U	2 U	2 U	2 U	2 U	R
Carbon disulfide	1 UJ	1 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.21 J	1.4 J	0.25 J	0.57	0.23 J	1.8	1	1 UJ
1,1-Dichloroethene	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
1,1-Dichloroethane	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
1,2-Dichloroethene (cis/trans)	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Chloroform	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
1,2-Dichloroethane	1 U	1 U	2	1 J	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
2-Butanone	R	R	R	R	R	2 U	2 U	2 U	2 U	2 U	2 U	2 U	R
1,1,1-Trichloroethane	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Carbon tetrachloride	1 U	1 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Bromodichloromethane	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
1,2-Dichloropropane	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
cis-1,3-Dichloropropene	R	R	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Trichloroethene	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Dibromochloromethane	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
1,1,2-Trichloroethane	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Benzene	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
trans-1,3-Dichloropropene	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	R
Bromoform	1 U	1 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	1 UJ
4-Methyl-2-pentanone	2 U	2 U	1 U	1 UJ	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
2-Hexanone	2 UJ	2 UJ	1 U	1 UJ	0.8 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	R
Tetrachloroethene	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
1,1,2,2-Tetrachloroethane	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Toluene	1 U	1 U	2	0.5 UJ	2	0.1 J	0.5 U	0.5 U	0.5 U	0.05 J	0.5 U	0.5 U	1 UJ
Chlorobenzene	1 U	1 U	0.5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Ethylbenzene	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Styrene	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ
Xylenes (total)	1 U	1 U	0.5 U	0.5 UJ	0.5 U	0.28 J	0.11 J	0.25 J	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 11. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Water Blank Date: 3-Oct-91	Water Blank 4-Feb-92
Chloromethane	0.5 U	0.5 U
Bromomethane	0.5 U	0.5 U
Vinyl chloride	0.5 U	0.5 U
Chloroethane	0.5 U	0.5 U
Methylene chloride	0.26 J	0.5 U
Acetone	2 U	2 U
Carbon disulfide	0.73 J	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U
1,2-Dichloroethene (cis/trans)	0.5 U	0.5 U
Chloroform	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U
2-Butanone	2 U	2 U
1,1,1-Trichloroethane	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U
Benzene	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 UJ	0.5 U
Bromoform	0.5 UJ	0.5 U
4-Methyl-2-pentanone	2 U	2 U
2-Hexanone	2 U	2 U
Tetrachloroethene	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U
Toluene	0.05 J	0.5 U
Chlorobenzene	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U
Styrene	0.5 U	0.5 U
Xylenes (total)	0.5 U	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
E Concentration exceeds calibration range.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
R Result rejected.
FR Field replicate of previous sample.

Table 12. Drinking Water Standards for Volatile Organic Compounds, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Compound	Current MCL (ppb)
Chloromethane	--
Bromomethane	--
Vinyl chloride	2
Chloroethane	--
Methylene chloride	--
Acetone	--
Carbon disulfide	--
1,1-Dichloroethene	7
1,1-Dichloroethane	
cis 1,2-Dichloroethene *	70
trans 1,2-Dichloroethene *	100
Chloroform	--
1,2-Dichloroethane	5
2-Butanone	--
1,1,1-Trichloroethane	200
Carbon tetrachloride	5
Vinyl acetate	--
Bromodichloromethane	**
1,2-Dichloropropane	5
trans-1,3-Dichloropropene	--

MCL Maximum Contaminant Level.
ppb Parts per billion.
-- No MCL established for this compound.
* Results reported as sum of cis and trans isomers.
** Sum of trichloromethanes MCL is 100 ppb.

TD:ak
#PR00801-#2/5thqtr.rpt

Table 12. Drinking Water Standards for Volatile Organic Compounds, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Compound	Current MCL (ppb)
Trichloroethene	5
Dibromochloromethane	**
1,1,2-Trichloroethane	--
Benzene	5
cis-1,3-Dichloropropene	--
Bromoform	--
4-Methyl-2-pentanone	--
2-Hexanone	--
1,1,2,2-Tetrachloroethane	--
Tetrachloroethene	5
Toluene	1,000
Chlorobenzene	100
Ethylbenzene	100
Styrene	700
Xylenes (total)	10,000

MCL Maximum Contaminant Level.
ppb Parts per billion.
-- No MCL established for this compound.
* Results reported as sum of cis and trans isomers.
** Sum of trichloromethanes MCL is 100 ppb.

TD:ak
#PR00801-#2/5thqtr.rpt

Table 13. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Dede	Eglin I	Eglin II	Eglin III	Four Winds I	Four Winds II	Gassett	Gassett FR	Hartman II	Hartman III	Harvey	LaPlace	LaPlace FR
	Date: 5-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	6-Feb-92	6-Feb-92
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2`-oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	25 UJ
2,4-Dinitrophenol	25 UJ	25 UJ	25 UJ	25 UJ	25 U	25 U	25 U	25 U	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample

Table 13. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
bis(2-Ethylhexyl)phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	55 U	680 D	190 D
Fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
3-Nitroaniline		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitroaniline		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	25 UJ
N-Nitrosodiphenylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	25 UJ
Phenanthrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 13. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Leonard Date: 6-Feb-92	Matthias 5-Feb-92	Ramsay 4-Feb-92	Rodriguez 5-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Water Blank 4-Feb-92
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
2,4-Dinitrophenol	25 UJ	25 UJ	25 U	25 UJ	25 UJ	25 U	25 UJ	R	25 U	25 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 13. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Leonard	Matthias	Ramsay	Rodriguez	Smith	Steele	Tillett	WAPA	Equipment Blank	Water Blank
Date:	6-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	6-Feb-92	4-Feb-92	4-Feb-92
bis(2-Ethylhexyl)phthalate	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 UJ	10 U	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
3-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
4-Nitrophenol	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 14. Summary of Detected Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

	Sample ID:	Eglin I	LaPlace	LaPlace FR	Leonard
Analyte	Date:	3-Feb-92	6-Feb-92	6-Feb-92	6-Feb-92
Di-n-octyl phthalate		1 J	NA	NA	NA
bis(2-Ethylhexyl)phthalate		NA	680 D	190 D	1 J

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
FR Field replicate of previous sample.
NA Not applicable.

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Bryan Date: 1-Oct-90	Dede 25-Sep-90	Dede 5-Feb-92	Demitri 1-Oct-90	Dench 25-Sep-90	Devcon I 24-Sep-90	Devcon III 24-Sep-90	Eglin I 2-Oct-90	Eglin I 3-Feb-92	Eglin II 27-Sep-90	Eglin II 3-Feb-92	Eglin III 27-Sep-90	Eglin III 3-Feb-92
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	NA	10 U	NA
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50 U	50 U	NA	50 U	50 U	50 U	50 U	50 U	NA	50 U	NA	50 U	NA
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	25 U	50 U	50 U	50 U	50 U	50 U	25 U	50 U	25 U	50 U	25 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	25 U	50 U	50 U	50 U	50 U	50 U	25 U	50 U	25 U	50 U	25 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	25 U	50 U	50 U	50 U	50 U	50 U	25 U	50 U	25 U	50 U	25 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	25 UJ	50 U	50 U	50 U	50 U	50 U	25 UJ	50 U	25 UJ	50 U	25 UJ
4-Nitrophenol	50 U	50 U	25 U	50 U	50 U	50 U	50 U	50 U	25 U	50 U	25 U	50 U	25 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Bryan	Dede	Dede	Demitri	Dench	Devcon I	Devcon III	Eglin I	Eglin I	Eglin II	Eglin II	Eglin III	Eglin III
	Date: 1-Oct-90	25-Sep-90	5-Feb-92	1-Oct-90	25-Sep-90	24-Sep-90	24-Sep-90	2-Oct-90	3-Feb-92	27-Sep-90	3-Feb-92	27-Sep-90	3-Feb-92
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	25 U	50 U	50 U	50 U	50 U	50 U	25 U	50 U	25 U	50 U	25 U
4,6-Dinitro-2-methylphenol	50 U	50 U	25 U	50 U	50 U	50 U	50 U	50 U	25 U	50 U	25 U	50 U	25 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	25 U	50 U	50 U	50 U	50 U	50 U	25 U	50 U	25 U	50 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	10 U	20 U	20 U	20 U	20 U	20 U	10 U	20 U	10 U	20 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1 J	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole	NA	NA	10 U	NA	NA	NA	NA	NA	10 U	NA	10 U	NA	10 U
2,2'-oxybis(1-Chloropropane)	NA	NA	10 U	NA	NA	NA	NA	NA	10 U	NA	10 U	NA	10 U
4-Methylphenol	NA	NA	10 U	NA	NA	NA	NA	NA	10 U	NA	10 U	NA	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA N[illegible]

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	Four Winds I 4-Feb-92	Four Winds II 26-Sep-90	Four Winds II FR 26-Sep-90	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 26-Sep-90	Hartman II 3-Feb-92	Hartman III 26-Sep-90	Hartman III 3-Feb-92	Harvey 26-Sep-90	Harvey 3-Feb-92	LaPlace 2-Oct-90
Phenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol		NA	10 U	10 U	NA	NA	NA	10 U	NA	10 U	NA	10 U	NA	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		NA	50 U	50 U	NA	NA	NA	50 U	NA	50 U	NA	50 U	NA	50 U
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U
2-Chloronaphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U
Dimethyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U
Acenaphthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 UJ	50 U	25 UJ	50 U	25 UJ	50 U
4-Nitrophenol		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	Four Winds I 4-Feb-92	Four Winds II 26-Sep-90	Four Winds II FR 26-Sep-90	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 26-Sep-90	Hartman II 3-Feb-92	Hartman III 26-Sep-90	Hartman III 3-Feb-92	Harvey 26-Sep-90	Harvey 3-Feb-92	LaPlace 2-Oct-90
Dibenzofuran		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U
4,6-Dinitro-2-methylphenol		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U
N-Nitrosodiphenylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol		25 U	50 U	50 U	25 U	25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U
Phenanthrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine		10 U	20 U	20 U	10 U	10 U	10 U	20 U	10 U	20 U	10 U	20 U	10 U	20 U
Benzo(a)anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U	55 U	10 U
Di-n-octyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole		10 U	NA	NA	10 U	10 U	10 U	NA	10 U	NA	10 U	NA	10 U	NA
2,2'-oxybis(1-Chloropropane)		10 U	NA	NA	10 U	10 U	10 U	NA	10 U	NA	10 U	NA	10 U	NA
4-Methylphenol		10 U	NA	NA	10 U	10 U	10 U	NA	10 U	NA	10 U	NA	10 U	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92	Leonard 26-Sep-90	Leonard 6-Feb-92	Matthias 1-Oct-90	Matthias 5-Feb-92	Ramsay 1-Oct-90	Ramsay 4-Feb-92	Rodriguez 24-Sep-90	Rodriguez FR 24-Sep-90	Rodriguez 5-Feb-92	Smith 25-Sep-90	Smith 5-Feb-92
Phenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol		NA	NA	10 U	NA	10 U	NA	10 U	NA	10 U	10 U	NA	10 U	NA
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		NA	NA	50 U	NA	50 U	NA	50 U	NA	50 U	50 U	NA	50 U	NA
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 U	10 UJ
2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U	50 U	25 U	50 U	25 U
2-Chloronaphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline		25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U	50 U	25 U	50 U	25 U
Dimethyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline		25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U	50 U	25 U	50 U	25 U
Acenaphthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol		25 UJ	25 UJ	50 U	25 UJ	50 U	25 UJ	50 U	25 U	50 U	50 U	25 UJ	50 U	25 UJ
4-Nitrophenol		25 UJ	25 UJ	50 U	25 UJ	50 U	25 U	50 U	25 U	50 U	50 U	25 U	50 U	25 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92	Leonard 26-Sep-90	Leonard 6-Feb-92	Matthias 1-Oct-90	Matthias 5-Feb-92	Ramsay 1-Oct-90	Ramsay 4-Feb-92	Rodriguez 24-Sep-90	Rodriguez FR 24-Sep-90	Rodriguez 5-Feb-92	Smith 25-Sep-90	Smith 5-Feb-92
Dibenzofuran		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline		25 U	25 U	50 U	25 U	50 U	25 U	50 U	25 U	50 U	50 U	25 U	50 U	25 U
4,6-Dinitro-2-methylphenol		25 UJ	25 UJ	50 U	25 UJ	50 U	25 U	50 U	25 U	50 U	50 U	25 U	50 U	25 U
N-Nitrosodiphenylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol		25 UJ	25 UJ	50 U	25 UJ	50 U	25 U	50 U	25 U	50 U	50 U	25 U	50 U	25 U
Phenanthrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine		10 U	10 U	20 U	10 U	20 U	10 U	20 U	10 U	20 U	20 U	10 U	20 U	10 U
Benzo(a)anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate		680 D	190 D	10 U	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate		10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene		10 U	10 U	10 U	10 U	10.U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole		10 U	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	10 U	NA	10 U
2,2'-oxybis(1-Chloropropane)		10 U	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	10 U	NA	10 U
4-Methylphenol		10 U	10 U	NA	10 U	NA	10 U	NA	10 U	NA	NA	10 U	NA	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Steele Date: 25-Sep-90	Steele 4-Feb-92	Tillett 2-Oct-90	Tillett FR 2-Oct-90	Tillett 5-Feb-92	VIHA I 27-Sep-90	VIHA III 26-Sep-90	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Water Blank 4-Feb-92
Phenol	10 U	10 U	R	10 U	10 U	10 U	10 U	R	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	R	R	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10 U	NA	R	R	NA	10 U	10 U	NA	NA	NA
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	R	R	10 U	10 U	10 U	R	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	R	R	10 U	10 U	10 U	R	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	R	R	10 U	10 U	10 U	R	10 U	10 U
Benzoic acid	50 U	NA	R	R	NA	50 U	50 U	NA	NA	NA
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	R	R	10 U	10 U	10 U	R	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	R	R	10 U	10 U	10 U	R	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 UJ	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	R	R	10 U	10 U	10 U	R	10 U	10 U
2,4,5-Trichlorophenol	50 U	25 U	R	R	25 U	50 U	50 U	R	25 U	25 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	25 U	50 U	50 U	25 U	50 U	50 U	25 U	25 U	25 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	25 U	50 U	50 U	25 U	50 U	50 U	25 U	25 U	25 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 UJ	25 U	R	R	25 UJ	50 U	50 U	R	25 U	25 U
4-Nitrophenol	50 U	25 U	R	R	25 U	50 U	50 U	R	25 U	25 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table 15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Steele Date: 25-Sep-90	Steele 4-Feb-92	Tillett 2-Oct-90	Tillett FR 2-Oct-90	Tillett 5-Feb-92	VIHA I 27-Sep-90	VIHA III 26-Sep-90	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Water Blank 4-Feb-92
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	25 U	50 U	50 U	25 U	50 U	50 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	50 U	25 U	R	R	25 U	50 U	50 U	R	25 U	25 U
N-Nitrosodiphenylamine	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	25 U	R	R	25 U	50 U	50 U	R	25 U	25 U
Phenanthrene	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	10 U	20 U	20 U	10 U	20 U	20 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole	NA	10 U	NA	NA	10 U	NA	NA	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	NA	10 U	NA	NA	10 U	NA	NA	10 U	10 U	10 U
4-Methylphenol	NA	10 U	NA	NA	10 U	NA	NA	R	10 U	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.
NA Not [illegible]

Table 16. Summary of Contaminated Blanks and Associated Samples from Base Neutral and Acid Extractable Analyses for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Blank Indentifier	Date Analyzed	Associated Sample(s)
SBLK01	05–Feb–92	Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, Harvey
SBLKO2	19–Feb–92	WAPA RE

RE Reanalysis.

PR00801/TableA4.wk3

Table 17. Base Neutral and Acid Extractable Compound Holding Time Compliance Summary for the Fifth Sampling Event, February 1992, Tutu Well St. Thomas, U.S. Virgin Islands.

Sample Identifier	Matrix	Date Collected	Date Received	Date Extracted	Date Analyzed	Days from Collection to Extraction	Days from Extraction To Analysis	Days Exceeded from Collection to Extraction	Days Holding Time Exceeded
Hartman III	Aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Hartman II	Aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Harvey	Aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Eglin I	Aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Eglin II	Aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Eglin III	Aqueous	03-Feb-92	04-Feb-92	05-Feb-92	05-Feb-92	2	11	0	0
Steele	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Ramsay	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Four Winds I	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Four Winds II	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Gassett	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Equipment Blank	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	26-Feb-92	2	20	0	0
Water Blank	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	26-Feb-92	2	20	0	0
Gassett FR	Aqueous	04-Feb-92	05-Feb-92	06-Feb-92	26-Feb-92	2	20	0	0
Rodriguez	Aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Dede	Aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Smith	Aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Matthias	Aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Tillett	Aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Leonard	Aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0
LaPlace	Aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0
LaPlace FR	Aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0
WAPA	Aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0

FR Field replicate.

#PR00801/0409tbl2.wk3

Table 18. Concentrations of Metals in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Bryan	Dede	Dede	Demitri	Dench	Devcon I	Devcon III	Eglin I	Eglin I	Eglin II	Eglin II	Eglin III	Eglin III
	Date: 1-Oct-90	25-Sep-90	5-Feb-92	1-Oct-90	25-Sep-90	24-Sep-90	24-Sep-90	2-Oct-90	3-Feb-92	27-Sep-90	3-Feb-92	27-Sep-90	3-Feb-92
Aluminum	149 B	136 BJ	235	163 BJ	278 J	139 BJ	411 J	149 B	173 B	69 BJ	134 B	156 BJ	39.5 B
Antimony	52 U	R	18.2 U	52 UJ	R	R	R	52 U	17.7 U	R	17.7 U	R	17.7 U
Arsenic	3 UJ	3 U	1 U	3 UJ	3 U	3 U	3 U	3 U	1.6 B	3 U	1 U	3 U	1 U
Barium	3 U	8 B	7.9 B	3 UJ	19 B	21 B	15 B	3 U	30.8 B	23 B	14.3 B	57 B	39.7 B
Beryllium	3 B	3 BJ	0.25 U	4 BJ	4 BJ	5 BJ	4 BJ	4 B	0.53 U	3 BJ	0.53 U	4 BJ	0.53 U
Cadmium	4 BJ	5	2 U	3 BJ	3 B	3 U	3 U	3 U	2.1 U	11	2.1 U	3 U	2.1 U
Calcium	54300	23500	25100	37500 J	24200	41600	43800	35300	80000	47900	80800	81400	81700
Chromium	7 B	16 J	6.6 B	4 BJ	22 J	4 UJ	4 UJ	12	3.9 U	17 J	4.9 B	10 J	3.9 U
Cobalt	18 U	60 J	4.4 B	18 UJ	44 BJ	18 U	59 J	18 U	3.4 U	32 BJ	4.4 B	30 BJ	3.4 U
Copper	17 BJ	32	21.3 B	17 BJ	52	4 U	53	14 BJ	3.6 B	36	3.9 B	9 B	2.8 U
Iron	63 BJ	43 B	250 J	115 J	163	34 B	40 B	20 UJ	186 J	86 B	232 J	56 B	11.7 B
Lead	4.6 J	3.7 J	2.3 B	2.6 BJ	7.8 J	8.2 J	11.8 J	2 BJ	1.6 BJ	2.1 BJ	1.6 B	1 UJ	1 UJ
Magnesium	49100	25600	27100	27800 J	25000	39500	41000	28700	56200	35400	61200	54600	55800
Manganese	2 B	201	364	7 BJ	545	241	91	56	12.1 B	8 B	118	53	22.9
Mercury	R	0.2 U	0.2 U	R	0.2 U	0.2 U	0.2 U	R	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	11 U	11 U	7.1 U	14 BJ	73	13 B	41	26 BJ	9.5 U	67	9.5 U	24 B	9.5 U
Potassium	1000 B	2000 B	2410 B	2000 BJ	1690 B	2970 B	2050 B	920 B	1820 B	1620 B	1990 B	2250 B	2180 B
Selenium	2 UJ	1 UJ	2 UJ	10 UJ	1 UJ	1.6 BJ	1.4 BJ	10 UJ	5.1 J	1.2 BJ	9.2	1.2 BJ	4.3 BS
Silver	7 U	7 UJ	9.2 U	7 UJ	7 UJ	7 UJ	7 UJ	7 U	3.3 U	7 U	3.3 U	18 J	3.3 U
Sodium	283000	324000	357000	328000 J	328000	330000	384000	190000	363000	247000	338000	398000	396000
Thallium	R	R	3 UJ	R	R	R	R	R	3 UJ	R	3 UJ	R	3 UJ
Vanadium	37 B	21 B	10 U	92 J	28 B	32 B	20 B	34 B	30.3 B	47 B	32.6 B	9 B	13.1 B
Zinc	30	12 BJ	6.9 BE	4 UJ	41 J	6 BJ	6 BJ	13 BJ	25.5 J	75 J	78.8 J	49 J	19 B

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 18. Concentrations of Metals in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	Four Winds I 4-Feb-92	Four Winds II 26-Sep-90	Four Winds II FR 26-Sep-90	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 26-Sep-90	Hartman II 3-Feb-92	Hartman III 26-Sep-90	Hartman III 3-Feb-92	Harvey 26-Sep-90	Harvey 3-Feb-92	LaPlace 2-Oct-90
Aluminum		35.5 U	162 BJ	304 J	46.4 B	388	231	269 J	35.6 U	278 J	54.6 B	1280 J	289	146 B
Antimony		18.2 U	R	R	18.2 U	18.2 U	18.2 U	R	17.7 U	R	17.7 U	R	17.7 U	57 B
Arsenic		1 B	3 U	3 U	1 U	3.1 B	2.9 B	3 U	1 U	3 U	1 U	3 U	1.1 B	3 U
Barium		3.4 B	15 B	11 B	1.1 B	23.1 B	21.6 B	12 B	1.8 B	15 B	0.7 U	35 B	32.1 B	3 U
Beryllium		0.25 U	3 BJ	4 BJ	0.25 U	0.25 U	0.25 U	3 BJ	0.53 U	4 BJ	0.5 U	3 BJ	0.53 U	4 B
Cadmium		2 U	5	6	2 U	2.5 B	2.4 B	8	2.1 U	3 U	2.1 U	3 U	2.1 U	4 BJ
Calcium		46600	46100	54300	50700	21700	22200	38100	44300	41100	46600	53700	62500	41000
Chromium		3.5 U	32 J	14 J	3.5 U	4.6 B	3.5 U	11 J	3.9 U	11 J	3.9 U	18 J	3.9 U	8 B
Cobalt		3.8 U	29 BJ	43 BJ	3.8 U	3.8 U	3.8 U	30 BJ	3.4 U	25 BJ	3.4 U	38 BJ	3.4 U	18 U
Copper		2.7 U	37	5 B	4.8 B	83.4	82.7	34	4.2 B	30	2.8 U	59	5.8 B	49 J
Iron		7 BJ	55 B	57 B	61.6 BJ	R	R	23 B	12 BJ	31 B	36.2 BJ	3360	431 J	55 BJ
Lead		3.1	8 J	8.7 J	3.3	39.7 S	33.3	10.4 J	1.6 B	1.8 BJ	1 U	32.6 J	3 J	2.3 BJ
Magnesium		32600	34000	38800	36800	15300	15500	33400	37000	28300	32300	46200	46600	32600
Manganese		33	28	31	6.8 B	68	78.9	2 U	0.91 U	3 B	0.91 U	191	120	2 B
Mercury		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	R
Nickel		7.1 U	36 B	44	7.1 U	7.1 U	7.1 U	95	9.5 U	52	9.5 U	58	9.5 U	18 BJ
Potassium		8980	2190 B	2060 B	2350 B	1670 B	1520 B	1040 B	1230 B	1690 B	1730 B	2000 B	2100 B	1140 B
Selenium		2 U	1.2 BJ	1 UJ	2 U	2 U	2 U	1.6 BJ	3 B	1 UJ	2 U	1.2 BJ	2.3 B	10 UJ
Silver		9.2 U	7 UJ	7 UJ	9.2 U	9.2 U	9.2 U	7 UJ	3.3 U	7 UJ	3.3 U	11 J	3.3 U	7 U
Sodium		232000	215000	249000	236000	160000	164000	285000	323000	217000	233000	233000	251000	250000
Thallium		3 UJ	R	R	3 UJ	3 UJ	3 UJ	R	3 UJ	R	3 UJ	R	3 UJ	R
Vanadium		59.1	75	83	59.2	10 U	10 U	52	24.7 B	124	116	59	21.6 B	39 B
Zinc		8.8 BE	85 J	88 J	10.4 BE	178 J	175 J	9 BJ	1.6 U	13 BJ	2.1 B	248 J	139 J	13 BJ

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 18. Concentrations of Metals in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92	Leonard 26-Sep-90	Leonard 6-Feb-92	Matthias 1-Oct-90	Matthias 5-Feb-92	Ramsay 1-Oct-90	Ramsay 4-Feb-92	Rodriguez 24-Sep-90	Rodriguez FR 24-Sep-90	Rodriguez 5-Feb-92	Smith 25-Sep-90	Smith 5-Feb-92
Aluminum		76.9 B	68.4 B	93 BJ	69.9 B	227	9580 J	187 B	145 B	58 BJ	431 J	196 B	234 J	4070 J
Antimony		18 U	18 U	R	18 U	52 U	18.2 U	52 U	18.2 U	R	R	19 B	R	18.2 U
Arsenic		1 U	1 U	3 U	1 U	3 UJ	1 U	3 UJ	1 U	3 U	3 U	1 U	3 U	1 U
Barium		5.1 B	5.4 B	11 B	1.5 B	6 B	187 B	3 U	3.7 B	8 B	3 U	13.7 B	15 B	86.5 B
Beryllium		1 U	1 U	3 BJ	1 U	3 B	1 B	3 B	0.25 U	3 BJ	3 BJ	1 B	3 BJ	0.25 U
Cadmium		3 U	3 U	3 U	3 U	3 U	2 U	3 BJ	2 U	3 U	3 U	2.1 B	3 U	2 U
Calcium		44900	45400	38300	39700	36300	49500	43100	49800	40000	47400	39200	50200	43500
Chromium		4 U	4 U	15 J	4 U	5 B	109	11	3.5 U	14 J	40 J	5.2 B	14 J	48.4
Cobalt		4 U	4 U	37 BJ	4 U	18 U	14 B	18 U	3.8 U	34 BJ	39 BJ	3.8 U	18 U	3.8 U
Copper		3 U	3 U	31	3 U	18 BJ	114	15 BJ	5.1 B	22 B	29	7.8 B	13 B	48.3
Iron		60.4 BJ	46.7 BJ	37 BJ	60.3 BJ	20 UJ	11700 J	20 BJ	141 J	50 B	45 B	246 J	158	4670 J
Lead		1 UJ	1 UJ	1.8 BJ	1 UJ	1.8 BJ	1 U	2.6 BJ	1.9 B	2 BJ	12.1 J	2.5 B	10.9 J	3.1
Magnesium		35100	35500	24400	24700	34900	46900	34400	37000	38700	41400	37400	45500	42500
Manganese		2.8 B	2.9 B	2 U	1.3 B	2 U	269	2 U	2 B	122	129	132	41	108
Mercury		0.2 U	0.23	0.2 U	0.2 U	R	0.2 U	R	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel		10 U	10 U	11 U	10 U	20 BJ	53.7	21 BJ	7.1 U	22 B	39 B	7.1 U	57	18.4 B
Potassium		1010 B	1090 B	1210 B	997 B	1410 B	6380	1140 B	1070 B	1610 B	1730 B	2170 B	1540 B	3310 B
Selenium		2 U	2 UJ	1.4 BJ	2.7 BJ	2 UJ	2.6 BJ	10 UJ	2 UJ	1 UJ	1 UJ	2 UJ	R	2.6 BJ
Silver		4 U	4 U	17 J	4 U	7 U	9.2 U	7 U	9.2 U	7 UJ	7 UJ	9.2 U	7 UJ	9.2 U
Sodium		268000	272000	318000	341000	379000	385000	209000	240000	281000	298000	300000	410000	396000
Thallium		3 UJ	3 UJ	R	3 UJ	R	3 UJ	R	3 UJ	R	R	3 UJ	R	3 UJ
Vanadium		34.4 B	36.4 B	135	116	21 B	42.6 B	43 B	54.1	19 B	8 B	10 U	5 U	16.3 B
Zinc		8.1 B	8 B	7 BJ	4.1 B	4 BJ	29.8 J	7 BJ	12.4 BE	17 BJ	16 BJ	19.4 BE	179 J	99.6 J

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 18. Concentrations of Metals in Ground-Water Samples Collected from September 1990 to February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Steele	Steele	Tillett	Tillett FR	Tillett	VIHA I	VIHA III	WAPA	Equipment Blank	Water Blank
	Date: 25-Sep-90	4-Feb-92	2-Oct-90	2-Oct-90	5-Feb-92	27-Sep-90	26-Sep-90	6-Feb-92	4-Feb-92	4-Feb-92
Aluminum	492 J	267	153 BJ	159 B	696 J	154 B	182 BJ	76.9 B	184 B	35.5 U
Antimony	R	18.2 U	52 UJ	52 U	18.2 U	54 BJ	R	18 U	18.2 U	18.2 U
Arsenic	3 U	1 U	3 UJ	4.4 B	1 U	3 U	3 U	1 U	1 U	1 U
Barium	27 B	19.8 B	43 BJ	40 B	44.9 B	5 B	14 B	3.9 B	3.1 B	0.8 U
Beryllium	3 BJ	0.25 U	4 BJ	4 B	0.25 U	3 B	3 BJ	1 U	0.25 U	0.25 U
Cadmium	4 B	2 U	4 BJ	3 BJ	2 U	4 BJ	3 U	3 U	2 U	2 U
Calcium	44000	46200	54800 J	48600	52000	49400	43300	3390 B	65.4 B	43 B
Chromium	9 BJ	3.5 U	8 BJ	7 B	11.4	10	5 BJ	6.1 B	5.7 B	3.5 U
Cobalt	55 J	3.8 U	18 UJ	18 U	3.8 U	18 U	18 U	4 U	3.8 U	3.8 U
Copper	21 B	4.1 B	48 J	32 J	12.3 B	10 B	29	18.4 B	2.7 U	2.7 U
Iron	26 B	377 J	953 J	2660 J	901 J	29 BJ	149	546 J	205 J	20.9 BJ
Lead	13.2 J	1.4 BJ	1.5 BJ	8.5 J	2 B	9 J	3.7 J	1 BJ	1 UJ	1 U
Magnesium	40500	43800	38300 J	34500	36000	33900	28000	1760 B	295 B	45.9 U
Manganese	23	17.8	1260 J	1100	1110	2 U	11 B	2.8 B	3.2 B	0.83 U
Mercury	0.2 U	0.22	R	R	0.2 U	R	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	45	7.1 U	33 BJ	15 BJ	7.1 U	15 B	43	10 U	7.1 U	7.1 U
Potassium	1180 B	1270 B	760 BJ	1190 B	3280 B	2000 B	1030 B	997 B	810 U	810 U
Selenium	1.4 BJ	2.5 B	10 UJ	10 UJ	2 U	1.4 BJ	1.5 BJ	2 U	2 U	2 U
Silver	7 UJ	9.2 U	7 UJ	7 U	9.2 U	16 J	7 UJ	4 U	9.2 U	9.2 U
Sodium	313000	334000	192000 J	169000	198000	252000	162000	18400	1400 B	660 B
Thallium	R	3 UJ	R	R	3 UJ	R	R	3 UJ	3 UJ	3 UJ
Vanadium	27 B	10 U	25 BJ	50 J	58.5	67 J	33 B	6.8 B	10 U	10 U
Zinc	12 BJ	6.4 BE	162 J	124 J	26.2 J	16 B	17 BJ	8.7 B	3.9 BE	3.7 BE

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table 19. Drinking Water Standards for Metals, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Metal Parameter	USEPA Drinking Water Standard (ppb)	Type of Standard
Aluminum	--	
Antimony	3	Proposed MCLG - Primary Level
Arsenic	50	Current MCL - Primary Level
Barium	2,000	Current MCL - Primary Level
Beryllium	1	Proposed MCL - Primary Level
Cadmium	5	Current MCL - Primary Level
Calcium	--	
Chromium	100	Current MCL - Primary Level
Cobalt	--	
Copper	1,300	Proposed MCLG - Primary Level
Iron	--	
Lead	50	Current MCL - Primary Level
Magnesium	--	
Manganese	--	
Mercury	2	Current MCL - Primary Level
Nickel	100	Proposed MCLG - Primary Level
Potassium	--	
Selenium	50	Current MCL - Primary Level
Silver	50	Current MCL - Primary Level
Sodium	--	
Thallium	0.5	Proposed MCLG
Vanadium	--	
Zinc	--	

USEPA United States Environmental Protection Agency.
ppb Parts per billion.
MCL Maximum contaminant level.
MCLG Maximum contaminant level goal (nonenforceable).
Primary Level Standards are enforceable, health-based standards.
-- No enforceable standard exists.

PR00801-wp2/5thqtr.rpt

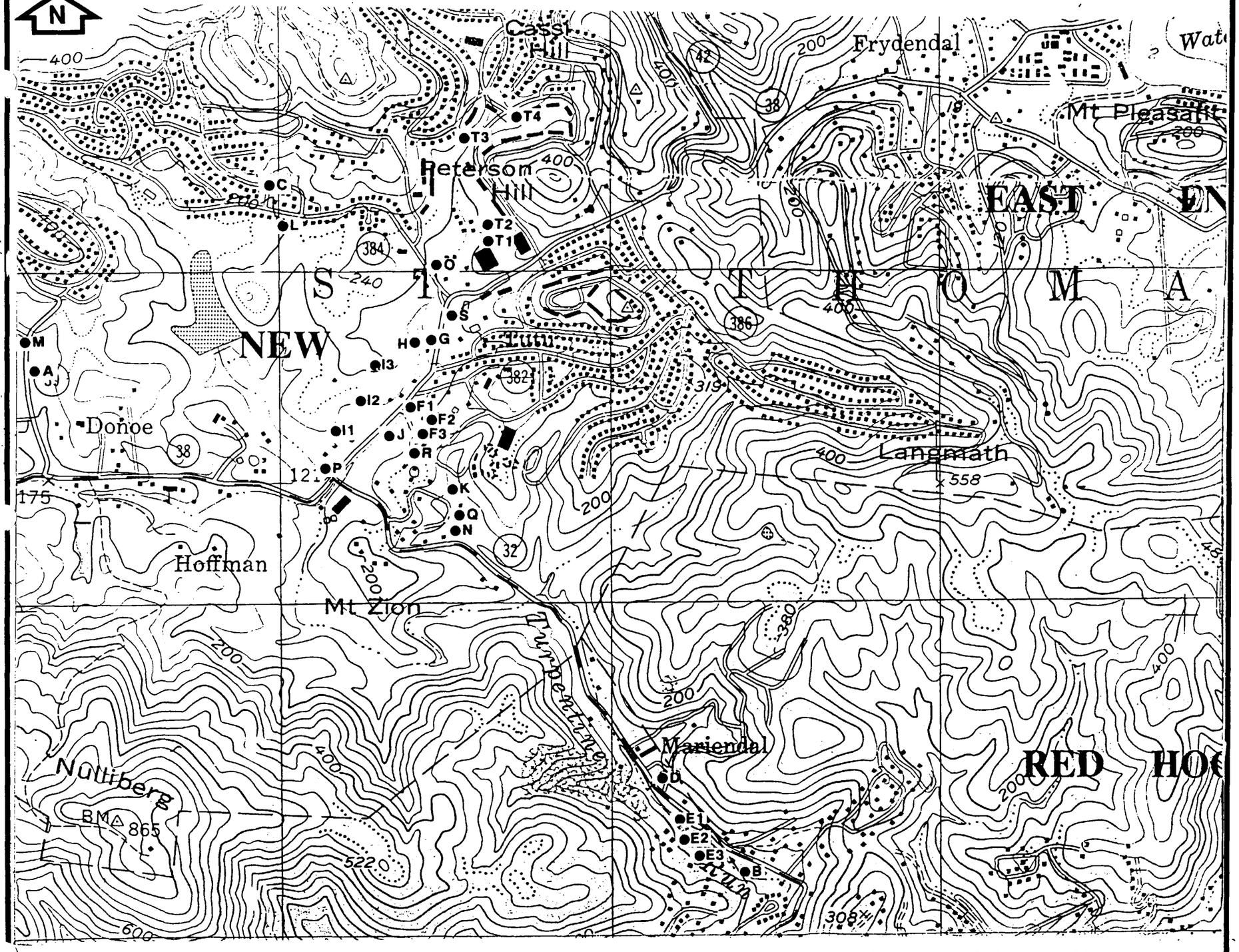
Table 20. Proposed Sampling Locations and Analytical Parameters for the Sixth Sampling Event, May 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Well	Proposed Analytes
Eglin I	TCL VOCs
Eglin II	TCL VOCs
Eglin III	TCL VOCs
Four Winds I	TCL VOCs
Four Winds II	TCL VOCs
Gassett	TCL VOCs
Hartman II	TCL VOCs
Hartman III	TCL VOCs
Harvey	TCL VOCs
LaPlace	TCL VOCs
Matthias	TCL VOCs
Ramsay	TCL VOCs
Smith	TCL VOCs
Steele	TCL VOCs
Tillett	TCL VOCs
VIHA I or VIHA II (if possible)	TCL VOCs

TCL Target compound list.
VOCs Volatile organic compounds using USEPA Method 524.2, Revision 3.0.

All analyses will be performed in accordance with revised Sampling, Analysis, and Monitoring Plan (SAMP) (Geraghty & Miller, Inc. 1991d).

TD:ce:rma
#PR00801-#2/5thqtr.rpt



SOURCE: USGS QUADRANGLE EASTERN ST.THOMAS,V.I.(1954)

LEGEND

●	RESIDENTIAL WELL
A	BRYAN
B	DEDE
C	DEMITRI
D	DENCH
E1	DEVCON I
E2	DEVCON II (ALTERNATE)
E3	DEVCON III
F1	EGLIN I
F2	EGLIN II
F3	EGLIN III
G	FOUR WINDS I
H	FOUR WINDS II
I1	GASSETT
I2	HARTMAN II
I3	HARTMAN III
J	HARVEY
K	LaPLACE
L	LEONARD
M	LOCKHART (ALTERNATE)
N	MATTHIAS
O	RAMSAY
P	RODRIGUEZ
Q	SMITH
R	STEELE
S	TILLETT
T1	VIHA I
T2	VIHA II (ALTERNATE)
T3	VIHA III
T4	VIHA IV (ALTERNATE)

SUBJECT

WELL SAMPLING LOCATIONS FOR THE TUTU WELLS SITE SAMPLING ANALYSIS, AND MONITORING PLAN, ST. THOMAS, U.S. VIRGIN ISLANDS

PREPARED FOR

TEIC

Geraghty & Miller, Inc.	COMPILED BY DANAHY	SCALE SHOWN	FIGURE 1
	PREPARED BY PADULA	DATE 9/91	
	PROJECT MGR DANAHY		

7/-/34

APPENDIX A

DATA VALIDATION SUMMARY REPORT FOR THE TUTU WELLS SITE FEBRUARY 1992 SAMPLING EVENT ST. THOMAS, U.S. VIRGIN ISLANDS

APPENDIX A

DATA VALIDATION REPORT

Appendix A includes the data validation summary report and supporting documentation for the analytical data review of ground-water samples collected in February 1992 at the Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

APPENDIX FORMAT

The data validation report appendix is divided into the following sections:

- Introduction.
- Attachment No. 1 - The U.S. Environmental Protection Agency (USEPA) Standard Operating Procedure (SOP) Number (No.) HW-6 (Revision No. 8) Contract Laboratory Program (CLP) organics preliminary data review checklist, the data assessment narrative, and the organic regional data assessment form.
- Attachment No. 2 - The USEPA SOP No. HW-2 (Revision No. 11) CLP inorganics total review checklist, the data assessment narrative, and the inorganic regional data assessment form.
- Attachment No. 3 - Tables and duplicate reporting forms (Form VIs).
- Attachment No. 4 - Analytical data packages.

The introduction summarizes the (1) field investigation sampling effort, (2) the analytical parameters and methods employed in support of the field investigation, and (3) the data validation requirements and validation protocols used for the data assessment.

Attachment No. 1 is comprised of the USEPA SOP No. HW-6 (Revision No. 8) CLP organics preliminary data review checklist, the data assessment narrative, and the organic regional data assessment form. The data review checklist guides the data reviewer in evaluating pertinent field and laboratory sample documentation and analytical procedures.

By evaluating critical quality control (QC) criteria, the data reviewer is provided with information regarding laboratory performance and sample interferences which may impact data validity and place limitations on data use. In the data review narrative, the data reviewer documents sample anomalies and QC outliers, and provides an overall assessment of the analytical data generated in support of the field investigation. The organic regional data assessment form provides a condensed data assessment summary.

Attachment No. 2 is comprised of the USEPA SOP No. HW-2 (Revision No. 11) CLP inorganics total data review checklist, the data assessment narrative, and the inorganic regional data assessment form.

In Attachment No. 3, tabulated data is provided which summarizes any holding time violations or compliance; associated trip blank, field blank,and method blank contamination; and validated analytical data with applied qualifiers.

Attachment No. 4 is comprised of the analytical data packages prepared by the laboratory for all samples collected and reviewed for this field investigation.

INTRODUCTION

This report presents the data validation and narrative summary for the following 22 ground-water samples, one equipment blank, and four trip blanks collected in February 1992 at the Tutu Wells Site, St. Thomas, U.S. Virgin Islands:

Sample Delivery Group	Sample Identifiers	Collection Date(s)
19656	Hartman III, Trip Blank (2/3/92), Hartman II, Harvey, Eglin I, Eglin II, Eglin III	2/3/92
19699	Steele, Ramsay, Four Winds I, Four Winds II, Gassett, Equipment Blank, Water Blank, Trip Blank (2/4/92), Chkan Chkan (Gassett field replicate [FR]), Rodriguez, Dede, Smith, Matthias, Tillett, Trip Blank (2/5/92)	2/4/92, 2/5/92
19736	Trip Blank (2/6/92), Leonard, LaPlace, Verde (LaPlace FR), WAPA	2/6/92

This case actually consists of four laboratory projects (19656, 19699, 19711, and 19736) that the laboratory has split into three sample delivery groups (SDGs) referred to in the table above. SDG 19699 includes projects 19699 and 19711.

All of the samples were analyzed for target compound list (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (base/neutral and acid extractable compounds or BNAs), and target analyte list (TAL) total metals. Sample analyses were performed by Enseco-East (Enseco), a laboratory division of Enseco Incorporated located in Somerset, New Jersey. VOCs were analyzed according to USEPA Method 524.2, revision 3.0 (USEPA 1989). BNAs were analyzed according to methodology contained in the March 1990 USEPA CLP Statement of Work (SOW) for Organics Analysis,

Multi-Media, Multi-Concentration (USEPA 1990a). Metals were analyzed according to methodology contained in the March 1990 USEPA CLP SOW for Inorganics Analysis, Multi-Media, Multi-Concentration (USEPA 1990b).

The organic data have been evaluated according to USEPA Region II SOP No. HW-6, Revision No. 8 (USEPA 1992a), in conjunction with the USEPA Draft National Functional Guidelines for Organics Data Review (USEPA 1991) and the appropriate, corresponding methodology. Because the VOC analyses were not performed in accordance with the CLP SOW, the SOP for organic data review is not directly applicable, but the SOP was used, along with USEPA Method 524.2, revision 3.0 (USEPA 1989) and the additional QC requirements outlined in the revised Sampling, Analysis, and Monitoring Plan (SAMP) (Geraghty & Miller, Inc. 1991), so to conform to the USEPA Region II data validation protocol (USEPA 1992b). The inorganic data have been evaluated according to USEPA Region II SOP No. HW-2, Revision No. 11 (USEPA 1992a). All of the data have been tabulated and assigned the appropriate qualifier codes, if required. The validated data tables (including applicable qualifiers) are provided as Tables A-6 through A-11 in Attachment No. 3.

REFERENCES

Geraghty & Miller, Inc. 1991. Revised Sampling, Analysis, and Monitoring Plan for Wells, Tutu Wells Site, St. Thomas, U.S. Virgin Islands. Prepared for Tutu Environmental Investigation Committee, September 1990, revised September 1991.

U.S. Environmental Protection Agency (USEPA). 1989. Method 524.2, revision 3.0, Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectroscopy, Environmental Monitoring Systems Laboratory (EMSL), Office of Research and Development, United States Environmental Protection Agency, 1989.

U.S. Environmental Protection Agency (USEPA). 1990a. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis, Multi-Media, Multi-Concentration, SOW No. 3/90 United States Environmental Protection Agency, March 1990.

U.S. Environmental Protection Agency (USEPA). 1990b. USEPA Contract Laboratory Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, SOW No. 3/90 including Rev. 12/90 and 2/91, United States Environmental Protection Agency, March 1990.

U.S. Environmental Protection Agency (USEPA). 1991. Draft National Functional Guidelines for Organic Data Review, Multi-Media, Multi-Concentration (0LM01.0), United States Environmental Protection Agency, December 1990, revised June 1991.

U.S. Environmental Protection Agency (USEPA). 1992a. Evaluation of Metals Data for the Contract Laboratory Program (CLP), Region II Standard Operating Procedure No. HW-2, Revision No. 11, United States Environmental Protection Agency, January 1992.

U.S. Environmental Protection Agency (USEPA). 1992b. Contract Laboratory Program (CLP) Organics Data Review and Preliminary Review, Region II Standard Operating Procedure No. HW-6, Revision No. 8, United States Environmental Protection Agency, January 1992.

ATTACHMENT NO. 1

U.S. ENVIRONMENTAL PROTECTION AGENCY
STANDARD OPERATING PROCEDURE NO. HW-6
REVISION NO. 8

SOP NO. HW-6
Revision #8

CLP ORGANICS DATA REVIEW AND PRELIMINARY REVIEW

BY: _____ Date: January 2 1992
Leon Lazarus, Environmental Scientist
Toxic and Hazardous Waste Section

BY: _____ Date: January 3 1992
George Karras, Chemist
Toxic and Hazardous Waste Section

BY: _____ Date: 1/3/1992
Stelios Gerazounis, Chemist
Toxic and Hazardous Waste Section

CONCURRED BY: _____ Date: 1/3/92
Kevin Rubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: _____ Date: 1/7/92
Robert Runyon, Chief
Monitoring Management Branch

	YES	NO	N/A
PACKAGE COMPLETENESS AND DELIVERABLES			
CASE NUMBER: 19656, 19699, 19711, 19736 LAB: Enseco-East			
SITE: Tutu Wells			
1.0 DATA COMPLETENESS AND DELIVERABLES			
1.1 Have any missing deliverables been received and added to the data package?	[X]	___	___
ACTION: Call lab for explanation/resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-Compliance" section of reviewer narrative.			
1.2 Was SMO CCS checklist included with package?	[___]	___	X
2.0 COVER LETTER SDG NARRATIVE			
2.1 Is the Narrative or Cover Letter Present?	[X]	___	___
2.2 Are Case Number and/or SAS number contained in the Narrative or Cover letter?	[X]	___	___
3.0 DATA VALIDATION CHECKLIST			
The following checklist is divided into three parts. Part A is filled out if the data package contains any VOA analyses, Part B for any BNA analyses and Part C for Pesticide/PCBs.			

		YES	NO	N/A
3.0	**DATA VALIDATION CHECKLIST (continued)**			
	Does this package contain:			
	VOA Data?	X		
	BNA Data?	X		
	Pesticide/PCB data?		X	

ACTION: Complete corresponding parts of checklist.

PART A: VOA ANALYSES

1.0	**TRAFFIC REPORTS AND LABORATORY NARRATIVE**			
1.1	Are the Traffic Report Forms present for all samples?	[X]		

ACTION: If no, contract lab for replacement of missing or illegible copies.

1.2	Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?	X	[ ]	

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all Non-Detects "UJ".

YES NO N/A

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

2.0 HOLDING TIMES

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded? ___ [X] ___

If unpreserved, aqueous samples maintained at 4^0C which are to be analyzed for aromatic hydrocarbons must be analyzed within 7 days of collection. If preserved with HCl (pH<2) and stored at 4^0C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved.

The holding time for soils is 10 days.

Table of Holding Time Violations (See Narrative)

Sample ID	Sample Matrix	Preserved?	Date Sampled	Date Lab Received	Date Analyzed

	YES	NO	N/A

ACTION: If technical holding times ar exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable (R). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

3.0 System Monitoring Compound (SMC) Recovery (Form II)

3.1	Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:			
	a. Low Water	[X]	____	____
	b. Low Soil	[___]	____	X
	c. Med Soil	[___]	____	X
3.2	Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:			
	a. Low Water	[X]	____	____
	b. Low Soil	[___]	____	X
	c. Med Soil	[___]	____	X

		YES	NO	N/A
	ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.			
3.3	Were outliers marked correctly with an asterisk?	[___]	___	X
	ACTION: Circle all outliers in red.			
3.4	Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank?	___	[X]	___
	If yes, were samples re-analyzed?	[___]	___	X
	Were method blanks re-analyzed?	[___]	___	X

ACTION: If recoveries are > 10% but 1 or more compounds fail to meet SOW specifications:

1. All positive results are qualified as estimated (J).
2. Flag all non-detects as estimated detection limits ("UJ") where recovery is less than the lower acceptance limit.
3. If SMC recoveries are above allowable levels, do not qualify non-detects.

If any system monitoring compound recovery is < 10%:

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as unusable ("R").

		YES	NO	N/A
	Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.			
3.5	Are there any transcription/calculation errors between raw data and Form II?	___	[X]	___

ACTION: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and not errors in the data assessment.

4.0 Matrix Spikes (Form III)

4.1	Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?	[X]	___	___
4.2	Were matrix spikes analyzed at the required frequency for each of the following matrices:			
	a. Low Water	[___]	X	___
	b. Low Soil	[___]	___	X
	c. Med Soil	[___]	___	X

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How may VOA spike recoveries are outside QC limits?

Water	Soils
0 out of 10	N/A out of 10

		YES	NO	N/A
4.4	How may RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits? Water: 0 out of 5 — Soils: N/A out of 5 **ACTION:** No action is taken based on MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.			
5.0	**Blanks (Form IV)**			
5.1	Is the Method Blank Summary (Form IV) present?	[X]	____	____
5.2	Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix (low water, low soil, medium soil), whichever is more frequent?	[X]	____	____
5.3	Has a VOA method/instrument blank been analyzed at least once every twelve hours for each concentration level and GC/MS system used?	[X]	____	____
	ACTION: If any method blank data are missing, call lab for explanation/resubmittal. If method blank data are not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.			

	YES	NO	N/A

5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.

Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs? [X] ___ ___

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

NOTE: "Water Blanks", "drill blanks", and distilled water blanks" are validated like any other sample, and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for VOAs? When applied as describe below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture when necessary. X [ ] ___

6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)? X [ ] ___

ACTION; Prepare a list of the sample associated with each of the contaminated blanks. (Attach a separate sheet).

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified

YES NO N/A

because of contamination in another blank. Field blanks & Trip blanks must be qualified for system monitoring compound, instrument performance criteria, spectral or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If any blanks are grossly contaminated, all associated data should be qualified as unusable (R).

	Sample conc > CRQL but < 10 x blank value	Sample conc < CRQL & <10x blank value	Sample conc > CRQL & >10x blank value
Methylene Chloride Acetone Toluene 2-Butanone	Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed
	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5x blank value
Other Contam-inants	Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

		YES	NO	N/A
	ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable)			
6.3	Are there field/rinse/equipment blanks associated with every sample?	[___]	X	___
	ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.			
7.0	**GC/MS Instrument Performance Check (Form V)**			
7.1	Are the GC/MS instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)?	[X]	___	___
7.2	Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift?	[X]	___	___
7.3	Has an instrument performance compound been analyzed for every twelve hours of sample analysis per instrument?	[X]	___	___
	ACTION: List date, time, instrument ID, and sample analysis for which no associated GC/MS tuning data are available.			

			YES	NO	N/A
DATE	TIME	INSTRUMENT	SAMPLE NUMBERS		
____	____	_____	_____		
____	____	_____	_____		
____	____	_____	_____		
____	____	_____	_____		

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

7.4 Have the ion abundances been normalized to m/z 95? [X] ___ ___

ACTION: If mass assignment is in error, qualify all associated data as unusable (R).

7.5 Have the ion abundance criteria been met for each instrument used? [X] ___ ___

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more). ___ [X] ___

7.7 Have the appropriate number of significant figures (two) been reported? [X] ___ ___

		YES	NO	N/A
7.8	Are the spectra of the mass calibration compound acceptable?	[X]	___	___
8.0	**Target Compound List (TCL) Analytes**			
8.1	Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:			
	a. Samples and/or fractions as appropriate	[X]	___	___
	b. Matrix spikes and matrix spike duplicates	[X]	___	___
	c. Blanks	[X]	___	___
8.2	Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
	a. Samples and/or fractions as appropriate	[X]	___	___
	b. Matrix spikes and matrix spike duplicates (Mass spectra not required	[X]	___	___
	c. Blanks	[X]	___	___
	ACTION: If any data are missing, take action specified in 3.2 above.			
8.3	Are the response factors shown in the Quant Report?	[___]	X	___

		YES	NO	N/A
8.4	Is chromatographic performance acceptable with respect to:			
	Baseline stability?	[X]	___	___
	Resolution?	[X]	___	___
	Peak shape?	[X]	___	___
	Full-scale graph (attenuation)?	[X]	___	___
	Other: _____	[___]	___	X

ACTION: Use professional judgement to determine the acceptability of the data.

8.5	Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample?	[X]	___	___

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance".

8.6	Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[___]	X	___
8.7	Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[X]	___	___
8.8	Do sample and standard relative ion intensities agree within 20%?	[X]	___	___

		YES	NO	N/A
	ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.			
	ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.			
9.0	**Tentatively Identified Compounds (TIC)**			
9.1	Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICS include scan number or retention time, estimated concentration and "JN" qualifier?	[___]	___	X
9.2	Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
	a. Samples and/or fractions as appropriate	[___]	___	X
	b. Blanks	[___]	___	X
	ACTION: If any TIC data are missing, take action specified in 3.2 above.			
	ACTION: Add "JN" qualifier if missing.			

		YES	NO	N/A
9.3	Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene-a VOA TCL analyte - and should not be reported as a TIC)?	___	[X]	___
	ACTION: Flag with "R" any TCL compound listed as a TIC.			
9.4	Are all ions present in the reference mass spectrum with a relative intensity grater than 10% also present in the sample mass spectrum?	[___]	___	X
9.5	Do TIC and "best match" standard relative ion intensities agree within 20%?	[___]	___	X

ACTION: Use professional judgement to determine acceptable of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate.

Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (R). (i.e. Common Lab Contaminants: Co_2 (M/E 44), Siloxanes (M/E 73) Hexane, Aldol Condensation Products, Solvent Preservatives, and related by products - see Functional Guidelines for more guidance).

		YES	NO	N/A
10.0	**Compound Quantitation and Reported Detection Limits**			
10.1	Are there any transcription/calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?	___	[X]	___
10.2	Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	[X]	___	___

ACTION: If errors are large, call lab for explanation/ resubmittal, make any necessary corrections and note errors under "Conclusions".

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and its associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

11.0	**Standards Data (GC/MS)**			
11.1	Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present) for initial and continuing calibration?	[X]	___	___

		YES	NO	N/A
	ACTION: If any calibration standard data are missing, take action specified in 3.2 above.			
12.0	**GC/MS Initial Calibration (Form VI)**			
12.1	Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction at concentrations 10, 20, 50, 100, 200 ug/1? Are there separate calibrations for low water/med soils and low soil samples?	[X]	___	___
	ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.			
12.2	Were all low level soil standards, blanks and samples analyzed by heated purge?	[___]	___	X
	ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" and non-detects "R".			
12.3	Are response factors stable for VOA's over the concentration range of calibration (% Relative Standard Deviation (%RSD) <30.0%)?	[X]	___	___
	ACTION: Circle all outliers in red.			
	NOTE: Although 11 VOA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.			
	ACTION: If %RSD > 30.0%, qualify associated positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detects for that analyte R (unusable).			

		YES	NO	N/A
	NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.			
12.4	Are the RRFs above 0.05?	[__]	___	__X__
	ACTION: Circle all outliers in red.			
	ACTION: If any RRF are < 0.05, qualify associated non-detects (R) and flag associated positive data as estimated (J).			
12.5	Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %RSD? (check at least 2 values, but if errors are found, check more).	___	[_X_]	___
13.0	**GC/MS Continuing Calibration (Form VII)**			
13.1	Are the Continuing Calibration Forms (From VII) present and complete for the volatile fraction?	[_X_]	___	___
13.2	Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?	[_X_]	___	___
	ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.			

_____

_____

_____

		YES	NO	N/A
	ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/ resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").			
13.3	Do any volatile compounds have a % Difference (%D) between the initial and continuing RRF which exceeds the ± 25% criteria?	X	[ ]	
	ACTION: Circle all outliers in red.			
	ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When % D is above 90%, reject all non-detects for that analyte (R) unusable.			
13.4	Do any volatile compounds have a RRF <0.05?		[ ]	X
	ACTION: Circle all ouliers in red.			
	ACTION: If the RRF <0.05, qualify associated non-detects as unusable (R) and "J" associated positive values.			
13.5	Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.)		[X]	
	ACTION: Circle errors in red.			
	ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions".			

	YES	NO	N/A

14.0 Internal Standard (Form VIII)

14.1 Are the internal standard areas (From VIII) of every sample and blank within the upper and lower limits (-50% to +100 %) for each continuing calibration. [X] ___ ___

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
_____	_____	___	_____	_____
_____	_____	___	_____	_____
_____	_____	___	_____	_____
_____	_____	___	_____	_____

(Attach additional sheets if necessary).

ACTION:

1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results quantitated with this internal standard.

2. Non-detects associated with IS area counts > 100% should not be qualified.

3. If IS area is below the lower limit (<50%), qualify all associated non-detects (U values) "J". If extremely low area counts are reported, (<25% or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

		YES	NO	N/A
14.2	Are the retention times of the internal standards within 30 seconds of the associated calibration standard?	[X]	___	___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

15.1	Were any field duplicates submitted for VOA analysis?	[X]	___	___

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between duplicate results must be addressed in the reviewer narrative. However,l if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

PART B: BNA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples? [X] ___ ___

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data? X [___] ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated ("J"). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as usable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? ___ [X] ___

Continuous extraction of water samples for BNA analysis be started within seven days of the date of collection. Soil/sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

YES NO N/A

Table of Holding Time Violations (See Narrative)

Sample	Sample Matrix	Date Stamped (See Traffic Report)	Date Lab Received	Date Extracted	Date Analyzed

ACTION: If technical holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded.

If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable ("R"). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

		YES	NO	N/A
3.0	**Surrogate Recovery (Form II)**			
3.1	Are the BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:			
	a. Low Water	[X]	___	___
	b. Low Soil	[___]	___	X
	c. Med Soil	[___]	___	X
3.2	Are all the BNA Samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:			
	a. Low Water	[X]	___	___
	b. Low Soil	[___]	___	X
	c. Low Soil	[___]	___	X
	ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.			
3.3	Were outliers marked correctly with an asterisk?	[X]	___	___
3.4	Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank?	[X]	___	___
	If yes, were samples reanalyzed?	[X]	___	___
	Were method blanks reanalyzed?	[___]	___	X

		YES	NO	N/A
	ACTION: If all BNA surrogate recoveries are > 10% but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. base-neutral or acid compounds):			
	1. Flag all positive results as estimated ("J").			
	2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.			
	3. If recoveries are greater than the upper acceptance limit, do not qualify non-detects.			
	If any base-neutral or acid surrogate has a recovery of < 10%:			
	1. Positive results for the fraction with < 10% surrogate recovery are qualified with "J".			
	2. Non-detects for that fraction should be qualified as unusable (R).			
3.5	Are there any transcription/calculation errors between raw data and Form II?	___	[X]	___
	ACTION: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.			
4.0	**Matrix Spikes (Form III)**			
4.1	Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?	[X]	___	___

		YES	NO	N/A
4.2	Were matrix spikes analyzed at the required frequently for each of the following matrices:			
	a. Low Water	[___]	X	___
	b. Low Soil	[___]	___	X
	c. Med Soil	[___]	___	X

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How may BNA spike recoveries are outside QC limits?

Water	Soils
2 out of 22	N/A out of 22

4.4 How may RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soils
0 out of 11	N/A out of 11

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1	Is the Method Blank Summary (Form IV) present?	[X]	___	___

		YES	NO	N/A
5.2	Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each extraction batch?	[X]	___	___
5.3	Has a BNA method blank been analyzed for each GC/MS system used?	[X]	___	___
	(See SOW p. D - 59/SV, Section 8.7) **ACTION:** If any method blank data are missing, call lab for explanation/resubmittal. If not available, use professional judgement to determine if the associated sample data should be qualified.			
5.4	Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) for each instrument acceptable for BNAs?	[X]	___	___
	ACTION: Use professional judgement to determine the effect on the data.			

6.0 Contamination

NOTE: "Water blank", "drill blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify the data. Do no confuse them with the other QC blanks discussed below.

		YES	NO	N/A
6.1	Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for BNAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture where necessary.	X	[ ]	
6.2	Do any field/rinse/blanks have positive BNA results (TCL and/or TIC)?		[X]	

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet).

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Blanks may not be qualified because of contamination in another blank. Field Blanks must be qualified for surrogate, spectral, instrument performance or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable (R).

Sample conc > CRQL but < 10x blank	Sample conc <CRQL & is < 10x blank value	Sample conc > CRQL value & >10x blank
Common Phthalate Esters		
Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed
Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & >5 blank value
Other Contaminants		
Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed.

YES NO N/A

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample? ___ [X] ___

	YES	NO	N/A

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 GC/MS Instrument Performance Check

7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)? [X] ___ ___

7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift? [X] ___ ___

7.3 Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument? [X] ___ ___

ACTION: List date, time, instrument ID, and sample analyses for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS
____	____	____	____
____	____	____	____
____	____	____	____

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

		YES	NO	N/A
	ACTION: If mass assignment is in error, flag all associated sample data as unusable (R).			
	ACTION: If mass assignment is in error, flag all associated sample data as unusable (R).			
7.4	Have the ion abundance been normalized to m/z 198?	[X]	___	___
7.5	Have the ion abundance criteria been met for each instrument used?	[X]	___	___
	ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).			
7.6	Are there any transcription/calculation errors between mass lists and Form Vs?	___	[X]	___
7.7	Have the appropriate number of significant figures (two) been reported?	[X]	___	___
	ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.			
7.8	Are the spectra of the mass calibration compound acceptable?	[X]	___	___
	ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.			

		YES	NO	N/A
8.0	**Target Compound List (TCL) Analytes**			
8.1	Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following:			
	a. Samples and/or fractions as appropriate	[X]	___	___
	b. Matrix spikes and matrix spike duplicates	[X]	___	___
	c. Blanks	[X]	___	___
8.2	Has GPC cleanup been performed on all soil/ sediment sample extracts?	[___]	___	X
	ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in "Contract Problems/Non-Compliance".			
8.3	Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
	a. Samples and/or fractions as appropriate	[X]	___	___
	b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[X]	___	___
	c. Blanks	[X]	___	___
	ACTION: If any data are missing, take action specified in 3.2 above.			

		YES	NO	N/A
8.4	Are the response factors shown in the Quant Report?	[___]	X	___
8.5	Is chromatographic performance acceptable with respect to:			
	Baseline stability?	[X]	___	___
	Resolution?	[X]	___	___
	Peak shape?	[X]	___	___
	Full-scale graph (attenuation)?	[X]	___	___
	Other:_____	[___]	___	X
	ACTION: Use professional judgement to determine the acceptability of the data.			
8.6	Are the lab-generated standard mass spectra of identified BNA compounds present for each sample?	[X]	___	___
	ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/ Non-compliance". If spectra are missing, reject all positive data.			
8.7	Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[X]	___	___
8.8	Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[X]	___	___

		YES	NO	N/A
8.9	Do sample and standard relative ion intensities agree within 20%?	[X]	___	___
	ACTION: Use professional judgement to determine acceptability of data. if it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (Presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.7, 8.8, and 8.9.			
	ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.			
9.0	**Tentatively Identified Compounds (TIC)**			
9.1	Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[___]	X	___
9.2	Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
	a. Samples and/or fractions as appropriate	[X]	___	___
	b. Blanks	[X]	___	___

		YES	NO	N/A
	ACTION: If any TIC data are missing take action specified in 3.2 above.			
	ACTION: Add "JN" qualifier if missing.			
9.3	Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene a VOA TCL - and should not be reported as a TIC)?	X	[ ]	___
	ACTION: Flag with "R" any TCL compound listed as a TIC.			
9.4	Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	[X]	___	___
9.5	Do TIC and "best match" standard relative ion intensities agree within 20%?	[X]	___	___
	ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (R).			
10.0	**Compound Quantitation and Reported Detection Limits**			
10.1	Are there any transcription/calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion,			

		YES	NO	N/A
	and RRF were used to calculate Form I result. Were any errors found?	___	[X]	___
10.2	Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	[___]	___	X

ACTION: If errors are large, call lab for explanation/ resubmittal, make any necessary corrections and document effect in data assessments.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and it's associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all From I's that should not be used, including any in the summary package.

11.0 Standard Data (GC/MS)

11.1	Are the Reconstructed Ion Chromatograms, and data system printouts (Quant Reports) present for initial and continuing calibration?	[X]	___	___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1	Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction?	[X]	___	___

		YES	NO	N/A
	ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.			
12.2	Are response factors stable for BNAs over the concentration range of the calibration? (% Relative standard deviation (%RSD) < 30.0%)	[___]	X	___
	ACTION: Circle all outliers in red.			
	NOTE: Although 20 BNA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.			
	ACTION: If the % RSD is > 30.0, qualify positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detect results for that analyte R (unusable).			
	NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.			
12.3	Are all BNA compound RRFs > 0.05?	[X]	___	___
	ACTION: Circle all outliers in red.			
	ACTION: If any RRF < 0.05			
	1. "R" all non-detects. 2. "J" all positive results.			

		YES	NO	N/A
12.4	Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % RSD? (Check at least two values but if errors are found, check more.)	___	[X]	___

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors in data assessments.

13.0 GC/MS Continuing Calibration (Form VII)

13.1	Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction?	[X]	___	___
13.2	Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?	[X]	___	___

ACTION: List below all sample analyses that were not within twelve hours of a continuing calibration analysis for each instrument used.

_____

_____

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

		YES	NO	N/A
13.3	Do any semivolatile compounds have a % Difference (%D) between the initial and continuing RRF which exceeds + 25.0% criteria?	X	[ ]	
	ACTION: Circle all outliers in red.			
	ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated (J). When %D is above 90%, reject all non-detects for that analyte (R) unusable.			
13.4	Do any semivolatile compounds have a RRF <0.05?		[X]	
	ACTION: Circle all outliers in red.			
	ACTION: If RRF <0.05, qualify as unusable (R) associated non-detects and "J" associated positive values.			
13.5	Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more).		[X]	
	ACTION: Circle errors in red.			
	ACTION: If errors are large, call lab fore explanation/resubmittal, make any necessary corrections and document effect in data assessments.			

	YES	NO	N/A

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration? [X] ___ ___

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
_____	_____	___	_____	_____
_____	_____	___	_____	_____
_____	_____	___	_____	_____
_____	_____	___	_____	_____

(Attach additional sheets if necessary).

ACTION:

1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard.

2. Non-detects associated with IS areas > 100% should not be qualified.

		YES	NO	N/A
	3. If the IS area is below the lower limit (<50%), qualify all associated non-detects (U-values) "J". If extremely low area counts are reported (<25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable (R)>.			
14.2	Are the retention times of the internal standards within 30 seconds of the associated calibration standard?	[X]	___	___
	ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.			
15.0	**Field Duplicates**			
15.1	Were any field duplicates submitted for BNA analysis?	[X]	___	___
	ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.			
	ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.			

	YES	NO	N/A

PART C: PESTICIDE/PCB ANALYSIS

1.0 Traffic Reports and Laboratory Narrative

1.1 Are Traffic Report Forms present for all samples? [___] ___ ___

ACTION: If no, contract lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? [___] ___ ___

ACTION: If any sample analyzed as a soil, other then TCLP, contains 50%-90% water, all data should be qualified as estimated (J). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and non-detects "UJ".

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded? [___] ___ ___

Water and soil samples for PESTS/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

	YES	NO	N/A

ACTION: If technical holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits (UJ) and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable (R).

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices?

a. Low Water [___] ___ ___

b. Soil [___] ___ ___

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices?

a. Low Water [___] ___ ___

b. Soil [___] ___ ___

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

		YES	NO	N/A
3.3	Were outliers marked correctly with an asterisk?	[___]	___	___
	ACTION: Circle all outliers in red.			
3.4	Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample or blank? (60-150%)	___	[___]	___
	ACTION: No qualification is done if surrogates are diluted out. If recovery for both surrogates is below the contract limit, but above 10%, flag all results for that sample "J". If recovery is < 10% for either surrogate, qualify positive results "J" and flag non-detects "R". If recovery is above the contract advisory limits for both surrogates qualify positive values "J".	[___]	___	___
3.5	Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of individual Standard Mixture A?	[___]	___	___
	ACTION: If the RT limits are not met, the analysis may be qualified unusable (R) for that sample on the basis of professional judgement.			
3.6	Are there any transcription/calculation errors between raw data and Form II?	___	[___]	___
	ACTION: If large errors exist, call lab for explanation/resubmittal. Make any necessary corrections and document effect in data assessments.			

		YES	NO	N/A
4.0	**Matrix Spikes (Form III)**			
4.1	Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?	[___]	___	___
4.2	Were matrix spikes analyzed at the required frequency for each of the following matrices? (1 MS/MSD must be performed for every 20 samples of similar matrix or concentration level)			
	a. Low Water	[___]	___	___
	b. Soil	[___]	___	___

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How may PEST/PCB spike recoveries are outside QC limits?

Water	Soil
_____ out of 12	_____ out of 12

4.4 How may RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soil
_____ out of 6	_____ out of 6

		YES	NO	N/A
	ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.			
5.0	**Blanks (Form IV)**			
5.1	Is the Method Blank Summary (Form IV) present?	[___]	___	___
5.2	Frequency of Analysis: For the analysis of Pesticide/PCB TCL compounds, has a reagent/ method blank been analyzed for each SDG or every 20 samples of similar matrix or concentration or each extraction batch, whichever is more frequent?	[___]	___	___
	ACTION: If any blank data are missing, take the action specified above in 3.2. If blank data is not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.			
5.3	Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence? (minimum contract requirement).			

	YES	NO	N/A

ACTION: If any blank data are missing, call lab for explanation/resubmittals. If missing deliverables are unavailable, document the effect in data assessments.

5.4 Chromatography: Review the blank raw data - chromatograms, quant reports or data system printouts.

Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs? [___] ___ ___

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

NOTE: "Water blanks", "distilled water blanks" and "drilling water blanks" are validated like any other sample and are not used to qualify the data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent/cleanup blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor and corrected for % moisture when necessary. ___ [___] ___

	YES	NO	N/A
6.2 Do any field/rinse blanks have positive PEST/PCB results?	___	[___]	___

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc > CRQL but < 5 x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL & > 5 x blank value
Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as unusable (R).

6.3 Are there field/rinse/equipment blanks associated with every sample?	[___]	___	___

		YES	NO	N/A
	ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.			
7.0	**Calibration and GC Performance**			
7.1	Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks, MS/MSD?			
	a. peak resolution check	[___]	___	___
	b. performance evaluation mixtures	[___]	___	___
	c. aroclor 1016/1260	[___]	___	___
	d. aroclors 1221, 1232, 1242, 1248, 1254	[___]	___	___
	e. toxaphene	[___]	___	___
	f. low points individual mixtures A & B	[___]	___	___
	g. med points individual mixtures A & B	[___]	___	___
	h. high points individual mixtures A & B	[___]	___	___
	i. instrument blanks	[___]	___	___
	ACTION: If no, take action specified in 3.2 above.			
7.2	Are Forms VI - PEST 1-4 present and complete for each column and each analytical sequence?	[___]	___	___
7.3	Are there any transcription/calculation errors between raw data and Forms VI?	___	[___]	___

		YES	NO	N/A
	ACTION: If large errors exist, call lab for explanation/ resubmittal, make necessary corrections and document effect in data assessments.			
7.4	Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the initial calibration analytical sequence? (For Initial Calibration Standards, Form VI - PEST - 1).	[__]	___	___
	ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R). For aroclors, RT may be outside the RT window, but the aroclor may still be identified from the individual pattern.			
7.5	Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (%RSD must be < 20.0% for all analytes except for the 2 surrogates, which must not exceed 30.0 % RSD). See Form VI PEST - 2.	[__]	___	___
	ACTION: If no, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When RSD >90% flag all non-detect results for that analyte R (unusable).			

		YES	NO	N/A
7.6	Is the resolution between any two adjacent peaks in the Resolution Check Mixture > 60.0% for both columns? (Form VI-PEST-4).	[__]	___	___
	ACTION: If no, positive results for compounds that were not adequately resolved should be qualified "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).			
7.7	Is Form VII - Pest-1 present and complete for each Performance Evaluation Mixture analyzed during the analytical sequence for both columns?	[__]	___	___
	ACTION: If no, take action as specified in 3.2 above.			
7.8	Has the individual % breakdown exceeded 20.0% on either column.	___	[__]	___
	- for 4,4' - DDT?	___	[__]	___
	- for endrin?	___	[__]	___
	Has the combined % breakdown for 4,4' - DDT/ Endrin exceeded 30.0% on either column? (required in all instances)	___	[__]	___

YES NO N/A

ACTION:

1. If any % breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (p. D-38/Pest SOW 3/90), qualify all sample analyses in the entire analytical sequence as described below.

2. If any % breakdown has failed the QC criteria in a PEM Verification calibration, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM & qualify the data as described below.

a. 4,4' - DDT Breakdown: If 4,4' - DDT breakdown is greater than 20.%:

   i. Qualify all positive results for DDT with "J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

   ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

b. Endrin Breakdown: If endrin breakdown is greater than 20.0%:

	YES	NO	N/A

i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R).

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ).

c. Combined Breakdown: If the combined 4,4' - DDT and endrin breakdown is greater then 30.0%.

i. Qualify all positive results for DDT and endrin with "J". If endrin was not detected, but positive aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R). If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ). Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

7.9 Are the relative percent difference (RPD) values for all PEM analytes <25.0% (Form VII-PEST-1) [__] ___ ____

		YES	NO	N/A
	ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".			
	NOTE: If the failing PEM is part of the initial calibration. All samples are potentially affected. If the offending standard is a verification calibration, the associated samples are those which followed the last in-control standard until the next passing standard.			
7.10	Have all samples been injected within a 12 hour period beginning with the injection of an instrument Blank?	[__]	___	___
7.11	Is Form VII - Pest-2 present and complete for INDA and INDB Verification Calibration analyzed?	[__]	___	___
7.12	Are there any transcription/calculation errors between raw data and Form VII - Pest - 2?	___	[__]	___
	ACTION: If large errors exists, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments. Under "Conclusions".			
7.13	Do all standard retention times for each INDA and INDB Verification Calibration fall within the windows established by the initial calibration sequence?	[__]	___	___

		YES	NO	N/A
7.14	Are RPD values for all verification calibration standard compounds < 25.0%?	[__]	___	___
	ACTION: If the RPD is >25.0% for the compound being quantitated, qualify all associated positive results "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte which failed the criteria. If the RPD is >90%, flag all non-detects for that analyte R (unusable).			
8.0	**Analytical Sequence Check (Form VIII-PEST)**			
8.1	Is Form VIII present and complete for each column and each period of analyses?	[__]	___	___
	ACTION: If no, take action specified in 3.2 above.			
8.2	Was the proper analytical sequence followed for each initial calibration and subsequent analyses? (See CLP SOW p. D-39 & D-41/PEST)	[__]	___	___
	ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.			
9.0	**Cleanup Efficiency Verification (Form IX)**			
9.1	Is From IX - Pest-1 Pest-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.)	[__]	___	___

		YES	NO	N/A
	ACTION: If no, take action specified in 3.2 above. If data suggests that florisil cleanup was not performed, make note in "Contract Problems/Non-Compliance".			
9.2	Are all samples listed on the Pesticide Florisil Cartridge Check Form?	[__]	___	___
9.3	If GPC Cleanup was performed, (mandatory for all soil sample extracts) is Form IX - Pest-2 present?	[__]	___	___
	ACTION: If no, take action specified in 3.2 above.			
	ACTION: If GPC was not performed when required, make note in" Contract Problems/Non-Compliance" section of data assessment.			
9.4	Are percent recoveries (% R) of the pesticide and surrogate compounds used to check the efficiency of the cleanup procedures within QC limits:			
	80-120% for florisil cartridge check?	[__]	___	___
	80-110% for GPC calibration?	[__]	___	___
	Qualify only the analyte(s) which fail the recovery criteria as follows:			
	ACTION: If a R are < 80%, qualify positive results "J" and quantitation limits "UJ". Non-detects should be qualified "R" if zero %R was obtained for pesticide compounds. Use professional judgement to qualify positive results if recoveries are greater than the upper limit.			

		YES	NO	N/A
	NOTE: Sample data should be evaluated for potential interferences if recovery 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Make note in Contract Problems/Non-Compliance section of reviewer narrative.			
	NOTE: The raw data of the GPC Calibration Check analysis is evaluated for pattern similarity with previously run Aroclor standards.			
10.0	**Pesticide/PCB Identification**			
10.1	Is Form X complete for every sample in which a pesticide or PCB was detected?	[__]	___	___
10.2	Are there any transcription/calculation errors between raw data and Forms 6E, 6G, 7E, 7D, 8D, 9A, B, 10A.	___	[__]	___
	ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and not error under "Conclusions".			
10.3	Are retention times (RT) of sample compounds within the established RT windows for both analyses?	[__]	___	___
	Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?	[__]	___	___
	ACTION: Use professional judgement to qualify positive results which were not confirmed by GC/MS. Qualify as unusable (R) all positive results which were not confirmed by second			

	YES	NO	N/A

GC column analysis. Also qualify as unusable (R) all positive results not meeting RT window unless associated standard compounds are similarly biased. (See Functional Guidelines). The reviewer should use professional judgement to assign an appropriate quantitation limit.

10.4 Is the percent difference (% D) calculated for the positive sample results on the two GC columns < 25.0%? [__] ___ ___

ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be fagged as follows:

% Difference	Qualifier
25-50 %	J
50-90 %	JN
> 90 %	R

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher results was more acceptable, the reviewer should replace the value and indicate the reason for the change in the data assessment.

10.5 Check chromatograms for false negatives, especially the multiple peak compounds toxaphene and PCBs. Were there any false negatives? ___ [__] ___

	YES	NO	N/A

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed, qualify the data unusable (R).

11.0 Compound Quantitation and Reported Detection Limits

11.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Were any errors found? ___ [___] ___

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgement to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity (NJ). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

11.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, % moisture? [___] ___ ___

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

	YES	NO	N/A

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

ACTION: Quantitation limits effected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer can provide an approximated quantitation limit (UJ) for each affected compound.

12.0 Chromatogram Quality

12.1	Were baselines stable?	[__]	___	___
12.2	Were any electropositive displacement (negative peaks) or unusual peaks seen?	___	[__]	___

ACTION: Address comments under System Performance of data assessment.

13.0 Field Duplicates

13.1	Were any field duplicates submitted for PEST/PCB analysis?	[__]	___	___

YES NO N/A

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

#PR00801-DV3/ORGANIC.DTA

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. N/A SDG Nos. 19656, 19699, 19736 LABORATORY Enseco-East SITE Tutu Wells

DATA ASSESSMENT:

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains some error.

Reviewer's Signature: _____ Date: 5/15/1992

Verified by: Lidya Gulizia/TVD Date: 5/15/19

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, (J). The non-detects (sample quantitation limits) will be flagged as estimated, "J, or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time:

A) Volatile organic compounds

All of the samples collected during this sampling event (SDGs 19656, 19699, and 19736 [this case]) were analyzed for volatile organic compounds (VOCs) within the appropriate, corresponding holding time (seven days from collection for unpreserved aqueous samples and 14 days from collection for preserved aqueous samples). A holding time compliance summary for VOC analyses is provided as Table A-1.

B) Semivolatile organic compounds

All of the samples in this case were extracted within the specified holding time from sample collection to sample extraction (7 days) and within the specified holding time from sample extraction to sample analysis (40 days). A holding time compliance summary for BNA compound analyses is provided as Table A-2.

2. BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, trip field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

DATA ASSESSMENT

Summaries of all contaminated blanks and associated samples are provided in Table A-3 and A-4. Only contaminated blanks are discussed in the following section.

A) Method blank contamination

1) Volatile organic compounds

Method blank VBLK01 (2/5/92) is reported to contain 0.13 micrograms per liter (ug/L) of the common laboratory contaminant, methylene chloride. Samples Eglin III and Harvey are associated with this method blank. Since methylene chloride was detected at a higher concentration in the associated trip blank, the trip blank is used to qualify the associated sample data.

Method blank VBLK01 (2/6/92) (same as VBLK02 [2/6/92]) is reported to contain 1.33 ug/L of acetone, 0.12 ug/L of methylene chloride, and 0.05 ug/L of toluene. The sample dilutions (DL) of Eglin III and Harvey (Eglin III DL and Harvey DL) and sample Steele are associated with this method blank. The blank contaminants do not affect the usable data from the sample dilutions, therefore these data are not qualified. Acetone and toluene were undetected in sample Steele so the associated data are not qualified. Since methylene chloride was detected at a higher concentration in the associated trip blank, the trip blank is used to qualify the associated result for Steele.

Method blank VBLK01 (2/8/92) is reported to contain 0.14 ug/L of methylene chloride. Samples Matthias, Rodriguez and WAPA (Water from Power Authority) are associated with this method blank. Since methylene chloride was detected at a higher concentration in the associated trip blank, the trip blank is used to qualify the associated sample data.

Method blank VBLK02 (2/8/92) is reported to contain 0.18 ug/L of methylene chloride. Samples Matthias DL and Tillett are associated with this method blank. The blank contaminant methylene chloride does not affect the usable data from the Matthias sample dilution, therefore the associated result is not qualified. Since methylene chloride was detected at a higher concentration in the associated trip blank, the trip blank is used to qualify the associated result for Tillett.

2) Semivolatile organic compounds

Method blank SBLK01 (2/5/92) is reported to contain 20 ug/L of the common laboratory contaminant bis(2-ethylhexyl)phthalate, and three unknown tentatively identified

compounds (TICs). Samples Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, and Harvey are associated with this method blank. The associated positive data for bis(2-ethylhexyl)phthalate are negated and qualified as undetected (U) as outlined in the SOP checklist. Corresponding, associated positive TIC data are rejected (R) according to SOP protocol.

Method blank SBLK01 (2/7/92) is reported to contain 4 ug/L of bis(2-ethylhexyl)phthalate, and eight unknown TICs. Samples Rodriguez, Dede, Smith, Matthias, and Tillett are associated with this method blank. The associated positive data for bis (2-ethylhexyl) phthalate are negated and qualified as undetected (U). Corresponding, associated positive TIC data are rejected (R) according to SOP protocol.

Method blank SBLK01 (2/10/92) is reported to contain five unknown TICs. Samples Leonard, LaPlace, LaPlace FR, and WAPA are associated with this method blank. Corresponding, associated TIC data are rejected according to SOP protocol.

Method blank SBLK02 (2/19/92) is reported to contain 2 ug/L of bis(2-ethylhexyl)phthalate, and seven unknown TICs. The re-analysis of sample WAPA (WAPA RE) is associated with this method blank. Bis(2-ethylhexyl)phthalate was undetected in the reanalysis of sample WAPA so the result is not qualified. Technically, the associated data do not require qualification since the data from the original analysis of WAPA are used for this case.

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

1) Volatile organic compounds

The water blank is reported to contain 0.66 ug/L of carbon disulfide and 0.38 ug/L of methylene chloride. The equipment blank is associated with the water blank. The associated result for carbon disulfide in the equipment blank is negated and qualified as undetected (U). The associated result for methylene chloride does not require qualification.

The equipment blank is reported to contain the following contamination:

Analyte	Result (ug/L)
Acetone	7.6
Carbon disulfide	0.41
Methylene chloride	7

Analyte	Result (ug/L)
Toluene	0.08
Xylenes (total)	0.1

Samples Gassett and its replicate (Gassett FR) are associated with the equipment blank. Carbon disulfide and toluene results for the equipment blank are negated due to water blank and trip blank contamination; therefore they are not used to qualify the associated sample data. Carbon disulfide and toluene data for Gassett and Gassett FR are negated due to trip blank contamination. Acetone was undetected in Gassett and Gassett FR so these data are not qualified. Methylene chloride and total xylenes data for the associated samples are negated and qualified as undetected (U).

There are no field blanks associated with the remainder of the samples in this case since the samples were taken directly from drinking water taps without the use of sampling equipment.

C) Trip blank contamination

1) Volatile organic compounds

Trip blank (2/3/92) is reported to contain 0.57 ug/L of carbon disulfide and 0.29 ug/L of methylene chloride. Samples Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, and Harvey are associated with this trip blank. Carbon disulfide was undetected in all of the associated samples so the associated data are not qualified. All of the associated methylene chloride data are negated and qualified as undetected (U).

Trip blank (2/4/92) is reported to contain 0.23 ug/L of carbon disulfide, 0.33 ug/L of methylene chloride, and 0.05 ug/L of toluene. Samples Four Winds I, Four Winds II, Gassett, Gassett FR, Ramsay, Steele, Water Blank, and Equipment Blank are associated with this trip blank. Carbon disulfide data for samples Four Winds I, Four Winds II, Gassett FR, Ramsay, Water Blank, and Equipment Blank are negated and qualified as undetected (U). Carbon disulfide was undetected in samples Gassett and Steele so these data do not require qualification. Methylene chloride data for samples Four Winds I, Gassett, Gassett FR, Ramsay, Steele, and Water Blank, are negated and qualified as undetected (U). Methylene chloride was undetected in sample Four Winds II so this result is not qualified. The equipment blank is reported to contain greater than ten times (> 10x) the methylene chloride concentration detected in this trip blank, so this result also remains unqualified. Finally, toluene data for samples Four Winds I, Four Winds II, Gassett, Gassett FR, and the equipment blank are negated and qualified as undetected (U).

Toluene was undetected in samples Ramsay, Steele, and the water blank so these data do not require qualification.

Trip blank (2/5/92) is reported to contain 1.8 ug/L of carbon disulfide and 0.29 ug/L of methylene chloride. Samples Dede, Matthias, Rodriguez, Smith, and Tillett are associated with this trip blank. Carbon disulfide was undetected in all of the associated samples so these data are not qualified. Methylene chloride data for samples Dede, Matthias, Rodriguez, and Smith are negated and qualified as undetected (U). Methylene chloride was undetected in sample Tillett so this result is not qualified.

Trip blank (2/6/92) is reported to contain 1 ug/L of carbon disulfide and 0.33 ug/L of methylene chloride. Samples LaPlace, LaPlace FR, Leonard, and WAPA are associated with this trip blank. The carbon disulfide and methylene chloride data for sample LaPlace FR are negated and qualified as undetected (U). Carbon disulfide and methylene chloride were undetected in the remaining associated samples so these data are not qualified.

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning:

1) Volatile organic compounds

All of the BFB mass calibrations associated with this case have met the acceptance criteria to ensure adequate mass resolution, proper compound identification and instrument response.

2) Semivolatile organic compounds

All of the DFTPP mass calibrations associated with this case have met the acceptance criteria to ensure adequate mass resolution, proper compound identification and instrument response.

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/BNA Target Compound List (TCL) must be $\geq$ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor <0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All non-detects for those compounds will be rejected ("R"). The following analytes in the samples shown were qualified because of response factor:

1) Volatile organic compounds

Response factor QC criteria are not indicated by USEPA Method 524.2, revision 3.0 (USEPA 1989).

2) Semivolatile organic compounds

All of the response factors from the initial and continuing calibrations are within the QC limit (> 0.05) indicating adequate instrument response.

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE:

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be

<25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J' and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

1) Volatile organic compounds

The above listed criteria were modified slightly to reflect the %D criteria permissible for analyses performed in accordance with Method 524.2, revision 3.0 and as outlined in Appendix A of revised SAMP (Geraghty & Miller, Inc., 1991). As per the method, the %RSD for the response factors from the initial calibration must be <30%, the response factor in the continuing calibration must be within 50% of the mean value measured in the initial calibration, or the response factor in the continuing calibration must be within 30% of the mean value measured in the preceding continuing calibration. The laboratory has provided Form VI and VII equivalents for the VOC initial and continuing calibration using USEPA Method 524.2.

All of the %RSDs from the initial calibrations performed for this case are within the corresponding QC limit.

The continuing calibration performed February 6, 1992 on instrument HP-V2 has a %RSD > 30% for acetone (34.47%). Samples Eglin III DL, Harvey DL, method blank VBLK02 (2/6/92) (same as VBLK01 [2/6/92]), and Steele are associated with this calibration. This calibration deficiency does not impact the usable data from the sample dilutions. The non-detect data for acetone in sample Steele and VBLK02 (2/6/92) are qualified as estimated (J) or estimated at the quantitation limit (UJ).

2) Semivolatile organic compounds

The initial calibration performed February 15, 1992 on instrument HP-S4 has %Ds > 30% for hexachlorobutadiene (36.59%) and 2,4-dinitrophenol (34.369%). These compounds were undetected in all of the samples in this case, therefore the data are not qualified.

DATA ASSESSMENT

The initial calibration performed February 25, 1992 on instrument HP-S4 has a %D > 30% for 2,4-dinitrophenol (36.1%). This compound was undetected in all of the samples in this case, therefore the data are not qualified.

The continuing calibration performed February 16, 1992 on instrument HP-S1 has %Ds > 25% for the following compounds:

Compound	%RSD
2,4-Dinitrophenol	66.1
4-Nitrophenol	41.1
4,6-Dinitro-2-methylphenol	41.7
Pentachlorophenol	28.2
Di-n-octyl phthalate	27.2

Samples LaPlace, LaPlace FR, Leonard, and WAPA are associated with this calibration. Positive data for di-n-octyl phthalate are qualified as estimated (J). The remainder of the associated, non-detect data are qualified as estimated at the quantitation limit (UJ).

The continuing calibration performed February 16, 1992 on instrument HP-S4 has a %D > 25% for 2,4-dinitrophenol (31.36%). Samples Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, and Harvey are associated with this calibration. The associated sample data for 2,4-dinitrophenol are qualified as estimated at the quantitation limit (UJ).

The continuing calibration performed February 16, 1992 on instrument HP-S4 has a %D > 25% for 2,4-dinitrophenol (37.8%). The dilutions of sample LaPlace and its replicate are associated with this calibration, but since this deficiency does not affect the usable data for this case, the associated data are not qualified.

The continuing calibration performed February 26, 1992 on instrument HP-S4 has %Ds > 25% for hexachlorocyclopentadiene (53.8%) and 2,4-dinitrophenol (29.0%). Samples Dede, Matthias, Rodriguez, Smith, and Tillett are associated with this calibration. The associated sample data for both of the compounds are qualified as estimated at the quantitation limit (UJ).

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the

measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery:

1) Volatile organic compounds

For all of the samples in this case, all of the VOC system monitoring compound (SMC) percent recoveries (%Rs) are within the corresponding QC limits.

2) Semivolatile organic compounds

For all of the samples in this case, other than samples Matthias, WAPA, and the equipment blank, the BNA Surrogate %Rs are within the corresponding QC limits. For the equipment blank and sample Matthias, the base/neutral extractable surrogate %Rs for nitrobenzene-d5 (127 and 130%, respectively) exceed the corresponding QC limits (35 to 114%). For sample WAPA and its reanalysis (WAPA RE), three acid extractable surrogates have recoveries below 10%:

Surrogate	WAPA (%R)	WAPA RE (%R)
Phenol-d5	0	2
2-Fluorophenol	1	4
2-Chlorophenol-d4	2	8

Based on this information, positive sample data for the equipment blank and Matthias are not qualified, but all of the non-detect acid extractable organic data for sample WAPA are unusable and rejected (R).

7. INTERNAL STANDARDS PERFORMANCE:

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ± 30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS area is < 50%. Non detects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

1) Volatile organic compounds

For VOC analysis by USEPA Method 524.2, the window of acceptance for internal standard areas is ± 30% from the associated continuing calibration standard. All of the internal standard area counts and retention times are within QC limits established by the 12-hour standard from the associated continuing calibration.

2) Semivolatile organic compounds

All of the internal standard area counts and retention times are within QC limits established by the 12-hour standard from the associated continuing calibration.

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

TCL compounds are identified (GC/MS) by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

All of the positive target compound data and usable non-detect target compound data for this SDG were correctly identified and quantitated; for positive results, the RRT of the sample peaks are within 0.06 RRT units (minutes) of the associated standard, and all of the ions present in the standard spectrum at a relative abundancy of > 10% are also present in the sample spectrum. In addition, the relative intensity of the common ion between the sample and standard spectrum agrees within ± 20% and no sample ion with relative intensity > 10% is unaccounted for in the standard spectrum. There is no evidence of false negative data.

The inconsistency of retention times for 1,2-dichloroethene (total) in the VOC calibration standard is due to the varying relative intensity between the cis- and trans-isomer peaks. The retention time of the peak with the higher intensity is listed on the quantitation report.

The compound 1,1,2,2-tetrachloroethane (from the volatile TCL) was identified as a BNA TIC in samples Gassett and Gassett FR. Bromoform was identified as a BNA TIC in sample WAPA. These data are unusable and rejected (R).

"Identified" TICs were qualified to indicate the presumptive evidence of the compound at an estimated concentration (JN).

B) PESTICIDE/PCB/HERBICIDES FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be $\leq$ 25%. The following analytes in the samples shown were qualified because of compound identification:

No pesticide, polychlorinated biphenyl (PCB), or herbicide analyses were performed for this case.

9. MATRIX SPIKE/MATRIX SPIKE DUPLICATE, MS/MSD:

The matrix spike/matrix spike duplicate (MS/MSD) data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of the data. The following analytes, for the samples shown, were qualified because of MS/MSD:

For this case, VOC and BNA MS/MSD analyses were performed once for a sample group consisting of 27 field samples (includes four trip blanks). Although the MS/MSD frequency analysis was not met (1:20 ratio), the associated sample data for this case are not qualified.

1) Volatile organic compounds

Sample Rodriguez was used to determine whether the sample matrix contributed bias to the analytical results. All of the %Rs and all of relative percent differences (RPDs) between MS and MSD %Rs are within the corresponding QC limits. This is indicative of good analytical precision and accuracy.

2) Semivolatile organic compounds

Sample Rodriguez was used to determine whether the sample matrix contributed bias to the analytical results. The MS and MSD %Rs for 4-nitrophenol (102 and 104%) are outside of the corresponding QC limits (10 to 80%). All of the remaining %Rs and all of relative percent differences (RPDs) between MS and MSD %Rs are within the corresponding QC limits. Sample data are not qualified based on these data.

10. OTHER QC DATA OUT OF SPECIFICATION:

A) Method Detection Limit Study

The method detection limit (MDL) study associated with Method 524.2 was performed on July 29, 1991. The MDL determination was based on the analysis seven replicates of reagent water fortified at a concentration of 1.0 ug/L with the TCL analytes (ketones at 5 ug/L and 1,2-dichloroethene [1,2-DCE] at 2 ug/L).

The laboratory MDL was calculated as the product of the standard deviation of seven replicate analyses and the student's t value for the 99% (alpha = 0.01) confidence level with six degrees of freedom (v = 6) is t = 3.143.

Section 10.3.3 of Method 524.2 states that for every analyte and surrogate the mean accuracy, expressed as a percentage of the true value, should be 80 - 120% and the %RSD < 20%. In the MDL study performed in support of the June 1991 analyses for the Tutu Wells site, the following analytes did not meet the precision and accuracy criteria required prior to sample analyses:

Analyte	Mean Accuracy (%)
Methylene chloride	137
2-Butanone	79
Dibromochloromethane	68
trans-1,3-Dichloropropene	70
Bromoform	56

The %RSDs for all of the other analytes are within the QC limit (< 20%). The sample data for this case are not qualified based on the MDL study.

DATA ASSESSMENT

B) Laboratory Fortified Blanks

As per the QC requirements in USEPA Method 524.2 (USEPA 1989) and the SAMP (Geraghty & Miller, Inc. 1991), a laboratory fortified blank (LFB), to which known quantities of the target analytes are added, is required to be analyzed for every batch of low level samples processed using the method. In the analysis of well samples for the Tutu Wells Site, LFBs were prepared at a concentration of 1.0 ug/L with the TCL analytes (ketones at 5 ug/L and 1,2-DCE at 2 ug/L), and processed prior to the analysis of field samples in accordance with the QC protocol. The LFBs were to be evaluated using equivalent procedural guidelines for the determination of accuracy as stated in the MDL assessment for initial demonstration of precision and accuracy. Furthermore, an assessment of laboratory capability as to achievement of MDL for every sample batch processed was to be derived from the LFB analysis. Based on these evaluations, the laboratory was to continue with sample analyses if all criteria were achieved, or alternatively, remedy deficiencies prior to sample analyses where QC was not within limits (as specified in Method 524.2 Section 10.3).

For the purposes of the Tutu Wells Site volatile organic analyses, the QC criteria were modified to assess data quality for analyses performed by Method 524.2 in the following manner: Based on an EPA guidance (dated December 4, 1990) regarding additional quality assurance/quality control (QA/QC) requirements when Method 524.2 is used for aqueous sample analysis, the 80 to 120% criteria for the accuracy assessment of LFB was expanded to 50 to 150% for ketone compounds and methylene chloride. Based on this guidance and for purposes of validation, for any analyte for which the LFB recovery was < 50%, the associated sample data were rejected and qualified as unusable (R). For LFB analyte recoveries in the range of 50 - 79%, the associated sample data were qualified as estimated (J). Data qualifiers were not applied to any sample result for which the associated LFB analyte recovery was high (> 150%).

The LFB analyzed 2/5/92 (Lab ID 2/5/92-D) has a %R outside of QC limits for bromoform (77%). Samples Harvey and Eglin III are associated with this LFB. The associated sample data for bromoform are qualified as estimated at the quantitation limit (UJ).

The LFB analyzed 2/12/92 (Lab ID 2/12/92-D) has %Rs outside of QC limits for chloroethane (77%) and bromoform (76%). Samples Hartman III, Trip Blank (2/3/92), Hartman II, Eglin II, and Dede are associated with this LFB. The associated sample data for chloroethane and bromoform are qualified as estimated at the quantitation limit (UJ).

DATA ASSESSMENT

The first LFB analyzed 2/13/92 (Lab ID 2/13/92-D) has a %R outside of QC limits for chloroethane (77%). Samples Equipment Blank, Trip Blank (2/4/92), Gassett FR, Ramsay, and Smith are associated with this LFB. The associated sample data for chloroethane are qualified as estimated at the quantitation limit (UJ).

The second LFB analyzed 2/13/92 (Lab ID 2/13/92-E) has %Rs outside of QC limits for chloromethane (140%) and 1,1,2-trichloroethane (122%). Samples Four Winds I and Gassett are associated with this LFB. The associated sample data for these compounds are not qualified.

Finally, the LFB analyzed 2/15/92 (Lab ID 2/15/92-D) has a %R outside of QC limits for chloroethane (78%). Samples Smith DL, LaPlace DL, and LaPlace FR DL are associated with this LFB. Since this deficiency does not affect the usable sample dilution data, the associated sample data are not qualified.

C) Field Duplicates

Sample CHKAN (Gassett FR) is a blind field replicate of sample Gassett. The relative percent differences (RPDs) between positive data from samples Gassett and Gassett FR are < 20% (acceptable level of precision) for all applicable compounds other than methylene chloride (RPD=36.4%). Methylene chloride data for these samples are negated due to blank contamination, therefore the data do not require qualification. There are no positive BNA compound data for samples Gassett and Gassett FR.

Sample Verde (LaPlace FR) is a blind field replicate of sample LaPlace. The RPDs between positive data from samples LaPlace and LaPlace FR are < 20% (acceptable level of precision) for all applicable compounds. There are no positive BNA compound data for samples LaPlace and LaPlace FR.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

It is appropriate for the data reviewer to make professional judgments and express concerns and comments on the validity of the overall data for a case. This is particularly appropriate when several QC criteria are out of specification. The additive nature of QC factors out of specifications is difficult to assess in an objective manner. The reviewer has a responsibility to inform the person who will use the data about the quality and limitations of the data so that the individual can avoid inappropriate use of the data. This review has, therefore, presented all QC factors that may affect the quality of the data.

DATA ASSESSMENT

Overall, Enseco-East has presented data of good quality and acceptable completeness. There are no indications that the instrument performance has degraded to a point that would affect the quality of the data for this case. In other words, no abrupt, discrete shifts occurred in the chromatogram baselines and minimal baseline drift is observed; inconsequential shifts in the absolute retention times of internal standards are observed.

All of the organic data generated for the samples in this case, aside from the acid extractable semivolatile compound data for sample WAPA, are valid and usable. All of the acid extractable semivolatile compound data for sample WAPA are unusable and rejected due to unacceptably low surrogate recoveries.

Sample data for chloroethane and bromoform are estimated at the quantitation limit due to poor LFB recoveries. All of the positive data for methylene chloride, carbon disulfide, and bis(2-ethylhexyl)phthalate are negated due to blank contamination. Most of the positive data for toluene and some of the total xylenes are negated due to blank contamination. Some data for acetone, di-n-octylphthalate, hexachlorocyclopentadiene, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol are estimated at the quantitation limit due to minor calibration deficiencies. Analytes quantitated using a secondary dilution are qualified as such (D). Validated organic data summary tables (including applicable qualifiers) are provided as Tables A-6 through A-9.

12. CONTRACT PROBLEMS (NON-COMPLIANCE):

The LFBs did not meet all of the method criteria as required. In accordance with the USEPA Method 524.2, revision 3.0, (USEPA 1989) all deficiencies should be located and remedied prior to sample analysis.

The laboratory has failed to provide Form Is for those samples that required dilution in order to accurately quantitate compounds that exceeded the linear range of calibration upon initial analysis. Sample data from secondary dilutions are incorporated into the Form Is that were provided and flagged "D" by the laboratory. In some cases, the laboratory diluted samples prior to the original analysis.

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following Form I(s) are identified to be used:

DATA ASSESSMENT

Some samples in this case required dilution in order to accurately quantitate compounds that exceeded the linear range of calibration. The usable data from the sample dilutions were incorporated into the Form Is provided by the laboratory.

Sample WAPA was re-analyzed due to unacceptably low surrogate recoveries. The Form Is for the initial analysis and the reanalysis were provided by the laboratory.

Region II

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. N/A

SITE Tutu Wells

LABORATORY Enseco-East

NO. OF SAMPLES/ MATRIX 27/Aqueous

SDG# 19656, 19699, 19736

REVIEWER (IF NOT ESD) N/A

SOW# 3/90

REVIEWER'S NAME Cameron S. Dunnan

DPO: ACTION ___ FYI X

COMPLETION DATE April 20, 1992

DATA ASSESSMENT SUMMARY

		VOA	BNA	PEST/PCB
1.	HOLDING TIMES	O	O	N/A
2.	GC/MS TUNE/INSTR. PERFORM.	O	O	N/A
3.	CALIBRATIONS	O	O	N/A
4.	BLANKS	O	O	N/A
5.	SYSTEM MONITORING COMPOUNDS	O	M	N/A
6.	MATRIX SPIKE/DUP	O	X	N/A
7.	OTHER QC	O	N/A	N/A
8.	INTERNAL STANDARDS	O	O	N/A
9.	COMPOUND IDENTIFICATION	O	O	N/A
10.	SYSTEM PERFORMANCE	O	O	N/A
11.	OVERALL ASSESSMENT	O	O	N/A

O = Data had no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: Chloroethane and bromoform data are estimated due to poor laboratory fortified blank (LFB) spike recoveries. Methylene chloride, carbon disulfide, toluene, total xylenes, and bis(2-ethylhexyl)phthalate data re negated due to blank contamination. Some BNA compound data are estimated due to minor calibration deficiencies (percent difference [%Ds]). Analytes quantitated using a secondary dilution are qualified as such (D).

AREAS OF CONCERN: All of the acid extractable semivolatile data for one sample are unusable and rejected due to unacceptably low system monitoring compound (SMC) percent recoveries (%Rs).

NOTABLE PERFORMANCE: Overall, the majority of the data for these sample delivery groups (SDGs) are valid and usable, with the exception of the acid extractable compound data for sample WAPA.

ATTACHMENT NO. 2

U.S. ENVIRONMENTAL PROTECTION AGENCY
STANDARD OPERATING PROCEDURE NO. HW-2
REVISION NO. 8

Title: Evaluation of Metals Data for the Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

1.0 Scope

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 3/90.

2.0 Responsibilities - Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

2.1 For a total review:

2.1.1 Data Assessment - "Total Review - Inorganics" Checklist Appendix (A.1).
The reviewer must answer every question on the checklist.

2.1.2 Data Assessment - Data Assessment Narrative (Appendix A.2)
The answer on the checklist must match the action in the narrative (appendix A.2) and Form I's. Do not use pencil to write the narrative.

2.1.3 Contract Non-Compliance - SMO Report (Appendix A.3)
This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Validation Task Monitor, or Technical Project Officer (TPO). Forward 5 copies: one each for internal files, appropriate Regional TPO, Sample Management Office (SMO) and last two addresses of Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to the end of the Data Assessment Narrative (Sec. A.2.2).

2.1.4 CLP Data Assessment Summary Forms

2.1.4.1 Appendix A.5
Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.4.2 Appendix A.6
Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

2.1.5 Data Review Log:It is recommended that each data reviewer should maintain a log of the reviews completed to include:

a. date of start of case review
b. date of completion of case review
c. site
d. case number
e. contract laboratory
f. number of samples
g. matrix
h. hours worked
i. reviewer's initials

2.1.6 Telephone Record Log - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMO. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.7 Forwarded Paperwork

2.1.7.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:
a. data package.
b. completed data assessment checklist (Appendix A.1, original).
c. SMO Contract Compliance Screening (CCS).
d. Record of Communication (copy).
e. CLP Reanalysis Request/Approval Record (original + 3 copies).
f. Appendix A.6 (original).

2.1.7.2 Forward 2 copies of completed Data Assessment Narrative (Appendix A.2) along with 2 copies of the Inorganic Data Assessment Form (Appendix A.6) and Telephone Record Log, if any,: one each for appropriate Regional TPO, and the other one to EPA EMSL office in Las Vegas. The addresses of TPO's and EPA office in Las Vegas are given in Appendix A-4.

2.1.8 Filed Paperwork - Upon completion of review, the following are to be filed within MMB files:

a. Two copies of completed Data Assessment Narrative (Appendix A.2) each carrying Appendix A.6.
b. Telephone Record Log (copy).
c. SMO Report (copy Appendix A-3).
d. CLP Reanalysis Request/Approval Record (copy).

3.0 Data Completeness - Each data package is checked by a Regional Sample Control Coordinator (RSSC) for completeness. A data package is assumed to be complete when all the deliverables required under the contract are present. If a data package is incomplete, the RSSC would call the laboratory for missing document(s). If the laboratory does not respond within a week, SMO and MMB coordinator of Region II will be notified.

4.0 Rejection Data - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as any review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.

5.0 Acceptance Criteria -In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 (pages 4-25) should be used. Additional guidance can be found in the National Inorganic Functional Guidelines of October 1, 1989.

6.0 SMO Contract Compliance Screening (CCS) - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.

7.0 Request for Reanalysis - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative. If holding times and sample storage

times and sample storage times have not been exceeded, TPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to made on "CLP Re-Analysis Request/Approval Record".

8.0 Record of Communication - Provided by the Regional Sample Control Center (RSCC) to indicate which data packages have been received and are ready to be reviewed.

9.0 Rounding off numbers - The data reviewer will follow the standard practice.

		YES	NO	N/A
A.1.1	**Contract Compliance Screening Report** (CCS) - Present?	[ ]	___	X
	ACTION: If no, request from RSCC.			
A.1.2	**Record of Communication (from RSCC)** - Present?	[ ]	___	X
	ACTION: If no, request from RSCC.			
A.1.3	**Trip Report** - Present and complete?	[ ]	___	X
	ACTION: If no, contact RSCC for trip report.			
A.1.4	**Sample Traffic Report** - Present?	[X]	___	___
	Legible?	[X]	___	___
	ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.5	**Cover Page** - Present?	[X]	___	___
	Is cover page properly filled in and signed by the lab manager or the manager's designee?	[X]	___	___
	ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
	Do numbers of samples correspond to numbers on Record of Communication?	[X]	___	___

	YES	NO	N/A
Do sample numbers on cover page agree with sample number on:			
(a) Traffic Report Sheet?	[X]	___	___
(b) Form I's?	[X]	___	___

ACTION:If no for any of the above, contact RSCC for clarification.

A.1.6 Form I to IX

A.1.6.1 Are all the Form I through Form IX labeled with:

Laboratory name?	[X]	___	___
Case/SAS number?	[___]	___	X
EPA Sample No.?	[X]	___	___
SDG No.?	[X]	___	___
Contract No.?	[X]	___	___
Correct Units?	[X]	___	___
Matrix?	[X]	___	___

ACTION:If no for any of the above, note under Contract Problem/Non-Compliance section if the "Data Assessment Narrative".

		YES	NO	N/A
A.1.6.2	Do any computation/transcription errors exceed 10% of reported values on Forms I-IX for:			
	(Note: Check all forms against raw data.)			
	a) all analytes analyzed by ICP?	___	[X]	___
	b) all analytes analyzed by GFAA?	___	[X]	___
	c) all analytes analyzed by AA Flame?	___	[___]	X
	d) Mercury?	___	[X]	___
	e) Cyanide?	___	[X]	___
	ACTION: If yes, prepare Telephone Log, contact laboratory for corrected data and correct errors with red pencil and initial.			
A.1.7	**Raw Data**			
A.1.7.1	Digestion Log* for flame AA/ICP (Form XIII) present?	[X]	___	___
	Digestion Log for furnace AA Form XIII present?	[X]	___	___
	Distillation Log for mercury Form XIII present?	[X]	___	___
	Distillation Log for cyanides Form XIII present?	[X]	___	___
	Are pH values (pH < 2 for all metals, pH > 12 for cyanide) present?	[___]	X	___
	Percent solids calculation present for soils/sediments?	[___]	___	X
	Are preparation dates present on sample preparation logs/bench sheets?	[X]	___	___

		YES	NO	N/A
A.1.7.2	Measurement read out record present?			
	ICP	[X]	___	___
	Flame AA	[___]	___	X
	Furnace AA	[X]	___	___
	Mercury	[X]	___	___
	Cyanides	[X]	___	___
A.1.7.3	Are all raw data to support all sample analyses and QC operations present?	[X]	___	___
	Legible?	[X]	___	___
	Properly Labeled?	[X]	___	___

ACTION:If no for any of the above questions in sections A.1.7.1 through A.1.7.3, write Telephone Record Log and contact laboratory for resubmittals.

A.1.8 **Holding Times** - (aqueous and soil samples)

(Examine sample traffic reports and digestion/distillation logs)

Mercury analysis (28 days).....exceeded?	___	[X]	___
Cyanide distillation (14 days).....exceeded?	X	[___]	___
Other Metals analysis (6 months).....exceeded?	___	[X]	___

		YES	NO	N/A
	NOTE:Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of preparation (from raw data). Attach to checklist.			
	ACTION:If yes, reject (red-line) values less than instrument Detection Limit (IDL) and flag as estimated (J) the values above IDL even though sample(s) was preserved properly.			
A.1.8.2	Is pH of aqueous samples for: Metals Analysis >2?	___	[X]	___
	Cyanides Analysis <12?	___	[X]	___
	ACTION:If yes, flag the associated metals and cyanides data as estimated.			
A.1.9	**Form I (Final Data)**			
A.1.9.1	Are all form I's present and complete?	[X]	___	___
	ACTION:If no, prepare telephone record log and contact laboratory for submittal.			
A.1.9.2	Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	[X]	___	___
	Are soil sample results for each parameter corrected for percent solids?	[___]	___	X
	Are all "less than IDL" values properly coded with "U"?	[X]	___	___
	Are the correct concentration qualifiers used with final date?	[X]	___	___

		YES	NO	N/A
	ACTION: If no for any of the above, prepare Telephone Record Log, and contact laboratory for corrected data.			
A.1.9.3	Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	[X]	___	___
	Was a brief physical description of samples given on Form I's?	[X]	___	___
	Was the dilution of any sample diluted beyond the requirements of the contract noted on Form I or Form XIV?	___	[___]	X
	ACTION: If no for any of the above, note under Contract-Problem/Non-Compliance of the "Data Assessment Narrative".			
A.1.10	**Calibration**			
A.1.10.1	Is record of at least 2 point calibration present for ICP analysis?	[X]	___	___
	Is record of 5 point calibration present for Hg analysis?	[X]	___	___
	Is record of 4 point calibration present for:			
	Flame AA?	[___]	___	X
	Furnace AA?	[X]	___	___
	Cyanides?	[X]	___	___

	YES	NO	N/A
Is one calibration standard at the CRDL level for all AA (except Hg) and cyanides analyses?	[X]	___	___

ACTION: If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

A.10.2 Is correlation coefficient less than 0.995 for:

Mercury Analysis?	___	[X]	___
Cyanide Analysis?	___	[X]	___
Atomic Absorption Analysis?	___	[X]	___

ACTION: If yes, flag the associated data as estimated.

NOTE: The data validator shall calculate the correlation coefficient using concentrations of the standards and the corresponding instrument response (e.g. absorbance, peak area, peak height, etc.).

A.1.10.3 In the instance where less than 4 standards are measured in absorbance (or peak area, peak height, etc.) mode, are the remaining standards analyzed in concentration mode immediately after calibration with ±10% of the true values?	[___]	___	X

ACTION: If no, flag the associated data as estimated if standards are not within ±10% of true values. Do not flag the data as estimated in linear range indicated by good recovery of standard(s).

		YES	NO	N/A
A.1.11	**Form II A (Initial and Continuing Calibration Verification) -**			
A.1.11.1	Present and complete for every metal and cyanide?	[X]	___	___
	Present and complete for AA and ICP when both are used for the same analyte?	[___]	___	X

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.11.2 Circle on each Form IIA all percent recoveries that are outside the contract windows.
Are all calibration standards (initial and continuing) within control limits:

Metals - 90-110%R?	[X]	___	___
Hg - 80-120%R?	[X]	___	___
Cyanides - 85-115%R?	[X]	___	___

ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard with %R between 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ) if the ICV or CCV %R is 75-89% (CN, 70-84%; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or as unacceptable data if recovery of the ICV or CCV is outside the range 75-125% (CN, 70-130%, Hg, 65-135%). Qualify five samples on either side of verification standard out of control limits.

		YES	NO	N/A
A.1.11.3	Was continuing calibration performed every 10 samples or every 2 hours?	[X]	___	___
	Was ICV for cyanides distilled?	[X]	___	___

ACTION: If no for any of the above, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.12 Form II B (CRDL Standards for AA and ICP) -

A.1.12.1	Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?	[X]	___	___
	Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis?	[X]	___	___
	Was a 2XCRDL (or 2XIDL when IDL>CRDL) analyzed (CRI) for each ICP run?	[X]	___	___

(Note: CRI for AL, Ba, Ca, Fe, Mg, Na, or K is not required.)

ACTION:If no for any of the above, flag as estimated all data falling within the effected ranges. The effected ranges are:

AA Analysis - ** True Value $\pm$ CRDL
ICP Analysis - ** True Value $\pm$ 2CRDL
CN Analysis - ** True Value $\pm$ 0.5 x True Value.

** True value of CRA, CRI or mid-range standard. Substitute IDL for CRDL when IDL > CRDL. Compute the concentration of the missing mid-range standard from the calibration range.

		YES	NO	N/A
A.1.12.2	Was CRI analyzed after ICV/ICB and before the final CCV/CCB, and twice every eight hours of ICP run?	[X]	___	___

ACTION:If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".

A.1.12.3 Circle on each Form IIB all the percent recoveries that are outside the acceptance windows.

Are CRA and CRI standards within control limits:

Metals 80 - 120 %R?	[___]	X	___

Is mid-range standard within control limits:

Cyanide 80 - 120%R?	[X]	___	___

ACTION:Flag as estimated all sample results within the affected range if the recovery of the standard is between 50-79%; flag only positive data within the affected range if the recovery is between 121-150%; reject all data within the affected range if the recovery is less than 50%; reject only positive data within the affected range if the recovery is greater than 150%. Qualify 50% of the samples on either side of CRI standard outside the control limits.

Note:Flag or reject the final results only when sample raw data are within the affected ranges and the CRDL standards are outside the acceptance windows.

		YES	NO	N/A
A.1.13	**Form III (Initial and Continuing Calibration Blanks)**			
A.1.13.1	Present and complete?	[X]	___	___
	For both AA and ICP when both are used for the same analyte?	[___]	___	X
	Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	[X]	___	___
	ACTION: If no, prepare Telephone Record Log, contact laboratory and write in the Contract-Problems/ Non-Compliance section of the "Data Assessment Narrative".			
A.1.13.2	Circle on each Form III all calibration blank values that are above CRDL (or 2 x IDL when IDL > CRDL).			
	Are all calibration blanks (when IDL<CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	[X]	___	___
	Are all calibration blanks less than two times instrument Detection Limit (when IDL>CRDL)?	[___]	___	X
	ACTION: If no for any of the above, flag as estimated (J) positive sample results when raw sample value is less than or equal to calibration blank value analyzed between calibration blank with value over CRDL (or 2XIDL) and nearest good calibration blank. Flag five samples on either side of the calibration blank outside the control limits.			

		YES	NO	N/A
A.1.14	**FORM III (Preparation Blank)** -			
	(Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.14.1	Was one prep. blank analyzed for:			
	each Sample Delivery Group (SDG)?	[X]	___	___
	each batch of digested samples?	[X]	___	___
	each matrix type?	[___]	___	X
	both AA and ICP when both are used for the same analyte?	[___]	___	X
	ACTION: If no for any of the above, flag as estimated (J) all the associated positive date < 10 x IDLs for which prep. blank was not analyzed.			
	NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.14.2	Is concentration of prep. blank value greater than the CRDL when IDL is less than or equal to CRDL?	___	[X]	___
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep. blank?	___	[___]	X

		YES	NO	N/A
	ACTION:If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value.			
A.1.14.3	Is concentration of prep. blank value (Form III) less than two time IDL, when IDL is greater than CRDL?	[__]	__	X
	ACTION: If no, reject (red-line) all positive sample results when sample raw are less than 10 times the prep. blank value.			
A.1.14.4	Is concentration of prep. blank below the negative CRDL?	__	[X]	__
	ACTION: If yes, reject (red-line) all associated sample results less than 10xCRDL.			
A.1.15	**Form IV (ICP Interference Check Sample)**			
A.1.15.1	Present and complete?	[X]	__	__
	(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)			
	Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	[X]	__	__
	ACTION: If no, flag as estimated (J) all the samples for which AL, Ca, Fe, or Mg is higher than in ICS.			
A.1.15.2	Circle all values on each Form IV that are more than ± 20% of true or established mean value.			

	YES	NO	N/A
Are all Interference Check Sample results inside the control limits (± 20%)?	[X]	___	___
If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?	[___]	___	X

ACTION:If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").

A.1.16 **Form V A (Spiked Sample Recovery - Pre-Digestion/Pre-Distillation** - (**Note**: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only).

A.1.16.1 Present and complete for: each SDG?	[X]	___	___
each matrix type?	[___]	___	X
each conc. range (i.e. low, med., high)?	[___]	___	X
For both AA and ICP when both are used for the same analyte?	[___]	___	X

ACTION: If no for any of the above, flag as estimated (J) all the positive data less than four times the spiking levels specified in SOW for which spiked sample was not analyzed.

NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).

		YES	NO	N/A
A.1.16.2	Was field blank used for spiked sample?	___	[X]	___
	ACTION:If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.			
A.1.16.3	Circle on each Form VA all spike recoveries that are outside control limits (75% to 125%).			
	Are all recoveries within control limits?	[___]	X	___
	If no, is sample concentration greater than or equal to four times spike concentration?	[___]	X	___
	ACTION:If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.			
	Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	[X]	___	___
	ACTION: If no, write, in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative".			

	YES	NO	N/A
A.1.16.4 Aqueous			
Are any spike recoveries:			
(a) less than 30%?	___	[X]	___
(b) between 30-74%?	X	[ ]	___
(c) between 126-150%?	___	[X]	___
(d) greater than 150%?	___	[X]	___

ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".

A.1.16.5 Soil/Sediment			
Are any spike recoveries:			
(a) less than 10%?	___	[ ]	X
(b) between 10-74%?	___	[ ]	X
(c) between 126-200%?	___	[ ]	X
(d) greater than 200%?	___	[ ]	X

ACTION:If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".

	YES	NO	N/A
A.1.17 Form VI (Lab Duplicates)			
A.1.17.1 Present and complete for: each SDG?	[X]	___	___
each matrix type?	[___]	___	X
each concentration range (i.e. low, med., high)?	[___]	___	X
both AA and ICP when both are used for the same analyte?	[___]	___	X

ACTION: If no for any of the above, flag as estimated (J) all the data ≥CRDL* for which duplicate sample was not analyzed.

Note:
1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated.
2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in ug/L on wet weight basis and calculate RPD or Difference for each analyte.

A.1.17.2 Was field blank used for duplicate analysis?	___	[X]	___

ACTION:If yes, flag all data ≥CRDL* as estimated (J) for which field blank was used as duplicate.

A.1.17.3 Are all values within control limits (RPD 20% or difference ≤ ±CRDL)?	[___]	X	___

	YES	NO	N/A
If no, are all results outside the control limits flagged with an * on Form I's and VI?	[X]	___	___

ACTION:If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".

* Substitute IDL for CRDL when IDL > CRDL.

NOTE:
1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.
2. If the result of lab duplicate analyzed by GFAA is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria to metals analyzed by GFAA.

A.1.17.4 Aqueous

Circle on each Form VI all values that are:
RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[X]	___
Is any difference** between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	X	[ ]	___

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

	YES	NO	N/A

ACTION: If yes, flag the associated data as estimated.

A.1.17.5 Soil/Sediment

Circle on each Form VI all values that are:

RPD > 100% or

Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL):

> 100%? ___ [___] X

Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL):

> 2x*CRDL? ___ [___] X

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

ACTION: If yes, flag the associated data as estimated.

A.1.18 Field Duplicates

A.1.18.1 Were field duplicates analyzed? [X] ___ ___

	YES	NO	N/A

ACTION: If yes, prepare a Form VI for each aqueous field duplicate pair. Prepare a Form VI for each soil duplicate pair, if percent solids for sample and its duplicate differ by more than 1%; report concentrations of soils in ug/l on wet weight basis and calculate RPDs or Difference for each analyte.

NOTE:
1. Do not calculate RPD when both values are less than IDL.
2. Flag all associated data only for field duplicate pair.

A.1.18.2 Aqueous

Circle all values on self prepared Form VI for field duplicates that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[X]	___
Is any **difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[X]	___

ACTION: If yes, flag the associated data as estimated.

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

	YES	NO	N/A

A.1.18.3 Soil/Sediment

Circle all values on self prepared From VI for field duplicates that are:

RPD >100%, or
Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both greater than 5 times *CRDL):

>100%?	___	[___]	X

Is any **difference between sample and duplicate (where sample an/or duplicate is less than 5x *CRDL):

>2x *CRDL?	___	[___]	X

ACTION: If yes, flag the associated data as estimated.

A.1.19 Form VII (Laboratory Control Sample) (Note: LCS - not required for aqueous Hg and cyanide analyses.)

A.1.19.1 Was one LCS prepared and analyzed for:

each SDG?	[X]	___	___
each batch samples digested/distilled?	[X]	___	___
both AA and ICP when both are used for the same analyte?	[___]	___	X

	YES	NO	N/A

ACTION:If no for any of the above, prepare Telephone Record Log and contact laboratory for submittal of results of LCS. Flag as estimated (J) all the data for which LCS was not analyzed.

NOTE:If only one LCS was analyzed for more than 20 samples, then first 20 samples close to LCS do not have to be flagged as estimated.

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

A.1.19.2 Aqueous LCS

Circle on each Form VII the LCS percent recoveries outside control limits (80 - 120%) except for aqueous Ag and Sb.

Is any LCS recovery:	less than 50%?	___	[X]	___
	between 50% and 79%	___	[X]	___
	between 121% and 150%?	___	[X]	___
	greater than 150%?	___	[X]	___

ACTION:Less than 50%, reject (red-line) all data; between 50% and 79%, flag all associated data as estimated (J); between 121% and 150%, flag all positive (not flagged with a "U") results as estimated; greater then 150%, reject all positive results.

	YES	NO	N/A

A.1.19.3 Solid LCS

NOTE:

1. If "Found" value of LCS is rejectable due to duplicate injections or analytical spike recovery criteria, regardless of LCS recovery, flag the associated data as estimated (J).
2. If IDL of an analyte is equal to or greater than true value of LCS, disregard the "Action" below even though LCS is out of control limits.

Is LCS "Found" value higher than the control limits on Form VII? ___ [___] X

ACTION:If yes, qualify all associated positive data as estimated.

Is LCS "Found" value lower than the Control limits on Form VII? ___ [___] X

ACTION:If yes, qualify all associated data as estimated.

A.1.20 Form IX (ICP Serial Dilution) -

NOTE:Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.

		YES	NO	N/A
A.1.20.1	Was Serial Dilution analysis performed for:			
	each SDG?	[X]	___	___
	each matrix type?	[___]	___	X
	each concentration range (i.e. low, med.)?	[___]	___	X
	ACTION:If no for any of the above, flag as estimated all the positive data ≥ 10xIDLs or ≥ CRDL when 10xIDL ≤ CRDL for which Serial Dilution Analysis was not performed.			
A.1.20.2	Was field blank(s) used for Serial Dilution Analysis?	___	[X]	___
	ACTION:If yes, flag all associated data ≥ 10 x IDL as estimated (J). If 10xIDL ≤ CRDL, flag all data ≥ CRDL.			
A.1.20.3	Are results outside control limit flagged with an "E" on Form I's and Form IX when initial concentration on Form IX is equal to 50 times IDL or greater.	[X]	___	___
	ACTION:If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.20.4	Circle on each From IX all percent difference that are outside the control limits for initial concentrations equal to or greater than 10 x IDLs only.			
	Are any % difference values:			
	> 10%	X	[___]	___
	≥ 100%	___	[X]	___

		YES	NO	N/A
	ACTION:Flag as estimated (J) all the associated sample data ≥ 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which percent difference is greater than 10% but less than 100%. Reject (red-line) all the associated sample results equal to or greater than 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which PD is greater than or equal to 100%.			
	NOTE:Flag or reject on Form I's only the sample results whose associated raw data are ≥ 10xIDL (or ≥ CRDL) when 10xIDL≤ CRDL).			
A.1.21	**Furnace Atomic Absorption (AA) QC Analysis**			
A.1.21.1	Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	[X]	___	___
	ACTION:If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.21.2	Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient or Variation (CV) for concentration greater than CRDL?	[X]	___	___
	Was a dilution analyzed for sample with analytical spike recovery less than 40%?	[___]	___	X
	ACTION:If no for any of the above, flag all the associated data as estimated.			
A.1.21.3	Is *analytical spike recovery outside the control limits (85-115%) for any sample?	X	[___]	___

* Analytical spike is not required on the pre-digestion spiked sample.

		YES	NO	N/A
	ACTION: If yes, flag as estimated the affected sample results if the recovery is between 10-84%; if the recovery is between 115-120%, flag the associated positive sample results as estimated; reject the associated sample results if the recovery is less than 10%; reject positive sample results if the recovery is greater than 200%.			
	NOTE: Reject or flag the data only when the affected sample(s) was not subsequently analyzed by Method of Standard Addition.			
A.1.22	**Form VIII (Method of Standard Addition Results)**			
A.1.22.1	Present?	[X]	___	___
	If no, is any Form I result coded with "S" or a "+"?	___	[___]	X
	ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.22.2	Is coefficient of correlation for MSA less than 0.990 for any sample?	___	[X]	___
	ACTION: If yes, reject (red-line) the affected data.			
A.1.22.3	Was *MSA required for any sample but not performed?	___	[X]	___
	Is coefficient of correlation for MSA less than 0.995?	X	[___]	___
	Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?	___	[X]	___
	ACTION: If yes for any of the above, flag all			

		YES	NO	N/A
A.1.22.4	Was proper quantitation procedure followed correctly as outlined in the SOW on page E-23?	[X]	___	___
	ACTION:If no, note exception under Contract Problem/ Non-Compliance section of the "Data Assessment Narrative", and prepare a separate list.			

* MSA is not required on LCS and prep. blank.

A.1.23 **Dissolved/Total or Inorganic/Total Analytes -**

A.1.23.1	Were any analyses performed for dissolved as well as total analytes on the same sample(s).	___	[X]	___
	Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	___	[X]	___

NOTE:
1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration.
2. Apply the following questions only inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents.
3. At least one preparation blank, ICS, and ICS should be analyzed in each analytical run.

A.1.23.2	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	___	[___]	X

	YES	NO	N/A

ACTION: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.

A.1.24 **Form I (Field Blank)** -

Note: Designate "Field Blank" as such on Form I.)

A.1.24.1 Circle all field blank values on Form I that are greater than CRDL, (2 x IDL when IDL > CRDL).

Is field blank concentration less than CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples?	[__]	X	__
If no, was field blank value already rejected due to other QC criteria?	[__]	X	__

ACTION:If no, reject (except field blank results) all associated positive sample data less than or equal to five times the field blank value. Reject on Form I's the soil sample results that when converted to ug/L on wet basis are less than or equal to five times the field blank value in ug/L.

	YES	NO	N/A
A.1.25 From X, XI, XII (Verification of Instrumental Parameters)			
A.1.25.1 Is verification report present for:			
Instrument Detection Limits (quarterly)?	[X]	___	___
ICP Interelement Correction Factors (annually)?	[X]	___	___
ICP Linear Ranges (quarterly)?	[X]	___	___
ACTION:If no, contact TPO of the lab.			
A.1.25.2 Form X (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)			
A.1.25.2.1 Are IDLS present for:			
all the analytes?	[X]	___	___
all the instruments used?	[___]	___	X
For both AA and ICP when both are used for the same analyte?	[___]	___	X
ACTION:If no for any of the above, prepared Telephone Record Log and contact laboratory.			
A.1.25.2.2 Is IDL greater than CRDL for any analyte?	___	[X]	___
If yes, is the concentration on Form I of the sample analyzed on the instrument whose IDL exceeds CRDL, greater than 5 x IDL.	[___]	___	X

	YES	NO	N/A
ACTION;If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.			
A.1.25.3 Form XI (Linear Ranges)			
A.1.25.3.1 Was any sample result higher than high linear range of ICP?	___	[X]	___
Was any sample result higher than the highest calibration standard for non-ICP parameters?	___	[X]	___
If yes for any of the above, was the sample diluted to obtain the result on Form I?	[___]	___	X

ACTION:If no, flag the result reported on Form I as estimated (J).

A.1.26 Percent Solids of Sediments

A.1.26.1 Are percent solids in sediment(s):			
< 50%?	___	[___]	X
< 10%?	___	[___]	X

ACTION:If yes, qualify as estimated all the results of a sample that has percent solids between 10% - 50% (i.e. moisture content between 50% - 90%). Reject all the results of a sample that has percent solids less than 10% (i.e. moisture content greater then 90%). Reject all the results of a sample that has percent solids less than 10% (i.e. moisture content greater than 90%).

NOTE:Reject or flag (J) only the sample results that were not previously rejected or flaged due to other QC criteria.

Case# N/A **Site** Tutu Wells **Matrix: Soil** ____

SDG# 19656, 19699, 19736 **Lab** Enseco-East **Water** X

Contractor Geraghty & Miller **Reviewer** Cameron S. Dunnan **Other** __

A.2.1 Validation Flags - The following flags have been applied in red by the data validator and must be considered by the data user.

J - This flag indicates the result qualified as estimated.

Red - Line - A red-line drawn through a sample result indicates unusable value. The red-lined data are known to contain significant error based on documented information and must not be used by the data user.

Fully Usable Data - The results that do not carry "J" or "red-line" are fully usable.

Contractual Qualifiers - The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0.

A.2.2 The data assessment is given below:

Total metals and cyanide were analyzed and according to methodology contained in the March 1990 USEPA CLP SOW (USEPA 1990b), for the target analyte list (TAL). This validation was performed in accordance with the USEPA Region II checklist for the Evaluation of Metals Data for the CLP (USEPA 1992b). Qualification or rejection of data are based on guidance dictated by the SOP.

The following brief discussion presents only those QC criteria (and the appropriate, associated qualification, if required) that do not meet the requirements dictated by the CLP SOW and the SOP. If a particular area of review is not addressed (e.g., calibration), it can be assumed that all applicable QC criteria are met and that the associated data do not require qualification. If it is necessary to qualify data as estimated in the case where the

laboratory has already flagged the corresponding data with "E", "N", or "W"; the laboratory qualifier is removed and replaced with the "J" validation qualifier. Laboratory qualifiers are left intact when the associated data are not qualified for validation purposes or in the case when the associated result was determined by the method of standard additions (MSA) and qualified "S". Validated inorganic data summary tables (including applicable qualifiers) are provided as Tables A-10 and A-11.

The technical holding time from sample collection date to cyanide analysis was exceeded by one day for sample delivery group (SDG) 19656. Consequently, all of the non-detect cyanide data for samples Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, and Harvey are unusable and rejected (R). A holding summary for metals and cyanide analyses is provided as Table A-5.

The percent recovery (%R) of the contract required detection limit (CRDL) standard for the inductively coupled plasma (ICP) analysis of beryllium (CRI %R for beryllium = 122%) is outside of quality control (QC) limits (80 to 120%). SDG 19736 is associated with this deficiency. Beryllium was undetected in all of the associated sample data, therefore the associated data are not qualified.

The %R of the CRDL standard for the graphite furnace atomic absorption (GFAA) analysis of lead (CRA %R for lead = 73.3%) is outside of QC limits (80 to 120%). Again, SDG 19736 is associated with this deficiency. The lead data for samples LaPlace, LaPlace FR, Leonard, and WAPA are qualified as estimated (J) or estimated at the detection limit (UJ).

The spike sample recovery analysis was performed on sample Rodriguez. The spiked sample recovery of thallium (65.2%) is outside of QC limits (75 to 125%). All of the samples in this case (SDGs 19656, 19699, and 19736) are associated with this deficiency. All of the associated data for thallium are qualified as estimated at the corresponding detection limit (UJ).

The laboratory duplicate analysis was performed on sample Rodriguez. The difference between the original and duplicate analysis for iron exceeds the QC criterion ($\pm$ CRDL). All of the samples in this case are associated with this QC deficiency; therefore all of the data for iron are qualified as estimated (J).

For the ICP serial dilution analysis performed on sample Gassett (SDG 19699), the percent difference (%D) between results for aluminum (%D = 22.5%) and zinc (%D = 15.3%) exceed the corresponding QC limit (10 %D). SDG 19699 (includes Enseco-East Projects 19699 and 197711) is associated with these deficiencies. All of the associated aluminum data that are greater than ten times (>10x) the instrument detection limit (IDL) for aluminum are qualified as estimated (J). The associated zinc data greater than the CRDL (for zinc) are qualified as estimated (J). In the case where the associated zinc data are < CRDL, the laboratory "E" qualifier is not removed.

The correlation coefficient (r) from the first MSA analysis for selenium (0.993) for sample Eglin I is outside of the QC limit (< 0.995). The analysis was performed again yielding an acceptable coefficient of correlation. The results obtained from each MSA analysis were averaged by the laboratory and reported as such. The sample result for selenium has been corrected by the data reviewer to reflect the result obtained from the second MSA analysis for sample Eglin I, which yielded an acceptable correlation coefficient (r = 0.999).

The following table summarizes the post-digestion spike %Rs outside of QC limits (85 to 125%) for the indicated samples and parameters:

Sample Identifier	Lead (%R)	Selenium (%R)	Thallium (%R)
Eglin I	71.0	--	73.5
Eglin II	--	--	78.5
Eglin III	75.5	--	62.5
Harvey	80.5	--	77.0
Hartman II	--	--	76.0
Hartman III	--	--	73.5
Steele	79.5	--	63.5
Ramsay	--	78.0	69.5
Four Winds I	--	--	68
Four Winds II	--	--	70
Gassett	--	--	69.5
Gassett FR	--	--	62
Rodriguez	--	79.0	61

Sample Identifier	Lead (%R)	Selenium (%R)	Thallium (%R)
Dede	--	78.0	62
Smith	--	74.0	67.5
Matthias	--	60.0	60.5
Tillett	--	--	66.5
LaPlace	--	--	72
LaPlace FR	--	84	69.5
Leonard	--	84	63.5
WAPA	--	--	67.5

All of the sample data associated with the spike recovery outliers are qualified as estimated (J) or estimated at the detection limit (UJ).

The field blank (sample Equipment Blank) is reported to contain 205 micrograms per liter (ug/L) of iron and this result is not negated or rejected based on other QC criteria. Therefore, all of the positive, associated data for iron in samples Gassett and Gassett FR, for which the concentration is detected <5x the concentration detected in sample Equipment Blank, are unusable and rejected (R).

Sample CHKAN (Gassett FR) is a blind field replicate of sample Gassett and sample Verde (LaPlace FR) is a blind field replicate of sample LaPlace. The RPDs between results from the field replicate analyses are summarized in the Form VI equivalents which are provided at the end of Attachment 3 (Tables). The metals and cyanide data for this case do not require qualification based on the information obtained from the field replicate analyses.

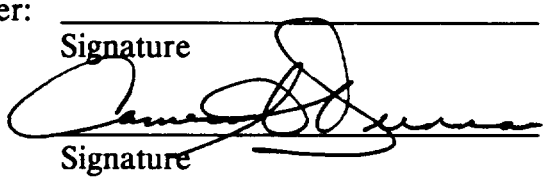
It is appropriate for the data reviewer to make professional judgments and express concerns and comments on the validity of the overall data for a case. This is particularly appropriate when several QC criteria are out of specification. The additive nature of QC factors out of specifications is difficult to assess in an objective manner. The reviewer has a responsibility to inform the person who will use the data about the quality and limitations of the data so that the individual can avoid inappropriate use of the data. This review has, therefore, presented all QC factors that may affect the quality of the data.

Overall, Enseco-East has provided data of acceptable quality and completeness. There are no indications that the instrument performance has degraded to a point that would affect the quality of the data for this case. All of the metals and cyanide data generated for the samples in this case, aside from a proportion of sample data for iron and cyanide, are valid and usable. The cyanide data for SDG 19656 are unusable and rejected because the technical holding times (from collection to analysis) were exceeded. In addition, the iron data for samples Gassett and Gassett FR are unusable and rejected due to excessive iron contamination in the field blank (sample Equipment Blank). All of the valid iron data are estimated as a result of poor precision in the laboratory duplicate analysis. Most of the inorganic data derived from GFAA analyses are estimated due to poor post-digestion spike recoveries. All of the thallium data are estimated due to low sample spike recovery. Some data for aluminum and zinc are estimated due to poor reproducibility in the ICP serial dilution analysis. Validated inorganic data summary tables (including applicable qualifiers) are provided as Tables A-10 and A-11.

A.2.3 Contract-Problem/Non-Compliance:

The pH values (pH < 2 for all metals, pH > 12 for cyanide) are not included on the Form XIIIs (preparation logs), although the pH values are documented in the raw data.

MMB/ESAT Reviewer: _____ Date: _____
Signature

Contract Review:  Date: 5/15/92
Signature

Verified by: Lidya Gulizia/TVD Date: 5/15/92
Signature

CONTRACT NON-COMPLIANCE
(SMO REPORT)
Regional Review of Uncontrolled Hazardous Waste
Site Contract Laboratory Data Package

CASE NO._____

The hardcopied (laboratory name) _____
Inorganic data package received at Region II has been reviewed and the quality assurance and performance data summarized. The data reviewed included:
SMO Sample No.:_____

Conc. & Matrix:_____

Contract No. (_____) requires that specific analytical work be done and that associated reports be provided by the contract to the Regions, EMSL-LV, and SMO. The general criteria used to determine the performance were based on an examination of:

- Data completeness
- Matrix Spike Results
- Calibration Standards Results
- Duplicate Analysis Results
- Blank Analysis Results
- MSA Results

Items of non-compliance with the above contract are described below.

Comments:_____

_____

_____

_____

_____ _____
Reviewer's Initial Date

DPO/DRILLING LIST FOR DRILL REVIEWERS

1. USEPA Region I (ESD)
60 Westview Street
Lexington, MA 02173
Dat Szaro
(617) 861-4312
CT, ME, MA, NH, RI, VI
CAA, Resource Analysts, York
EJI, Skinner, TMA

2. USEPA Region II (ESD)
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NJ, NY, PR, VI
Century, Chemtech, US Trust,
ETC, Gadson, EMS, Galson, ICM

3. USEPA Region III (CRL)
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Cantec, Mitrah, JTC, MACK, VERSAR
ITAS, Weston, MIS, EA Engineering
Subject Tech, Key PA

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TN, Compuchem, EPS, ESI,
EPS, ESI, PR567, Triangle Labs

5. USEPA Region V (ESD)
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6. USEPA Region VI (ESD)
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CD, ND, SD, UT, WY, MI
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9. USEPA Region IX (ESD)
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Quam Trust Territories of Pacific
Islands, Wake Island
ALI, CAL Weston, S-Cubed, IT-CA,
Vegas

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Gerald Muth
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AX, ID, OR, WA,
Lauchs Testing Labs, Century
Testing Labs for (VOA Only),
Weyerhauser Co.
Columbia Testing, Silver Valley

11. Carla Dempsey - (D6-230)
USEPA
401 "M" Street, S.W.
Washington, DC 20460
FTS 362-5746

12. Edward Kantor
USEPA
DMSL-LV
944 E. Harmon Avenue
Box 93478
Las Vegas, NV 89119

13. Sample Management Office
VIAR and Company
P.O. Box 818
Alexandria, VA 22117

Title: Evaluation of Metals Data for the Contract Laboratory Program Appendix A.5 CLP Data Assessment Summary Form (Inorganics)

Date: Jan. 1992
Number: HW-2
Revision: 11

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

Scope of Review: Total Date: April 1992 Case#: N/A

SDG: 19656, 19699, 19736 Lab Name: Enseco-East

Reviewer's Initials: CSD Number of Samples: 23

	Holding Times	Calibration	Prep Blank	Field Blank	Inter-ferences	Spike Limits	Spike Recovery	Duplicate Lab Field	Duplicate Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
ICP	414	485	72	18	36	X	14	54	54	54	54	X	1255	2
Flame AA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Furnace AA	92	19	12	4	X	4	96	12	12	12	X	3	266	0
Mercury	23	17	4	1	X	X	1	3	3	4	X	X	56	0
Cyanide	23	19	4	1	X	X	1	3	3	4	X	X	58	6
Total	552	540	92	24	36	4	112	72	48	74	54	3	1635	8

Analytes Flagged as Estimated (J) Due to Exceeding Criteria For:

	Holding Times	Calibration	Prep Blank	Field Blank	Inter-ferences	Spike Limits	Spike Recovery	Duplicate Lab Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
ICP	X	X	X	2*	X	X	X	23	X	X	11	X	36	2
Flame AA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Furnace AA	X	X	X	X	X	32	X	X	X	X	X	1	33	X
Mercury	X	X	X	X	X	X	X	X	X	X	X	X	0	X
Cyanide	6*	X	X	X	X	X	X	X	X	X	X	X	6	6
Total	6	0	0	2	0	0	32	23	0	0	11	1	75	8

Note: *Asterisk (*) Indicates additional exceedances of review criteria.*

Title: Evaluation of Metals Data for the Contract Laboratory Program Appendix A.5 CLP Data Assessment Summary Form (Inorganics)

Date: Jan. 1992
Number: HW-2
Revision: 11

INORGANIC REGIONAL DATA ASSESSMENT Region II

CASE NO. N/A

SITE Tutu Wells

LABORATORY Enseco-East

NO. OF SAMPLES/ MATRIX 23/Aqueous

SDG# 19656, 19699, 19736

REVIEWER (IF NOT ESD) N/A

SOW# ILM.01, March 1990

REVIEWER'S NAME Cameron S. Dunnan

DPO: ACTION _____ FYI X

COMPLETION DATE April 1992

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES	0	0	0	M
2.	CALIBRATIONS	0	0	0	0
3.	BLANKS	M	0	0	0
4.	ICS	0	0	0	0
5.	LCS	0	0	0	0
6.	DUPLICATE ANALYSIS	0	0	0	0
7.	MATRIX SPIKE	0	0	0	0
8.	MSA	0	0	0	0
9.	SERIAL DILUTION	0	0	0	0
10.	SAMPLER VERIFICATION	0	0	0	0
11.	OTHER QC	0	0	0	0
12.	OVERALL ASSESSMENT	0	0	0	0

O = Data has no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: All of the valid iron data are estimated due to poor precision in the laboratory duplicate analysis. Most of the data derived from atomic absorption analyses are estimated due to poor post-digestion spike recoveries. All of the thallium data are estimated due to poor reproducibility in the inductively coupled plasma (ICP) serial dilution analysis.

AREAS OF CONCERN: Iron was detected above the contract required detection limit (CRDL) in the field blank. The associated data for iron are rejected (R).

TABLE PERFORMANCE: Overall, Enseco-East has provided data of good quality and acceptable completeness.

ATTACHMENT NO. 3

TABLES

Table A–1. Volatile Organic Analysis Holding Time Compliance Summary for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Sample Identifier	Matrix	Preserved	Date Collected	Date Received	Date Analyzed	Days from Collection to Analysis	Days Holding Time Exceeded
Hartman III	aqueous	yes	03–Feb–92	04–Feb–92	12–Feb–92	9	0
Trip Blank	aqueous	yes	03–Feb–92	04–Feb–92	12–Feb–92	9	0
Harman II	aqueous	yes	03–Feb–92	04–Feb–92	12–Feb–92	9	0
Harvey	aqueous	no	03–Feb–92	04–Feb–92	05–Feb–92	2	0
Eglin I	aqueous	yes	03–Feb–92	04–Feb–92	12–Feb–92	9	0
Eglin II	aqueous	yes	03–Feb–92	04–Feb–92	12–Feb–92	9	0
Eglin III	aqueous	no	03–Feb–92	04–Feb–92	05–Feb–92	2	0
Steele	aqueous	no	04–Feb–92	05–Feb–92	06–Feb–92	2	0
Ramsay	aqueous	yes	04–Feb–92	05–Feb–92	13–Feb–92	9	0
Four Winds I	aqueous	yes	04–Feb–92	05–Feb–92	13–Feb–92	9	0
Four Winds II	aqueous	yes	04–Feb–92	05–Feb–92	7–Feb–92	3	0
Gassett	aqueous	yes	04–Feb–92	05–Feb–92	13–Feb–92	9	0
Equipment Blank	aqueous	yes	04–Feb–92	05–Feb–92	13–Feb–92	9	0
Water Blank	aqueous	yes	04–Feb–92	05–Feb–92	14–Feb–92	10	0
Trip Blank	aqueous	yes	04–Feb–92	05–Feb–92	13–Feb–92	9	0
Gassett FR	aqueous	yes	04–Feb–92	05–Feb–92	13–Feb–92	9	0
Rodriguez	aqueous	no	05–Feb–92	06–Feb–92	08–Feb–92	3	0
Dede	aqueous	yes	05–Feb–92	06–Feb–92	12–Feb–92	7	0
Smith	aqueous	yes	05–Feb–92	06–Feb–92	13–Feb–92	8	0
Matthias	aqueous	no	05–Feb–92	06–Feb–92	08–Feb–92	3	0
Tillett	aqueous	no	05–Feb–92	06–Feb–92	09–Feb–92	4	0
Trip Blank	aqueous	yes	05–Feb–92	06–Feb–92	14–Feb–92	9	0
Trip Blank	aqueous	yes	06–Feb–92	07–Feb–92	14–Feb–92	8	0
Leonard	aqueous	yes	06–Feb–92	07–Feb–92	14–Feb–92	8	0
LaPlace	aqueous	yes	06–Feb–92	07–Feb–92	14–Feb–92	8	0
LaPlace FR	aqueous	yes	06–Feb–92	07–Feb–92	14–Feb–92	8	0
WAPA	aqueous	no	06–Feb–92	07–Feb–92	08–Feb–92	2	0

FR Field replicate.

#PR00801/0408tbl1.wks

A-2. Semivolatile Organic Analysis Holding Time Compliance Summary for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Sample Identifier	Matrix	Date Collected	Date Received	Date Extracted	Date Analyzed	Days from Collection to Extraction	Days from Extraction To Analysis	Days Exceeded from Collection to Extraction	Days Holding Time Exceeded
Hartman III	aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Harman II	aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Harvey	aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Eglin I	aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Eglin II	aqueous	03-Feb-92	04-Feb-92	05-Feb-92	16-Feb-92	2	11	0	0
Eglin III	aqueous	03-Feb-92	04-Feb-92	05-Feb-92	05-Feb-92	2	11	0	0
Steele	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Ramsay	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Four Winds I	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Four Winds II	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
Gassett	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	25-Feb-92	2	19	0	0
)ment Blank	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	26-Feb-92	2	20	0	0
Water Blank	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	26-Feb-92	2	20	0	0
Gassett FR	aqueous	04-Feb-92	05-Feb-92	06-Feb-92	26-Feb-92	2	20	0	0
Rodriguez	aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Dede	aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Smith	aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Matthias	aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Tillett	aqueous	05-Feb-92	06-Feb-92	07-Feb-92	26-Feb-92	2	19	0	0
Leonard	aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0
LaPlace	aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0
LaPlace FR	aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0
WAPA	aqueous	06-Feb-92	07-Feb-92	10-Feb-92	15-Feb-92	4	5	0	0

FR Field replicate.

#PR00801/0409tbl2.wk3

Table A–3. Summary of Contaminated Blanks and Associated Samples from Volatile Organic Analyses for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Blank Identifier	Date Sampled	Date Analyzed	Associated Sample(s)
Equipment Blank	04–Feb–92	13–Feb–92	Gassett, Gassett FR
Trip Blank	03–Feb–92	12–Feb–92	Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, Harvey
Trip Blank	04–Feb–92	13–Feb–92	Four Winds I, Four Winds II, Gassett FR Ramsay, Steele, Water Blank, Equipment Blank
Trip Blank	05–Feb–92	14–Feb–92	Dede, Matthias, Rodriguez, Smith, Tillett
Trip Blank	06–Feb–92	14–Feb–92	LaPlace, LaPlace FR, Leonard, WAPA
VBLK01	N/A	05–Feb–92	Eglin III, Harvey
VBLK01	N/A	06–Feb–92	Steele
VBLK01	N/A	08–Feb–92	Matthias, Rodriguez, WAPA
VBLK02	N/A	06–Feb–92	Eglin III DL, Harvey DL
VBLK02	N/A	09–Feb–92	Matthias DL, Tillett
Water Blank	04–Feb–92	14–Feb–92	Equipment Blank

FR Field replicate.
DL Dilution.
N/A Not applicable.

PR00801/tablea3.wk3

Table A–4. Summary of Contaminated Blanks and Associated Samples from Semivolatile Organic Analyses for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Blank Indentifier	Date Analyzed	Associated Sample(s)
SBLK01	05–Feb–92	Eglin I, Eglin II, Eglin III, Hartman II, Hartman III, Harvey
SBLKO2	19–Feb–92	WAPA RE

RE Reanalysis.

PR00801/TableA4.wk3

Table A-5. Metals and Cyanide Holding Time Summary for the Fifth Sampling Event, February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Sample Identifier	Date Collected	Date Analyzed (AA)	Date Analyzed (ICP)	Date Analyzed (Mercury)	Date Analyzed (Cyanide)	Days from Collection to Analysis (AA)	Days from Collection To Analysis (ICP)	Days from Collection To Analysis (Mercury)	Days from Collection To Analysis (Cyanide)
Hartman III	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Harman II	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Harvey	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Eglin I	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Eglin II	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Eglin III	03-Feb-92	11-Feb-92	12-Feb-92	05-Feb-92	18-Feb-92	8	9	2	15*
Steele	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Ramsay	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Four Winds I	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Four Winds II	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Gassett	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Equipment Blank	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Water Blank	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Gassett FR	04-Feb-92	12-Feb-92	19-Feb-92	07-Feb-92	18-Feb-92	8	15	3	14
Rodriguez	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Dede	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Smith	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Matthias	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Tillett	05-Feb-92	12-Feb-92	19-Feb-92	10-Feb-92	18-Feb-92	7	14	5	13
Leonard	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12
LaPlace	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12
LaPlace FR	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12
WAPA	06-Feb-92	20-Feb-92	11-Feb-92	10-Feb-92	18-Feb-92	14	5	4	12

AA Atomic absorption.
ICP Inductively coupled plasma.
FR Field replicate.
* Cyanide holding time exceeded by one day.

#PR00801/tbla-5.wk3

Table A-6. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
Chloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 Uj	0.99	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.22 J	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.2	0.5 U	0.5 U
Chloroethane		0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	2.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
Methylene chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon disulfide		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.9 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.06 J	0.5 U	0.5 U
1,1-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.06 J	0.07 J
1,2-Dichloroethene (cis/trans)		0.5 U	17	20	39	150 D	130	0.11 J	0.5 U	4.2	0.19 J	39	140 D	140 D
Chloroform		0.5 U	0.5 U	0.5 U	0.09 J	1.2	0.5 J	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.4 J	0.41 J
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,1-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.09 J	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene		0.5 U	7	6.7	16	21	15	0.09 J	0.5 U	0.95	0.08 J	23	23	23
Dibromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	0.5 U	0.5 U	0.5 U	0.8	2.7	0.06 J	0.07 J	0.5 U	0.5 U	0.5 U	0.15 J	0.14 J
cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	2.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
4-Methyl-2-pentanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-Hexanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene		0.5 U	16	16	41 D	75 D	2.5 U	0.5 U	0.5 U	5.3	1.2	500 D	84 D	81 D
Toluene		0.5 U	0.06 J	0.5 U	0.5 U	0.5 U	2.5 U	0.78 U	0.76 U	0.5 U	0.5 U	0.06 J	0.11 J	0.5 U
Chlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
FR Field replicate of previous sample.

Table A-6. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	Leonard 6-Feb-92	Matthias 5-Feb-92	Ramsay 4-Feb-92	Rodriguez 5-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Trip Blank 3-Feb-92	Trip Blank 4-Feb-92	Trip Blank 5-Feb-92	Trip Blank 6-Feb-92
Chloromethane		0.99	0.5 U	0.5 U	0.5 U	0.5 U	2.5 Uj	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	2.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Methylene chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	7	0.29 J	0.33 J	0.29 J	0.33 J
Acetone		2 U	2 U	2 U	2 U	2 U	10 UJ	2 U	2 U	7.6	2 U	2 U	2 U	2 U
Carbon disulfide		0.5 U	0.5 U	2 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.57	0.23 J	1.8	1
1,1-Dichloroethene		0.13 J	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.06 J	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (cis/trans)		0.5 U	17	17	0.5 U	48 D	110	23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform		0.5 U	0.09 J	1.1	0.5 U	0.32 J	2.5 U	5.3	0.61	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,1-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	0.5 U	0.5	0.5 U	0.5 U	2.5 U	0.5 U	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene		0.5 U	7.5	3.7	0.5 U	21	29	6.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	0.5 U	0.5 U	0.5 U	0.07 J	2.5 U	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	34	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-Hexanone		2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene		0.5 U	60 D	23	0.5 U	230 D	55	23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene		0.5 U	0.5 U	0.5 U	0.5 U	0.05 J	2.5 U	0.05 J	0.11 J	0.5 U	0.5 U	0.05 J	0.5 U	0.5 U
Chlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high level of other analytes.
FR Field replicate of [illegible]

Table A-6. Concentrations of Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Water Blank Date: 4-Feb-92
Chloromethane	0.5 U
Bromomethane	0.5 U
Vinyl chloride	0.5 U
Chloroethane	0.5 U
Methylene chloride	0.5 U
Acetone	2 U
Carbon disulfide	0.5 U
1,1-Dichloroethene	0.5 U
1,1-Dichloroethane	0.5 U
1,2-Dichloroethene (cis/trans)	0.5 U
Chloroform	0.5 U
1,2-Dichloroethane	0.5 U
2-Butanone	2 U
1,1,1-Trichloroethane	0.5 U
Carbon tetrachloride	0.5 U
Bromodichloromethane	0.5 U
1,2-Dichloropropane	0.5 U
trans-1,3-Dichloropropene	0.5 U
Trichloroethene	0.5 U
Dibromochloromethane	0.5 U
1,1,2-Trichloroethane	0.5 U
Benzene	0.5 U
cis-1,3-Dichloropropene	0.5 U
Bromoform	0.5 U
4-Methyl-2-pentanone	2 U
2-Hexanone	2 U
1,1,2,2-Tetrachloroethane	0.5 U
Tetrachloroethene	0.5 U
Toluene	0.5 U
Chlorobenzene	0.5 U
Ethylbenzene	0.5 U
Styrene	0.5 U
Xylenes (total)	0.5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 524.2.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
j All reporting limits raised due to high levels of other analytes.
FR Field replicate of previous sample.

Table A-7. Concentrations of Tentatively Identified Volatile Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Date:	Eglin III 3-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	LaPlace 6-Feb-92	Matthias 5-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	Equipment Blank 4-Feb-92
Unknown		12 J	NA	NA	NA	NA	34 J	25 J	2 J	NA
C6H14 Isomer		NA	27 J	12 J	NA	NA	NA	NA	NA	24 J
C6 Cyclic Hydrocarbon		NA	8 J	3 J	NA	NA	NA	NA	NA	9 J
tert-Butyl Methyl ether		NA	NA	NA	40 JN	4 JN	NA	NA	28 JN	NA
Hydrocarbon		NA	NA	NA	NA	NA	NA	NA	11 J	NA
Hydrocarbon Record 1		NA	NA	NA	NA	NA	NA	NA	6 J	NA
Hydrocarbon Record 2		NA	NA	NA	NA	NA	NA	NA	1 J	NA
C-3 Benzene		NA	NA	NA	NA	NA	NA	NA	2 J	NA
C-4 Benzene		NA	NA	NA	NA	NA	NA	NA	1 J	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
N Presumptive evidence to make a tentative identification.
FR Field replicate of previous sample.
NA Not applicable.

Table A-8. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
Acenaphthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dimethyl phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	25 UJ
2,4-Dinitrophenol		25 UJ	25 UJ	25 UJ	25 UJ	25 U	25 U	25 U	25 U	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
2,4-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate		10 U	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table A-8. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
bis(2-Ethylhexyl)phthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	55 U	680 D	190 D
Fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
3-Nitroaniline		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitroaniline		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	25 UJ
N-Nitrosodiphenylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	25 UJ
Phenanthrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field repl[illegible] sample.

Table A-8. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Leonard	Matthias	Ramsay	Rodriguez	Smith	Steele	Tillett	WAPA	Equipment Blank	Water Blank
Date:	6-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	6-Feb-92	4-Feb-92	4-Feb-92
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
9H-Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
2,4-Dinitrophenol	25 UJ	25 UJ	25 U	25 UJ	25 UJ	25 U	25 UJ	R	25 U	25 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table A-8. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: Leonard	Matthias	Ramsay	Rodriguez	Smith	Steele	Tillett	WAPA	Equipment Blank	Water Blank
Date:	6-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	6-Feb-92	4-Feb-92	4-Feb-92
bis(2-Ethylhexyl)phthalate	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 UJ	10 U	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
3-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
4-Nitrophenol	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	R	25 U	25 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	R	10 U	10 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table A-9. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
Unknown Record 1		4 J	13 J	R	20 J	R	2 J	14 J	R	2 J	2 J	2 J	11 J	10 J
Unknown Record 2		8 J	2 J	3 J	22 J	4 J	R	3 J	160 J	R	R	3 J	R	12 J
Unknown Record 3		6 J	3 J	R	24 J	4 J	NA	3 J	2 J	5 J	5 J	4 J	R	R
Unknown Record 4		19 J	R	5 J	3 J	R	NA	41 J	2 J	R	R	4 J	6 J	3 J
Unknown Record 5		14 J	R	NA	4 J	NA	NA	R	R	NA	NA	R	NA	R
Unknown Record 6		5 J	R	NA	R	NA	NA	57 J	48 J	NA	NA	R	NA	NA
Unknown Record 7		5 J	NA	NA	R	NA	NA	7 J	R	NA	NA	NA	NA	NA
Unknown Record 8		8 J	NA	NA	8 J	NA	NA	71 J	6 J	NA	NA	NA	NA	NA
Unknown Record 9		9 J	NA	NA	NA	NA	NA	R	63 J	NA	NA	NA	NA	NA
Unknown Record 10		4 J	NA	NA	NA	NA	NA	NA	7 J	NA	NA	NA	NA	NA
Unknown Record 11		23 J	NA	NA	NA	NA	NA	NA	78 J	NA	NA	NA	NA	NA
Unknown Record 12		110 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 13		3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 14		3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 15		6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 16		4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 17		3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Amide Record 1		R	12 J	19 J	18 J	R	NA	R	NA	11 J	12 J	2 J	2 J	NA
Unknown Amide Record 3		R	30 J	28 J	3 J	2 J	R	R	NA	31 J	4 J	27 J	NA	NA
Unknown Amide Record 2		15 J	2 J	2 J	2 J	R	NA	2 J	NA	2 J	R	23 J	3 J	NA
Unknown Amide Record 4		NA	4 J	3 J	43 J	49 J	R	4 J	NA	4 J	NA	3 J	NA	NA
Unknown Amide Record 5		NA	4 J	8 J	6 J	5 J	3 J	6 J	NA	4 J	NA	8 J	NA	NA
Unknown Amide Record 6		NA	42 J	NA	67 J	5 J	3 J	NA	NA	45 J	NA	NA	NA	NA
Unknown Amide Record 7		NA	NA	NA	7 J	NA	R	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane		NA	NA	NA	NA	NA	NA	R	R	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 2		NA	NA	NA	NA	NA	NA	20 J	NA	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 1		NA	NA	NA	NA	NA	NA	12 J	NA	NA	NA	NA	NA	NA
Substituted 1,2-Benzenedicarboxylic acid		NA	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 2		NA	NA	NA	NA	NA	NA	NA	22 JN	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 1		NA	NA	NA	NA	NA	NA	NA	14 JN	NA	NA	NA	NA	NA
2-ethylhexyl diphenyl ester Phosphoric acid		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 JN	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
N Presumptive evidence to make a tentative identification.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table A-9. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Dede	Eglin I	Eglin II	Eglin III	Four Winds I	Four Winds II	Gassett	Gassett FR	Hartman II	Hartman III	Harvey	LaPlace	LaPlace FR
	Date: 5-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	6-Feb-92	6-Feb-92
Substituted 1,2-benzenedicar Record 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 J	NA	NA
Substituted 1,2-benzenedicar Record 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 J	NA	NA
Hexadecanoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 J	3 J
Hydrocarbon Record 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone, 2-hydroxy-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
N Presumptive evidence to make a tentative identification.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table A-9. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: Leonard	Matthias	Ramsay	Rodriguez	Smith	Steele	Tillett	WAPA	Equipment Blank	Water Blank
Date:	6-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	6-Feb-92	4-Feb-92	4-Feb-92
Unknown Record 1	R	R	3 J	R	24 J	20 J	10 J	11 J	3 J	R
Unknown Record 2	R	4 J	R	3 J	28 J	23 J	11 J	11 J	4 J	R
Unknown Record 3	R	4 J	R	3 J	29 J	R	12 J	13 J	R	NA
Unknown Record 4	NA	R	R	4 J	R	5 J	12 J	18 J	R	NA
Unknown Record 5	NA	5 J	NA	NA	R	R	16 J	2 J	R	NA
Unknown Record 6	NA	5 J	NA	NA	3 J	6 J	2 J	2 J	3 J	NA
Unknown Record 7	NA	7 J	NA	NA	3 J	NA	35 J	R	2 J	NA
Unknown Record 8	NA	R	NA	NA	3 J	NA	4 J	3 J	NA	NA
Unknown Record 9	NA	NA	NA	NA	7 J	NA	4 J	3 J	NA	NA
Unknown Record 10	NA	NA	NA	NA	NA	NA	4 J	33 J	NA	NA
Unknown Record 11	NA	NA	NA	NA	NA	NA	5 J	4 J	NA	NA
Unknown Record 12	NA	NA	NA	NA	NA	NA	5 J	5 J	NA	NA
Unknown Record 13	NA	NA	NA	NA	NA	NA	5 J	5 J	NA	NA
Unknown Record 14	NA	NA	NA	NA	NA	NA	57 J	6 J	NA	NA
Unknown Record 15	NA	NA	NA	NA	NA	NA	7 J	6 J	NA	NA
Unknown Record 16	NA	NA	NA	NA	NA	NA	7 J	7 J	NA	NA
Unknown Record 17	NA	NA	NA	NA	NA	NA	8 J	9 J	NA	NA
Unknown Amide Record 1	NA	20 J	NA	20 J	7 J	NA	10 J	NA	3 J	3 J
Unknown Amide Record 3	NA	R	NA	R	NA	NA	R	NA	8 J	R
Unknown Amide Record 2	NA	R	NA	R	R	NA	R	NA	8 J	2 J
Unknown Amide Record 4	NA	R	NA	R	NA	NA	NA	NA	R	R
Unknown Amide Record 5	NA	R	NA	R	NA	NA	NA	NA	R	R
Unknown Amide Record 6	NA	NA	NA	NA	NA	NA	NA	NA	4 J	NA
Unknown Amide Record 7	NA	NA	NA	NA	NA	NA	NA	NA	R	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Substituted 1,2-Benzenedicarboxylic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanone, 1,1'-(1,n-phenylene)bis- Record 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ethylhexyl diphenyl ester Phosphoric acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
N Presumptive evidence to make a tentative identification.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table A-9. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

Analyte	Sample ID: / Date:	Leonard 6-Feb-92	Matthias 5-Feb-92	Ramsay 4-Feb-92	Rodriguez 5-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Water Blank 4-Feb-92
Substituted 1,2-benzenedicar Record 1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Substituted 1,2-benzenedicar Record 2		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecanoic acid		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 1		NA	2 J	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 2		NA	3 J	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform		NA	NA	NA	NA	NA	NA	NA	R	NA	NA
Cyclohexanone		NA	NA	NA	NA	NA	NA	NA	11 JN	NA	NA
Cyclohexanone, 2-hydroxy-		NA	NA	NA	NA	NA	NA	NA	5 JN	NA	NA

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
N Presumptive evidence to make a tentative identification.
R Result rejected.
FR Field replicate of previous sample.
NA Not applicable.

Table A-10. Concentrations of Metals in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Dede 5-Feb-92	Eglin I 3-Feb-92	Eglin II 3-Feb-92	Eglin III 3-Feb-92	Four Winds I 4-Feb-92	Four Winds II 4-Feb-92	Gassett 4-Feb-92	Gassett FR 4-Feb-92	Hartman II 3-Feb-92	Hartman III 3-Feb-92	Harvey 3-Feb-92	LaPlace 6-Feb-92	LaPlace FR 6-Feb-92
Aluminum		235	173 B	134 B	39.5 B	35.5 U	46.4 B	388	231	35.6 U	54.6 B	289	76.9 B	68.4 B
Antimony		18.2 U	17.7 U	17.7 U	17.7 U	18.2 U	18.2 U	18.2 U	18.2 U	17.7 U	17.7 U	17.7 U	18 U	18 U
Arsenic		1 U	1.6 B	1 U	1 U	1 B	1 U	3.1 B	2.9 B	1 U	1 U	1.1 B	1 U	1 U
Barium		7.9 B	30.8 B	14.3 B	39.7 B	3.4 B	1.1 B	23.1 B	21.6 B	1.8 B	0.7 U	32.1 B	5.1 B	5.4 B
Beryllium		0.25 U	0.53 U	0.53 U	0.53 U	0.25 U	0.25 U	0.25 U	0.25 U	0.53 U	0.5 U	0.53 U	1 U	1 U
Cadmium		2 U	2.1 U	2.1 U	2.1 U	2 U	2 U	2.5 B	2.4 B	2.1 U	2.1 U	2.1 U	3 U	3 U
Calcium		25100	80000	80800	81700	46600	50700	21700	22200	44300	46600	62500	44900	45400
Chromium		6.6 B	3.9 U	4.9 B	3.9 U	3.5 U	3.5 U	4.6 B	3.5 U	3.9 U	3.9 U	3.9 U	4 U	4 U
Cobalt		4.4 B	3.4 U	4.4 B	3.4 U	3.8 U	3.8 U	3.8 U	3.8 U	3.4 U	3.4 U	3.4 U	4 U	4 U
Copper		21.3 B	3.6 B	3.9 B	2.8 U	2.7 U	4.8 B	83.4	82.7	4.2 B	2.8 U	5.8 B	3 U	3 U
Iron		250 J	186 J	232 J	11.7 B	7 BJ	61.6 BJ	R	R	12 BJ	36.2 BJ	431 J	60.4 BJ	46.7 BJ
Lead		2.3 B	1.6 BJ	1.6 B	1 UJ	3.1	3.3	39.7 S	33.3	1.6 B	1 U	3 J	1 UJ	1 UJ
Magnesium		27100	56200	61200	55800	32600	36800	15300	15500	37000	32300	46600	35100	35500
Manganese		364	12.1 B	118	22.9	33	6.8 B	68	78.9	0.91 U	0.91 U	120	2.8 B	2.9 B
Mercury		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.23
Nickel		7.1 U	9.5 U	9.5 U	9.5 U	7.1 U	7.1 U	7.1 U	7.1 U	9.5 U	9.5 U	9.5 U	10 U	10 U
Potassium		2410 B	1820 B	1990 B	2180 B	8980	2350 B	1670 B	1520 B	1230 B	1730 B	2100 B	1010 B	1090 B
Selenium		2 UJ	5.1 J	9.2	4.3 BS	2 U	2 U	2 U	2 U	3 B	2 U	2.3 B	2 U	2 UJ
Silver		9.2 U	3.3 U	3.3 U	3.3 U	9.2 U	9.2 U	9.2 U	9.2 U	3.3 U	3.3 U	3.3 U	4 U	4 U
Sodium		357000	363000	338000	396000	232000	236000	160000	164000	323000	233000	251000	268000	272000
Thallium		3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ
Vanadium		10 U	30.3 B	32.6 B	13.1 B	59.1	59.2	10 U	10 U	24.7 B	116	21.6 B	34.4 B	36.4 B
Zinc		6.9 BE	25.5 J	78.8 J	19 B	8.8 BE	10.4 BE	178 J	175 J	1.6 U	2.1 B	139 J	8.1 B	8 B

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table A-10. Concentrations of Metals in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S Virgin Islands.

Analyte	Sample ID: / Date:	Leonard 6-Feb-92	Matthias 5-Feb-92	Ramsay 4-Feb-92	Rodriguez 5-Feb-92	Smith 5-Feb-92	Steele 4-Feb-92	Tillett 5-Feb-92	WAPA 6-Feb-92	Equipment Blank 4-Feb-92	Water Blank 4-Feb-92
Aluminum		69.9 B	9580 J	145 B	196 B	4070 J	267	696 J	76.9 B	184 B	35.5 U
Antimony		18 U	18.2 U	18.2 U	19 B	18.2 U	18.2 U	18.2 U	18 U	18.2 U	18.2 U
Arsenic		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium		1.5 B	187 B	3.7 B	13.7 B	86.5 B	19.8 B	44.9 B	3.9 B	3.1 B	0.8 U
Beryllium		1 U	1 B	0.25 U	1 B	0.25 U	0.25 U	0.25 U	1 U	0.25 U	0.25 U
Cadmium		3 U	2 U	2 U	2.1 B	2 U	2 U	2 U	3 U	2 U	2 U
Calcium		39700	49500	49800	39200	43500	46200	52000	3390 B	65.4 B	43 B
Chromium		4 U	109	3.5 U	5.2 B	48.4	3.5 U	11.4	6.1 B	5.7 B	3.5 U
Cobalt		4 U	14 B	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	4 U	3.8 U	3.8 U
Copper		3 U	114	5.1 B	7.8 B	48.3	4.1 B	12.3 B	18.4 B	2.7 U	2.7 U
Iron		60.3 BJ	11700 J	141 J	246 J	4670 J	377 J	901 J	546 J	205 J	20.9 BJ
Lead		1 UJ	1 U	1.9 B	2.5 B	3.1	1.4 BJ	2 B	1 BJ	1 UJ	1 U
Magnesium		24700	46900	37000	37400	42500	43800	36000	1760 B	295 B	45.9 U
Manganese		1.3 B	269	2 B	132	108	17.8	1110	2.8 B	3.2 B	0.83 U
Mercury		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22	0.2 U	0.2 U	0.2 U	0.2 U
Nickel		10 U	53.7	7.1 U	7.1 U	18.4 B	7.1 U	7.1 U	10 U	7.1 U	7.1 U
Potassium		997 B	6380	1070 B	2170 B	3310 B	1270 B	3280 B	997 B	810 U	810 U
Selenium		2.7 BJ	2.6 BJ	2 UJ	2 UJ	2.6 BJ	2.5 B	2 U	2 U	2 U	2 U
Silver		4 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	4 U	9.2 U	9.2 U
Sodium		341000	385000	240000	300000	396000	334000	198000	18400	1400 B	660 B
Thallium		3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ
Vanadium		116	42.6 B	54.1	10 U	16.3 B	10 U	58.5	6.8 B	10 U	10 U
Zinc		4.1 B	29.8 J	12.4 BE	19.4 BE	99.6 J	6.4 BE	26.2 J	8.7 B	3.9 BE	3.7 BE

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B Reported value is between contract required detection limit (CRDL) and instrument detection limit (IDL).
E Inductively coupled plasma (ICP) serial dilution result not within control limits or furnace atomic absorption (AA) interference present.
J Result is detected below the reporting limit and/or is an estimated concentration.
S Reported value was determined by the Method of Standard Additions (MSA).
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table A-11. Concentrations of Total Cyanide in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

	Sample ID:	Dede	Eglin I	Eglin II	Eglin III	Four Winds I	Four Winds II	Gassett	Gassett FR	Hartman II	Hartman III	Harvey	LaPlace	LaPlace FR
Analyte	Date:	5-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	4-Feb-92	3-Feb-92	3-Feb-92	3-Feb-92	6-Feb-92	6-Feb-92
Total Cyanide		5 U	R	R	R	5 U	5 U	5 U	5 U	R	R	R	5 U	5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

Table A-11. Concentrations of Total Cyanide in Ground-Water Samples Collected in February 1992, Tutu Wells Site, St. Thomas, U.S. Virgin Islands.

	Sample ID:	Leonard	Matthias	Ramsay	Rodriguez	Smith	Steele	Tillett	WAPA	Equipment Blank	Water Blank
Analyte	Date:	6-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	5-Feb-92	4-Feb-92	5-Feb-92	6-Feb-92	4-Feb-92	4-Feb-92
Total Cyanide		5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U

Analyte concentrations in micrograms per liter [parts per billion (ppb)].
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for but not detected.
R Result rejected.
FR Field replicate of previous sample.

U.S. EPA - CLP
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DUPLICATES

Lab Name: Enseco - East Contract: Geraghty & Miller EPA Sample No.: Gassett

Lab Code: Enseco Case No.: _____ SAS No.: _____ SDG No.: 19699

Matrix (soil/water): Water Level (low/med): Low

% Solids for Sample: N/A % Solids for Duplicate: N/A

Concentration Units (ug/L or mg/kg dry weight): ug/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200	388		231		157		P
Antimony	-	17.7	U	17.7	U			P
Arsenic	10	3.1	B	2.9	B	0.2		F
Barium	200	23.1	B	21.6	B	1.5		P
Beryllium	-	0.5	U	0.5	U			P
Cadmium	5	2.5	B	2.4	B	0.1		P
Calcium	5000	21700		22200		500		P
Chromium	10	4.6	B	3.7	U	0.9		P
Cobalt	-	3.4	U	3.4	U			P
Copper	25	83.4		82.7		0.7		P
Iron							R	P
Lead	-	39.7		33.3		17.5	S	F
Magnesium	5000	15300		15500		200		P
Manganese	15	68		78.9		10.9		P
Mercury	-	0.2	U	0.2	U			CV
Nickel	-	9.5	U	9.5	U			P
Potassium	5000	1670	B	1520	B	150		P
Selenium	-	2	U	2	U			F
Silver	-	3.3	U	3.3	U			P
Sodium	-	160000		164000		2.5		P
Thallium	-	3	U	3	U		J	F
Vanadium	-	3.4	U	3.4	U			P
Zinc	-	178		175		1.7	J	P
Cyanide	-	5	U	5	U			AS

U.S. EPA - CLP
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DUPLICATES

Lab Name: Enseco - East Contract: Geraghty & Miller EPA Sample No.: LaPlace

Lab Code: Enseco Case No.: _____ SAS No.: _____ SDG No.: 19736

Matrix (soil/water): Water Level (low/med): Low

% Solids for Sample: N/A % Solids for Duplicate: N/A

Concentration Units (ug/L or mg/kg dry weight): ug/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200	76.9	B	68.4	B	8.5		P
Antimony	-	17.7	U	17.7	U			P
Arsenic	10	1	U	1	U			F
Barium	200	5.1	B	5.4	B	0.3		P
Beryllium	-	0.5	U	0.5	U			P
Cadmium	-	2.1	U	2.1	U			P
Calcium	-	44900		45400		1.1		P
Chromium	-	3.9	U	3.9	U			P
Cobalt	-	3.4	U	3.4	U			P
Copper	-	2.8	U	2.8	U			P
Iron	100	60.4	B	46.7	B	13.7	J	P
Lead	-	1	U	1	U		J	F
Magnesium	-	35100		35500		1.1		P
Manganese	15	2.8	B	2.9	B	0.1		P
Mercury	0.2	0.2	U	0.23		0.03		CV
Nickel	-	9.5	U	9.5	U			P
Potassium	5000	1010	B	1090	B	7.6		P
Selenium	-	2	U	2	U		J	F
Silver	-	3.3	U	3.3	U			P
Sodium	-	268000		272000		1.5		P
Thallium	-	3	U	3	U		J	F
Vanadium	50	34.4	B	36.4	B	2.0		P
Zinc	20	8.1	B	8	B	0.1		P
Cyanide	-	5	U	5	U			AS

ATTACHMENT NO. 4

ANALYTICAL DATA PACKAGES

(The contents of this attachment have been provided separately to the USEPA)