



VIRGIN ISLAND CHEMICAL SITE

REMEDIAL INVESTIGATION ST. CROIX, U.S. VIRGIN ISLANDS

DRAFT DATA SUMMARY REPORT

VOLUME II OF II

Prepared For

Island Chemical Company, Inc.

By

Harding Lawson Associates
Philadelphia, Pennsylvania

August 15, 1995

APPENDIX E

Data Validation - February 1995 Groundwater Sampling

302889

OFFICE MEMORANDUM

To: Jason Schindler
HLA, Philadelphia

From: Mike Phillips *MPP*
HLA, Denver

Date: April 14, 1995

Subject: Island Chemical Company Remedial Investigation Data Validation

Project Number: 29872 10.2

The completed data validation reports for the soil and water samples collected in January and February 1995, as part of the Island Chemical Company Remedial Investigation are enclosed. We will retain copies of the data validation reports for this project as well as the data packages themselves.

If you have any questions regarding these reports, please call me at (303) 293-6052.

MPP/jr
Schind01.mem

Enclosures

cc: Brian D. LaFlamme - HLA, Denver
Island Chemical Company Project File

Harding Lawson Associates
Engineering and Environmental Services
707 Seventeenth Street, Suite 2400
Denver, CO 80202 - (303) 292-5365

302890

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Volatile Organic Compounds Analysis
(LOW CONCENTRATION)

Case Number : 95022	Project Number: 29872, 10.2
Site: Island Chemical Company	
Contractor Laboratory: PACE, Incorporated	
Validator: J. Whittle	Validation Date: 3/30/95
QC Reviewer: Michael P. Whittle	Review Date: 4/11/95
Sample Matrix: Water (6), QC (2)	
Analytical Method: EPA CLP Low Concentration Organics SOW	

Sample Designations:

MW0001	TB0214		
MW0003	TB0216		
MW0004			
MW0005			
MW0101			
RBGW02			

Data for the above samples are:

☐ Acceptable for use
☒ Acceptable for use as qualified
☐ Unacceptable for use

Is action required by the Project Manager?

Yes ☐ No ☒

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (February 1994).

DATA COMPLETENESS CHECKLIST

 X Included, no problems
 * Included, problems
 O Not included
 NA Not applicable

Quality Control Summary

 X Case Narrative
 X Surrogate Recovery Summary
 X MS/MSD Summary
 * Reagent Blank Summary
 X GC/MS Instrument Performance Summary
 X Laboratory Control Sample Summary

Sample Data

 * Chain of Custody Forms
 X Holding Times
 * Organic Analysis Data Sheets
 X Quantitation Reports
 X Reconstructed Ion Chromatograms
 X Mass Spectra Printouts
 X TIC Mass Spectra Library Searches

Initial Calibration Data

 * Calibration Summary
 X Standards Quantitation Reports
 X Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

 * Calibration Summary
 X Standards Quantitation Reports
 X Standards Reconstructed Ion Chromatograms
 X Internal Standards Summary

Instrument Performance Data

 X BFB Mass Spectra
 X Reconstructed Ion Chromatogram
 X BFB Mass Listings

Reagent Blank Data

- ☒ Organic Analysis Data Sheets
- ☒ Quantitation Reports
- ☒ Reconstructed Ion Chromatograms
- ☒ Mass Spectra Printouts
- ☒ TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

- ☒ Organic Analysis Data Sheets
- ☒ Quantitation Reports
- ☒ Reconstructed Ion Chromatograms

Laboratory Control Sample

- ☒ Organic Analysis Data Sheets
- ☒ Quantitation Reports
- ☒ Reconstructed Ion Chromatograms
- ☒ Mass Spectra Printouts
- ☒ TIC Mass Spectra Library Searches

Comments:



Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____

JOB NO. _____

DATE 3/30/95

COMPUTED BY J. Whittle

CHECKED BY _____

PROJECT Island Chemical Company
SUBJECT Data Validation

Sample Summary

<u>Client ID</u>	<u>Abbreviated ID</u>	<u>Laboratory ID</u>
MW-1/021695	MW0001	WAW004
MW-3/021595	MW0003	WAW003
MW-4/021495	MW0004	WAA001
MW-5/021595	MW0005	WAW001
MW-101/021695	MW0101	WAW005
RBGW/021595	RBGW02	WAW002
TB/021495	TB0214	WAA006
TB/021695	TB0216	WAW006

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes

☒ No

Were custody transfers correctly and completely documented?

☒ Yes

No

Comments: The water samples were preserved and shipped in good condition. However, four soil samples were shipped warm (19.4°C) and the lab was instructed not to analyze them for organics. These samples were SBFIA/0-1, SBFIA/13-15, SBFIA/20-22, SBF2A/0-1, and the associated equipment rinseate, RBS0/020395.

Holding Times

Were sample analyses performed within holding times?

☒ Yes

No

Comments: Samples were analyzed within 7 days.

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

☒ Yes

No

Were samples analyzed within the 12-hour period following an acceptable performance check?

☒ Yes

No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes ☒ No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes ☒ No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes ☒ No

Comments: Several compounds failed to meet minimum QC requirements and were consequently qualified in the investigative samples. Refer to page 13 for a summary of qualifiers and affected samples.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes ☒ No

Did the continuing calibration meet the minimum RRF criteria?

Yes ☒ No

Comments: Qualification was required on the basis of continuing calibration problems. Refer to page 14 for a summary of qualifiers and affected samples. The continuing calibration summary for the 3/3/95 standard was incomplete, as to RRF and %D values. However, all target compounds were included in the standard, and RTs and area counts were available. Since this calibration is associated ^{only} with the storage blank analysis, no sample qualifications would be necessary. Therefore, no attempt was made to calculate missing RRF and %D values. MPP
4-11-95

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

☒ Yes ☐ No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes ☐ No ☒ NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

☒ Yes ☐ No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

☒ Yes ☐ No

Comments: *ms/msd analysis was performed on sample MW0004.*

Internal Standards

Were the internal standard areas and retention times within the required limits?

☒ Yes ☐ No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes ☐ No ☒ NA

Comments:

None

Blank Analyses

Were the appropriate number of blank analyses performed?

☒ Yes ☐ No

Were analytes detected in the blanks?

☒ Yes ☐ No

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

☒ Yes ☐ No ☐ NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

☒ Yes ☐ No

Comments: Several compounds were qualified on the basis of associated blank contamination. Methylene chloride and acetone are common laboratory contaminants, therefore the action levels were set at 10x the blank concentration. Action levels for carbon disulfide were set at 5x the sample concentrations less than the action levels of blank contaminants. were qualified as undetected & raised to the detection limit if the sample concentration was below the DL. In the case of multiple associated blanks, the highest action level was applied. Refer Laboratory Control Samples page 15 for a summary of associated

Were laboratory control sample (LCS) analyses performed at the correct frequency?

☒ Yes ☐ No ☐ NA

Were the LCS recoveries within acceptable limits?

☒ Yes ☐ No ☐ NA

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

☒ Yes ☐ No

Were mass spectra provided for the target analytes detected in the investigative samples?

☒ Yes ☐ No

Were the mass spectra of acceptable quality and analytes correctly identified?

☒ Yes ☐ No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

☒ Yes ☐ No

Comments: Samples MW0001 and MW0101 were diluted by a factor of 40 because detections of ethylbenzene and xylene were beyond the linear range of the calibration. After dilution, xylene was still detected above the linear range in both samples. Therefore, the results should be considered estimated (J).

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

☒ Yes ☐ No ☐ NA

Were non-target peaks evaluated as required?

☒ Yes ☐ No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

☒ Yes ☐ No

Comments:

None identified.

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

☒ Yes

☐ No

☐ NA

Were sample analyses properly documented and performed in accordance with method protocols?

☒ Yes

☐ No

Comments:

None

Calculation Checks

Instrument Tuning

2/22/95

Relative Abundance:

$$\frac{m/z \ 174}{m/z \ 95} \times 100 = \frac{9280}{11056} \times 100 = 83.9\%$$

Initial Calibration

1/31/95

RRF:

$$\frac{\text{Compound Area}}{\text{IS Area}} \times \frac{\text{IS Conc.}}{\text{Comp. Conc.}} = \text{RRF}$$
$$\frac{22162}{74277} \times \frac{5}{2} = 0.746 \text{ for chloroform}$$

%RSD:

$$\frac{\text{Standard Deviation of 5 RRFs}}{\text{Mean of 5 RRFs}} \times 100 = \% \text{RSD}$$

$$\frac{0.0256}{0.089} \times 100 = 28.8\% \text{ 4-methyl-2-pentano}$$

Continuing Calibration

2/22/95

RRF:

$$\frac{\text{Compound Area}}{\text{IS Area}} \times \frac{\text{IS Conc.}}{\text{Comp. Conc.}} = \text{RRF}$$
$$\frac{66885}{57167} \times \frac{5}{5} = 1.170 \text{ for benzene}$$

%D:

$$\frac{\text{RRF} - \text{RRF}_5}{\text{RRF}} \times 100 = \%D$$

$$\frac{0.596 - 0.424}{0.596} \times 100 = 28.9\% \text{ for methylene chloride}$$

Surrogate Recovery

MW0003

$$\frac{\text{Surrogate Concentration}}{\text{Surrogate Added}} \times 100 = \%R$$
$$\frac{25}{25} \times \frac{4.681}{5.000} \times 100 = 93.6\%$$

Matrix Spike Recovery MW0004

$$\frac{\text{Spike Amount Recovered}}{\text{Spike Added}} \times 100 = \%R$$

$$\frac{25}{25} \times \frac{5.228}{5.000} \times 100 = 105\% \text{ for trichloroethene}$$

RPD:

$$\frac{\text{MS } \%R - \text{MSD } \%R}{\text{MS/MSD } \%R \text{ Average}} \times 100 = \text{RPD}$$

$$\frac{115 - 108}{111.5} \times 100 = 6.3\% \text{ for 1,2-dichloroethane}$$

Sample Results MW0005

CRQL: $\text{Base CRQL} \times \text{Dilution Factor} = \text{Adjusted CRQL}$
 $1 \times 1 = 1 \mu\text{g/l for chloromethane}$

Detected Result:

$$\frac{\text{Compound Area} \times \text{IS Concentration}}{\text{IS Area} \times \text{CC Compound RRF}} = \text{Compound Concentration}$$
$$\frac{19600 \times 5}{36193 \times 1.336} = 2.027 \mu\text{g/l for ethylbenzene}$$

TIC Result

(None detected)

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

302903

von_1.doc
10141994 1032

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

302904

vos_1.doc
10141994 1032

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF (<0.05)	%D (>30%)	Samples Affected	Qualifier (+/-)
2/17/95, 1136	F	Chloromethane	—	51.8	MW0004, TB0214	J/UJ
		Methylene chloride	—	30.2		J/UJ
		Acetone	0.015	—		J/R
		2-Butanone	0.017	—		J/R
		Carbon tetrachloride	—	-33.3		J/UJ
		4-Methyl-2-pentanone	—	40.4		J/UJ
		2-Hexanone	0.031	36.7		J/R
		1,2-Dibromo-3-	—	—		—
		chloropropane	—	31.3	↓	J/UJ
2/21/95, 1007	F	Acetone	0.018	—	TB0216, MW0005, MW0003	J/R
		2-Butanone	0.023	—	↓	J/R
		2-Hexanone	0.042	—	↓	J/R
2/22/95, 1154	F	Bromomethane	—	-34.6	RBGW02, MW0001, MW0101	J/UJ
		Acetone	0.018	—	↓	J/R
		2-Butanone	0.022	—	↓	J/R

Comments:

302905

vaa_1.doc
10141994 1032

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units) ($\mu\text{g/l}$)	Action Level ($\mu\text{g/l}$)	Associated Samples
VBLK01	Methylene chloride	0.5	5.0	TB0214, MW0004
VBLK02	Methylene chloride	0.7	7.0	MW0003, MW0005, TB0216
	Carbon disulfide	0.06	0.3	↓
VBLK03	Methylene chloride	0.5	5.0	MW0001, MW0101, RBGW02
	Acetone	4	40	↓
VBLK04	Methylene chloride	1	10	(VSBLK01)
	Carbon disulfide	0.1	0.5	↓
VSBLK01	Methylene chloride	2	20	(all samples)
TB0214	Methylene chloride	1	10	MW0004
TB0216	Methylene chloride	3	30	MW0005, RBGW02,
				MW0003, MW0001,
				MW0101

Comments:

302906

Summary and Conclusions

All material necessary for a full validation of the low concentration volatile analysis was present, and all holding times were met. QC and raw sample data were reviewed, with calculation checks, and no indication of identification or quantitation errors were found.

Qualification of the data was necessary on the basis of blank contamination and calibration problems. All detections of methylene chloride were qualified as undetected (U) and raised to the detection limit, if appropriate, because of blank contamination. Several compounds were qualified in all the samples because of initial and continuing calibration problems. Refer to pages 13 and 14 for a summary of qualifiers and associated samples.

Xylene was detected above the linear range in samples MW0001 and MW0101, after a 40-times dilution. These detects should be considered estimated (E).

All data are considered usable as qualified.

Validator's Signature: <i>Joyce S. Whittle</i>	
Validator's Initials: <i>JW</i>	Validation Date: <i>4/3/95</i>
QC Reviewer's Signature: <i>Michael P. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4/11/95</i>

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW004

Date Received: 02/17/95

Lab File ID: VOWAW04R

Date Analyzed: 02/22/95

Purge Volume: 25.00 (ml)

Dilution Factor: 40

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

74-87-3	Chloromethane	40	U
74-83-9	Bromomethane	40	UJ
75-01-4	Vinyl Chloride	40	U
75-00-3	Chloroethane	40	U
75-09-2	Methylene Chloride	80 40 29	U
67-64-1	Acetone	200	U R
75-15-0	Carbon Disulfide	40	U
75-35-4	1,1-Dichloroethene	40	U
75-34-3	1,1-Dichloroethane	40	U
156-59-2	cis-1,2-Dichloroethene	40	U
156-60-5	trans-1,2-Dichloroethene	40	U
67-66-3	Chloroform	40	U
107-06-2	1,2-Dichloroethane	40	U
78-93-3	2-Butanone	200	U R
74-97-5	Bromochloromethane	40	U
71-55-6	1,1,1-Trichloroethane	40	U
56-23-5	Carbon Tetrachloride	40	U
75-27-4	Bromodichloromethane	40	U
78-87-5	1,2-Dichloropropane	40	U
10061-01-5	cis-1,3-Dichloropropene	40	U
79-01-6	Trichloroethene	40	U
124-48-1	Dibromochloromethane	40	U
79-00-5	1,1,2-Trichloroethane	40	U
71-43-2	Benzene	40	U
10061-02-6	trans-1,3-Dichloropropene	40	U
75-25-2	Bromoform	40	U
108-10-1	4-Methyl-2-Pentanone	200	U
591-78-6	2-Hexanone	200	U R
127-18-4	Tetrachloroethene	40	U
106-93-4	1,2-Dibromoethane	40	U
79-34-5	1,1,2,2-Tetrachloroethane	40	U
108-88-3	Toluene	5	J
108-90-7	Chlorobenzene	40	U
100-41-4	Ethylbenzene	750	U
100-42-5	Styrene	40	U
1330-20-7	Xylene (total)	2100	E J
541-73-1	1,3-Dichlorobenzene	40	U
106-46-7	1,4-Dichlorobenzene	40	U
95-50-1	1,2-Dichlorobenzene	40	U
96-12-8	1,2-Dibromo-3-chloropropane	40	U

VALIDATED

FORM I LCV

Reviewed By

Date

Joyce E. White
3/31/95

10/92

302908

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDSLab Name: ETC/GULF SOUTH

Contract: _____

MW0001

Lab Code: GULFCase No.: HLA

SAS No.: _____

SDG No.: 95022Lab Sample ID: WAW004Date Received: 02/17/95Lab File ID: VDWAW04RDate Analyzed: 02/22/95Purge Volume: 25.00 (ml)Dilution Factor: 40Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATEDReviewed By *Joyce E. Whittle*Date 3/31/95

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW003

Date Received: 02/17/95

Lab File ID: VOWAW03

Date Analyzed: 02/21/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	42	J
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U R
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U R
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

FORM I LCV

Reviewed By

Date

Joyce White
3/31/95

10/92

302910

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0003

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HILA SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW003

Date Received: 02/17/95

Lab File ID: VOWAW03

Date Analyzed: 02/21/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATED

Reviewed By

Date

James E. Whittle
3/31/95

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0004

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAA001

Date Received: 02/16/95

Lab File ID: VQWAA01R

Date Analyzed: 02/17/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

74-87-3	Chloromethane	1	UJ
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	1	U
67-64-1	Acetone	5	UJ
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	UJ
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	UJ
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	UJ
591-78-6	2-Hexanone	5	UJ
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	UJ

FORM 1 LCV

VALIDATED

Reviewed By

Date

Joyce L. Whittle
3/31/95

10/92

302912

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0004

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAA001

Date Received: 02/16/95

Lab File ID: VOWAA01R

Date Analyzed: 02/17/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q

VALIDATED

Reviewed By

Date

Joyce E. Whittle
3/31/95

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF Case No.: HLA

SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW001

Date Received: 02/17/95

Lab File ID: VOWAW01

Date Analyzed: 02/21/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	R

74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	6	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	0.1	J
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	5	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

FORM I LCV

VALIDATED

Reviewed By

Date

Joyce E. Whittle
3/31/95

10/92

302914

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0005

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW001

Date Received: 02/17/95

Lab File ID: VOWAW01

Date Analyzed: 02/21/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

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Date

Joyce E. Whittle
3/31/95

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EPA SAMPLE

MW0101

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW005

Date Received: 02/17/95

Lab File ID: VOWAW05R

Date Analyzed: 02/22/95

Purge Volume: 25.00 (ml)

Dilution Factor: 40

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	40	U
74-83-9	Bromomethane	40	UJ
75-01-4	Vinyl Chloride	40	U
75-00-3	Chloroethane	40	U
75-09-2	Methylene Chloride	40	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	40	U
75-35-4	1,1-Dichloroethene	40	U
75-34-3	1,1-Dichloroethane	40	U
156-59-2	cis-1,2-Dichloroethene	40	U
156-60-5	trans-1,2-Dichloroethene	40	U
67-66-3	Chloroform	40	U
107-06-2	1,2-Dichloroethane	40	U
78-93-3	2-Butanone	200	U
74-97-5	Bromochloromethane	40	U
71-55-6	1,1,1-Trichloroethane	40	U
56-23-5	Carbon Tetrachloride	40	U
75-27-4	Bromodichloromethane	40	U
78-87-5	1,2-Dichloropropane	40	U
10061-01-5	cis-1,3-Dichloropropene	40	U
79-01-6	Trichloroethene	40	U
124-48-1	Dibromochloromethane	40	U
79-00-5	1,1,2-Trichloroethane	40	U
71-43-2	Benzene	40	U
10061-02-6	trans-1,3-Dichloropropene	40	U
75-25-2	Bromoform	40	U
108-10-1	4-Methyl-2-Pentanone	200	U
591-78-6	2-Hexanone	200	U
127-18-4	Tetrachloroethene	40	U
106-93-4	1,2-Dibromoethane	40	U
79-34-5	1,1,2,2-Tetrachloroethane	40	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	40	U
100-41-4	Ethylbenzene	720	U
100-42-5	Styrene	40	U
1330-20-7	Xylene (total)	2000	E J
541-73-1	1,3-Dichlorobenzene	40	U
106-46-7	1,4-Dichlorobenzene	40	U
95-50-1	1,2-Dichlorobenzene	40	U
96-12-8	1,2-Dibromo-3-chloropropane	40	U

80 40 10
4-11-95

302916

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Date

Joyce R. White
3/31/95

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LOW-CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0101

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF Case No.: HLA

SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW005

Date Received: 02/17/95

Lab File ID: VDWAW05R

Date Analyzed: 02/22/95

Purge Volume: 25.00 (ml)

Dilution Factor: 40

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q

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Date

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3/31/95

11CA
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LAH 000000

RBGW02

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW002

Date Received: 02/17/95

Lab File ID: VOWAW02R

Date Analyzed: 02/22/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	UJ
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	3	U
67-64-1	Acetone	5	U R
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U R
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U R
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	0.3	J
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	0.07	J
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	0.1	J
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

302918

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Date

Joyce E. White
3/31/95

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LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

RBGW02

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW002

Date Received: 02/17/95

Lab File ID: VOWAW02R

Date Analyzed: 02/22/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	R
=====	=====	=====	=====	=====

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Date

Joyce Z. White
3/31/95

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LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB0214

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAA006

Date Received: 02/16/95

Lab File ID: VOWAA06R

Date Analyzed: 02/17/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	UJ
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	UJ
67-64-1	Acetone	5	U R
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U R
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	UJ
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	UJ
591-78-6	2-Hexanone	5	U R
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	302920	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	UJ

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FORM I LCV

Reviewed By

Date

Joyce E. White
3/31/95

10/92

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TE0214

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULFCase No.: HLA

SAS No.: _____

SDG No.: 95022Lab Sample ID: WAA006Date Received: 02/16/95Lab File ID: VDWAA06RDate Analyzed: 02/17/95Purge Volume: 25.00 (ml)Dilution Factor: 1.0Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATEDReviewed By Joyce E. WhittleDate 3/31/95

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB0216

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW006

Date Received: 02/17/95

Lab File ID: VOWAW06R

Date Analyzed: 02/21/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	3	U
67-64-1	Acetone	5	R
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	R
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	R
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

302922

FORM I LOW

VALIDATED

10/92

Reviewed By

Date

Joyce E. Wattle
3/31/95

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB0216

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW006

Date Received: 02/17/95

Lab File ID: VOWAW06R

Date Analyzed: 02/21/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATED

Reviewed By

Date

Joyce E. Whittle
3/31/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Semi-volatile Organic Compounds Analysis
(LOW CONCENTRATION)

Case Number : 95022	Project Number: 29872, 10.2
Site: Island Chemical Company	
Contractor Laboratory: PACE, Incorporated	
Validator: J. Whittle	Validation Date: 3/31/95
QC Reviewer: Michael P. Philyin	Review Date: 4/12/95
Sample Matrix: Water (6)	
Analytical Method: EPA CLP Low Concentration Organics SOW	

Sample Designations:

MW0001			
MW0003			
MW0004			
MW0005			
MW0101			
RBGW02			

Data for the above samples are:

☐ Acceptable for use
☒ Acceptable for use as qualified
☐ Unacceptable for use

Is action required by the Project Manager?

Yes ☐ No ☒

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (February 1994).

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Surrogate Recovery Summary
* MS/MSD Summary
* Reagent Blank Summary
X GC/MS Instrument Performance Summary
* Laboratory Control Sample Summary

Sample Data

* Chain of Custody Forms
X Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
X TIC Mass Spectra Library Searches

Initial Calibration Data

* Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

* Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms
X Internal Standards Summary

Instrument Performance Data

X DFTPP Mass Spectra
X Reconstructed Ion Chromatogram
X DFTPP Mass Listings

Reagent Blank Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☒ TIC Mass Spectra Library Searches

Matrix Spike Data and Matrix Spike Duplicate Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms

Laboratory Control Sample

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☒ TIC Mass Spectra Library Searches

Comments:



Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____

JOB NO. _____

DATE 3/30/95

COMPUTED BY J. Whittle

CHECKED BY _____

PROJECT Island Chemical Company
SUBJECT Data Validation

Sample Summary

<u>Client ID</u>	<u>Abbreviated ID</u>	<u>Laboratory ID</u>
MW-1/021695	MW0001	WAW004
MW-3/021595	MW0003	WAW003
MW-4/021495	MW0004	WAA001
MW-5/021595	MW0005	WAW001
MW-101/021695	MW0101	WAW005
RBGW/021595	RBGW02	WAW002
TB/021495	TB0214	WAA006
TB/021695	TB0216	WAW006

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes ☒ No

Were custody transfers correctly and completely documented?

Yes ☒ No

Comments: The water samples were preserved and shipped in good condition. However, four soil samples were shipped warm (19.4°C) and the lab was instructed not to analyze them for organics. These samples were SBFIA/041, SBFIA/13-15, SBFIA/20-22, SBF2A/0-1, and the associated equipment rinseate, RBS0/020395.

Holding Times

Were sample extractions performed within holding times?

Yes ☒ No

Were sample analyses performed within holding times?

Yes ☒ No

Comments:

None

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes ☒ No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes ☒ No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

☒ Yes ☐ No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes ☒ No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

☒ Yes ☐ No

Comments: Di-n-octylphthalate exceeded the 30% RSD control limit at 33.5%. However, since this compound was undetected in the samples, no qualification was necessary on the basis of initial calibration results.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes ☒ No

Did the continuing calibration meet the minimum RRF criteria?

☒ Yes ☐ No

Comments: Several compounds exceeded the 25 %D control limit. Refer to page 14 for a summary of qualifiers and associated samples.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits? —

☒ Yes ☐ No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes ☐ No ☒ NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

☒ Yes ☐ No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes ☐ No ☒

Comments: MS/MSD analysis was performed on sample MW0004. One RPD value and 12 out of 30 recoveries slightly exceeded the compound control limits. Surrogate recoveries for the sample and spike analyses were acceptable, however. Qualifiers are not recommended on the basis of the MS/MSD results. Refer to laboratory control sample (page 7) discussion for additional information.

Were the internal standard areas and retention times within the required limits?

☒ Yes ☐ No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes ☐ No ☒ NA

Comments:

None

Blank Analyses

Were the appropriate number of blank analyses performed?

☒ Yes ☐ No

Were analytes detected in the blanks?

☒ Yes ☐ No

If analytes were detected in the blanks, were the same analytes also detected in the associated investigative samples?

☒ Yes ☐ No ☐ NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

☒ Yes ☐ No

Comments: bis (2-Ethylhexyl) phthalate was detected in the blank at the detection level of 5 ppb. Since phthalates are common laboratory contaminants, the action level is 10 times the blank contamination. Concentrations in the samples less than the action level were qualified as undetected (U), and raised to the detection limit if less than the DL.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

☒ Yes ☐ No ☐ NA

Were the LCS recoveries within acceptable limits?

Yes ☒ No ☐ NA

Comments: Isophorone and naphthalene showed recoveries slightly below the lower control level, while the %R for N-nitrosodiphenylamine was well above the upper control level. These results are generally consistent with the MS/MSD results, with the surrogate recoveries also being within acceptable limits. Only qualification on the basis of the LCS results for these three compounds is recommended:

Isophorone (J/R)
Naphthalene (J/R)
N-Nitrosodiphenylamine (J/-)

Sample Results

Were target analytes reported in the investigative samples?

☒ Yes No

Were mass spectra provided for the target analytes reported in the investigative samples?

☒ Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

☒ Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

☒ Yes No

Comments:

None

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

☒ Yes No NA

Were all non-target peaks evaluated as required?

☒ Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

☒ Yes No

Comments:

None

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

☒ Yes ☐ No

Were sample analyses properly documented and performed in accordance with method protocols?

☒ Yes ☐ No

Comments:

None

Calculation Checks

Instrument Tuning

2/27/95

Relative Abundance:

$$\frac{m/z\ 442}{m/z\ 198} = \frac{2042}{2248} \times 100 = 90.8\%$$

Initial Calibration

2/8/95

RRF:

$$\frac{\text{Compound Area} \times \text{IS Concentration}}{\text{Int. Std. Area} \times \text{Compound Conc.}} = \text{RRF}$$
$$\frac{61789 \times 20}{21702 \times 50} = 1.139 \text{ for chrysene at RRF50}$$

%RSD:

$$\frac{\text{Standard Deviation of 5 Responses}}{\text{Mean of 5 Responses}} = \% \text{RSD}$$
$$\frac{0.03493}{0.1178} = 29.65\% \text{ for 2,4-dinitrophenol}$$

Continuing Calibration

RRF:

$$\frac{\text{Compound Area} \times \text{IS Concentration}}{\text{Int. Std. Area} \times \text{Compound Conc.}} = \text{RRF}$$
$$\frac{4012 \times 20}{29475 \times 20} = 0.136 \text{ for hexachlorobutadiene}$$

%D:

$$\frac{\overline{\text{RRF}} - \text{RRF}_{20}}{\overline{\text{RRF}}} \times 100 = \frac{0.154 - 0.118}{0.154} \times 100 = 23.4\% \text{ for 4-nitrophenol}$$

Surrogate Recovery

MW0003

$$\frac{\text{Surrogate Concentration}}{\text{Surrogate Added}} \times 100 = \%R$$

$$\frac{20.79}{40} \times 100 = 52\% \text{ for 2-fluorobiphenyl}$$

Matrix Spike Recovery MW0004

$$\frac{\text{Spike Concentration}}{\text{Spike Added}} \times 100 = \%R$$

$$\frac{14.3}{40} \times 100 = 35.8\% \text{ for 4-chloroaniline}$$

RPD: $\frac{\text{MS \% Recovery} - \text{MSD \% Recovery}}{\text{MS/MSD Recovery Average}} \times 100 = \text{RPD}$

$$\frac{35.8 - 30.25}{33.025} \times 100 = 16.8\% \text{ for 4-chloroaniline}$$

Sample Results MW0001

CRQL:

$$\frac{\text{Base CRQL} \times \text{Extract Volume} \times \text{Dilution Factor}}{\text{Sample Volume}} = \text{Adjusted CRQL}$$

$$\frac{5 \times 1000 \times 1}{1000} = 5 \text{ for phenol (ug/l)}$$

Detected Result:

$$\frac{\text{Compound Area} \times \text{IS Concentration}}{\text{IS Area} \times \text{CC Compound RRF}} = \text{Concentration}$$
$$\frac{13192 \times 20}{33077 \times 0.264} = 30.21 \text{ ug/l of 2,4-dimethylphenol}$$

TIC Result

$$\frac{\text{TIC Area} \times \text{IS Concentration}}{\text{IS Area} \times \text{Response Factor}} = \text{Concentration}$$

$$\frac{283132 \times 20}{62306 \times 1.000} = 90.88 \text{ ug/l of TIC\#1 at 11.09 RT}$$

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

302936

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF (<0.05)	%D (>25%)	Samples Affected	Qualifier (+/-)
2/27/95	C	bis(2-chloroethyl)ether	—	-28.6	(all samples)	J/UJ
		1,2,4-Trichlorobenzene	—	28.2		
		Hexachlorobutadiene	—	35.2		
		Hexachlorocyclopentadiene	—	56.5		
		2-Nitroaniline	—	27.0		
		2,4-Dinitrophenol	—	26.3		
		3,3'-Dichlorobenzidine	—	65.1		
		Di-n-octyl phthalate	—	-44.1	↓	↓

Comments:

302938

bna_1.doc
10/4/1994 1034

BLANK SUMMARY FORM

[illegible]

Comments:

302939

Summary and Conclusions

All material necessary for a full validation of the low concentration semivolatiles analysis was present, and all holding times were met. QC and raw sample data were reviewed, with calculation checks, and no indication of identification or quantitation errors were found.

Qualification of the data was necessary on the basis of blank contamination, and calibration and laboratory control sample problems. All detections of bis (2-ethylhexyl) phthalate were qualified as undetected (U) and raised to the detection limit because of blank contamination. Results for isophorone (J/R), naphthalene (J/R), and N-nitrosodiphenylamine (J/-) were qualified because of laboratory control sample results, in conjunction with similar MS/MSD results. Several compounds were estimated in all samples (J/UJ) because of high %D results in the continuing calibration. Refer to page 14 for a summary.

All data are considered usable as qualified.

Validator's Signature: <i>Joyce E. Whittle</i>	
Validator's Initials: <i>JW</i>	Validation Date: <i>4/3/95</i>
QC Reviewer's Signature: <i>Michael N. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4/12/95</i>

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW0001

Lab Name: ETC/GULF SOUTH

Contract: _____

b Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW004

Date Received: 02/17/95

Lab File ID: SVWAW04L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U J
95-57-8	2-Chlorophenol	5	U
95-45-7	2-Methylphenol	5	U
106-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	40	
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-57-1	Isophorone	0.6	J
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	30	
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U J
91-20-3	Naphthalene	5	U R
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U J
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U J
88-06-2	2,4,6-Trichlorophenol	5	U
95-91-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U J
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By

Date

Joyce E. White
4/3/95

FORM I LOSV-1

10/92

302941

MW0001

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW004

Date Received: 02/17/95

Lab File ID: SVWAW04L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	U
132-64-2	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,4-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
110-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	UJ
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	U
117-84-0	Di-n-Octyl Phthalate	5	UJ
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By

Date

Joyce S. White
4/3/95

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FW0001

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: FLA SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW004

Date Received: 02/17/95

Lab File ID: SVWAW04L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	PHENOL, -DIMETHYL-	11.09	91	JZ
2.	UNKNOWN	12.25	34	JZ
3.	BENZOIC ACID, -METHYL-	12.70	26	JZ
4.	BENZOIC ACID, -METHYL-	12.82	21	JZ

VALIDATED

Reviewed By

Date

Joyce E. White
4/3/95

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

1LUB

EPA SAMPLE NO.

MW0003

Lab Name: ETC/GULF SOUTH

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 95022

Lab Sample ID: WAW003

Date Received: 02/17/95

Lab File ID: SVWAW03L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	1	J
111-44-4	bis(2-Chloroethyl)Ether	5	U J
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U R
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U J
91-20-3	Naphthalene	5	U R
106-47-8	4-Chloroaniline	5	U
97-48-3	Hexachlorobutadiene	5	U J
59-50-7	4-Chloro-3-methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U J
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U J
131-11-3	Dimethyl Phthalate	5	U
203-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By

Date

FORM I LCSV-1

10/92

302944

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

27 H 3000 L2 No.

MW0003

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW003 Date Received: 02/17/95

Lab File ID: SVWAW03L Date Extracted: 02/20/95

Sample Volume: 1000 (ml) Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	D
51-26-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-64-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-ethylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U J
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	U
117-84-0	Di-n-Octyl Phthalate	5	U J
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By James E. White
Date 4/3/95

FORM I LCSV-2

10/92

302945

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW00003

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW003

Date Received: 02/17/95

Lab File ID: SVWAW03L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.6

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	14.49	9	JN
2. 119-61-9	METHANONE, DIPHENYL	16.85	42	JN
3.	UNKNOWN	17.32	10	JN
4.	UNKNOWN	17.70	92	JN
5.	UNKNOWN	17.99	25	JN

VALIDATED

Reviewed By

Date

Joyce S. Whittle
4/3/95

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW0004

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAA001

Date Received: 02/16/95

Lab File ID: SVWAA01L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U J
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U R
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U J
91-20-3	Naphthalene	5	U R
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U J
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U J
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U J
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By

Joyce S. Whittle
4/3/95

Date

FORM I LCSV-1

10/92

302947

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW00004

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAA001

Date Received: 02/16/95

Lab File ID: SVWAA01L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	G
51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U J
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	U J
117-84-0	Di-n-Octyl Phthalate	5	U J
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By

Date

FORM I LCSV-2

10/92

302948

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW0004

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAA001 Date Received: 02/16/95

Lab File ID: SVWAA01L Date Extracted: 02/20/95

Sample volume: 1000 (ml) Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 7.7

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	12.30	13	JZ
2.	1,1'-BIPHENYL	14.84	18	JZ

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/3/95

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULFCase No.: HLA

SAS No.: _____

SDG No.: 95022Lab Sample ID: WAW001Date Received: 02/17/95Lab File ID: SVWAW01LDate Extracted: 02/20/95Sample volume: 690.0 (ml)Date Analyzed: 02/27/95Concentrated Extract Volume: 1000 (ul)Dilution Factor: 1.0Injection Volume: 1.0 (ul)pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	R
108-95-2	Phenol	7	U
111-44-4	bis(2-Chloroethyl)Ether	7	U J
95-57-8	2-Chlorophenol	7	U
95-48-7	2-Methylphenol	7	U
108-60-1	2,2'-oxybis(1-Chloropropane)	7	U
106-44-5	4-Methylphenol	7	U
621-64-7	N-Nitroso-Di-n-Propylamine	7	U
67-72-1	Hexachloroethane	7	U
98-95-3	Nitrobenzene	7	U
78-59-1	Isophorone	7	U R
88-75-5	2-Nitrophenol	7	U
105-67-9	2,4-Dimethylphenol	7	U
111-91-1	bis(2-Chloroethoxy)Methane	7	U
120-83-2	2,4-Dichlorophenol	7	U
120-82-1	1,2,4-Trichlorobenzene	7	U J R
91-20-3	Naphthalene	7	U R
106-47-8	4-Chloroaniline	7	U
87-68-3	Hexachlorobutadiene	7	U J
59-50-7	4-Chloro-3-methylphenol	7	U
91-57-6	2-Methylnaphthalene	7	U
77-47-4	Hexachlorocyclopentadiene	7	U J
88-06-2	2,4,6-Trichlorophenol	7	U
95-95-4	2,4,5-Trichlorophenol	29	U
91-58-7	2-Chloronaphthalene	7	U
88-74-4	2-Nitroaniline	29	U J
131-11-3	Dimethyl Phthalate	7	U
208-96-8	Acenaphthylene	7	U
606-20-2	2,6-Dinitrotoluene	7	U
99-09-2	3-Nitroaniline	29	U
83-32-9	Acenaphthene	7	U

VALIDATED

Reviewed By Joyce E. WhittleDate 4/3/95

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW0005

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULFCase No.: HLA

SAS No.: _____

SDG No.: 95022Lab Sample ID: WAW001Date Received: 02/17/95Lab File ID: SUWAW01LDate Extracted: 02/20/95Sample volume: 690.0 (ml)Date Analyzed: 02/27/95Concentrated Extract Volume: 1000 (ul)Dilution Factor: 1.0Injection Volume: 1.0 (ul)pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	B
51-28-5	2,4-Dinitrophenol	29	UJ
100-02-7	4-Nitrophenol	29	U
132-64-9	Dibenzofuran	7	U
121-14-2	2,4-Dinitrotoluene	7	U
84-66-2	Diethylphthalate	7	U
7005-72-3	4-Chlorophenyl-phenylether	7	U
86-73-7	Fluorene	7	U
100-01-6	4-Nitroaniline	29	U
534-52-1	4,6-Dinitro-2-Methylphenol	29	U
86-30-6	N-Nitrosodiphenylamine (1)	7	U
101-55-3	4-Bromophenyl-phenylether	7	U
118-74-1	Hexachlorobenzene	7	U
87-86-5	Pentachlorophenol	29	U
85-01-8	Phenanthrene	7	U
120-12-7	Anthracene	7	U
84-74-2	Di-n-Butylphthalate	7	U
206-44-0	Fluoranthene	7	U
129-00-0	Pyrene	7	U
85-62-7	Butylbenzyl phthalate	7	U
91-94-1	3,3'-Dichlorobenzidine	7	UJ
56-55-3	Benzo(a)Anthracene	7	U
218-01-9	Chrysene	7	U
117-81-7	bis(2-Ethylhexyl)Phthalate	7	UJ
117-84-0	Di-n-Octyl Phthalate	7	UJ
205-99-2	Benzo(h)Fluoranthene	7	U
207-08-9	Benzo(k)Fluoranthene	7	U
50-32-8	Benzo(a)Pyrene	7	U
193-39-5	Indeno(1,2,3-cd)Pyrene	7	U
53-70-3	Dibenz(a,h)Anthracene	7	U
191-24-2	Benzo(g,h,i)Perylene	7	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Joyce E. WhittleDate 4/3/95

FORM J LCSV-2

10/92

302951

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW0005

Lab Name: ETC/GULF SOUTH Contract: _____

b Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW001

Date Received: 02/17/95

Lab File ID: SVWAW011

Date Extracted: 02/20/95

Sample volume: 690.0 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.1

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	R
1.	UNKNOWN	12.27	42	JN

VALIDATED

Reviewed By

Date

Joanne E. Whittle
04/3/95

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LPH SAMPLE NO.

MW0101

Lab Name: ETC/GULF SOUTH

Contract: _____

b Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Lab Sample ID: WAW005

Date Received: 02/17/95

Lab File ID: SVWAW05L

Date Extracted: 02/20/95

Sample volume: 1000 (ml)

Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U J
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	48	
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	0.7	3
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	22	
111-71-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U J
91-20-3	Naphthalene	5	U R
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U J
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U J
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U J
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By

Date

FORM I LCSV-1

10/92

302953

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW0101

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULFCase No.: HLA

SAS No.: _____

SDG No.: 95022Lab Sample ID: WAW005Date Received: 02/17/95Lab File ID: SVWAW05LDate Extracted: 02/20/95Sample volume: 1000 (ml)Date Analyzed: 02/27/95Concentrated Extract Volume: 1000 (ul)Dilution Factor: 1.0Injection Volume: 1.0 (ul)pH: 6.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	

51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
94-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U J
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	cis(2-Ethylhexyl)Phthalate	5	U
117-84-0	Di-n-Octyl Phthalate	5	U J
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Joyce Z. WhiteDate 04/3/95

FORM I LCSV-2

0/92

302954

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

MW0101

Lab Name: ETC/GULF SOUTH Contract: _____
 Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95022
 Lab Sample ID: WAW005 Date Received: 02/17/95
 Lab File ID: SVWAW05L Date Extracted: 02/20/95
 Sample volume: 1000 (ml) Date Analyzed: 02/27/95
 Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0
 Injection Volume: 1.0 (ul) pH: 8.2

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	PHENOL, -ETHYL-	11.04	59	JZ
2.	BENZENEETHANOL, -METHYL-	11.09	45	JZ
3.	UNKNOWN	12.25	34	JZ
4.	BENZOIC ACID, -METHYL-	12.72	26	JZ
5.	BENZOIC ACID, -METHYL-	12.85	36	JZ

VALIDATED

Reviewed By

Date

Joyce E. Whittle
04/3/95

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

REGW02

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULFCase No.: HLA

SAS No.: _____

SDG No.: 95022Lab Sample ID: WAW002Date Received: 02/17/95Lab File ID: SVWAW02LDate Extracted: 02/20/95Sample volume: 1000 (ml)Date Analyzed: 02/27/95Concentrated Extract Volume: 1000 (ul)Dilution Factor: 1.0Injection Volume: 1.0 (ul)pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

103-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U J
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	4-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	✓ R
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U J
91-20-3	Naphthalene	5	✓ R
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U J
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U J
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U J
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By Joyce E. WhiteDate 4/3/95

FORM I LCSV-1

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302956

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

RBGW02

Lab Name: ETC/GULF SOUTH Contract: _____Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95022Lab Sample ID: WAW002 Date Received: 02/17/95Lab File ID: SVWAW02L Date Extracted: 02/20/95Sample volume: 1000 (ml) Date Analyzed: 02/27/95Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0Injection Volume: 1.0 (ul) pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-60-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U J
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	U
117-84-0	Di-n-Octyl Phthalate	5	U J
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Joyce E. WhittleDate 4/3/95

FORM I LCSV-2

10/92

302957

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

RBGW02

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95022

Lab Sample ID: WAW002 Date Received: 02/17/95

Lab File ID: SVWAW02 Date Extracted: 02/20/95

Sample volume: 1000 (ml) Date Analyzed: 02/27/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 8.2

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/3/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Semivolatile Organic Compound Analysis

Case Number: 95022	Project Number: 29872 10.1
Site: Island Chemical Company	
Contractor Lab: Pace Incorporated, New Orleans	
Validator: Kirsten Meier	Validation Date: 11 April, 1995
QC Reviewer: <i>Michael H. Phyllis</i>	Review Date: 4-13-95
Sample Matrix: Water	
Analytical Method: SW 846, Method 8270, Pyridine only	

Sample Designations:

Client ID (Lab Sample ID)

MW0004	MW0005	RBGW02	MW0003
MW0001	MW0101		

Data for the above samples are:

- ☐ Acceptable for use
- ☒ Acceptable for use as qualified
- ☐ Unacceptable for use

Is action required by the Project Manager?

Yes No☒

Comments:

The investigative samples were validated in accordance with the "USEPA CLP National Functional Guidelines for Organic Data Review", February 1994.

DATA COMPLETENESS CHECKLIST

- [x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

- ☒ Case Narrative
☒ Surrogate Recovery Summary
☒ MS/MSD Summary
☒ Reagent Blank Summary
☒ GC/MS Instrument Performance Summary

Sample Data

- ☒ Chain of Custody Forms
☒ Holding Times
☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☒ NA TIC Mass Spectra Library Searches

Initial Calibration Data

- ☒ Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

- ☒ Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms
☒ Internal Standards Summary

Instrument Performance Data

- ☒ DFTPP Mass Spectra
☒ Reconstructed Ion Chromatogram
☒ DFTPP Mass Listings

Reagent Blank Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☐ NA TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms

Laboratory Control Sample

☐ NA Organic Analysis Data Sheets
☐ NA Quantitation Reports
☐ NA Reconstructed Ion Chromatograms
☐ NA Mass Spectra Printouts
☐ NA TIC Mass Spectra Library Searches

Comments:

For the instrument C the Reconstructed Ion Chromatograms showed peak areas from the scan 350 and higher, while the compound of interest, Pyridine, appears at approximately scan 210. A visual comparison of data for Pyridine was not possible.

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes[x] No

Were custody transfers correctly and completely documented?

Yes[x] No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No[x]

Were sample analyses performed within holding times?

Yes[x] No

Comments:

The investigative sample MW0003 was re-extracted outside hold time to evaluate surrogate recoveries.
For the report, the original sample was used and qualification of data was not necessary.

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes[x] No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes[x] No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes☒ No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No☒

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes☒ No

Comments:

This review is only based on the evaluation of Pyridine.

As stated previously, the chromatograms for instrument C do not show the scans for Pyridine and N-Nitrosodimethylamine, a visual evaluation was not possible. The possibility that the injection peak or other factors might have interfered or affected the quantitation of the target analyte Pyridine, cannot be evaluated.

The concentrations of the initial and continuing standards are listed in the header as twice as high as the concentrations used in the quantitation section of the data. The injection volume is not clearly defined, but appears, that the same amount of 1.0 ul was used for standards and samples. Since no detections of Pyridine were reported, no qualification of data is necessary.

In the initial calibration on 2-20-95, Instrument C, the percent RSD for Pyridine was 33.721, exceeding the limit of 30.0%. Therefore, positive detections would be qualified as estimated (J). However, no positive detections for Pyridine were reported and qualification of data was not necessary.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No☒

Did the continuing calibration meet the minimum RRF criteria?

Yes☒ No

Comments:

This review is only based on the evaluation of Pyridine.

Several continuing calibrations exceeded the QC limit of 25%. See table "Continuing Calibration Summary" for samples and associated qualifiers.

As stated previously, the chromatograms for instrument C do not show the scans for Pyridine and N-Nitrosodimethylamine, a visual evaluation was not possible. The possibility that the injection peak or other factors might have interfered or affected the quantitation of the target analyte Pyridine, cannot be evaluated.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes[x] No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA[x]

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes[x] No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes[x] No

Comments:

The matrix spikes were performed with a 8270 mixture, which does not include Pyridine. The lab provided a summary of matrix spike recoveries, some recoveries were not within 8270 QC limits. No qualification of data.

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes[x] No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes[x] No NA

Comments:

No internal standard area and retention time summaries were provided. The associated peak responses were compared and the QC criteria were met. No qualification of data.

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Blank Analyses

Were the appropriate number of blank analyses performed?

Yes[x] No

Were analytes detected in the blanks?

Yes No[x]

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

Yes No NA[x]

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No[x]

Comments:

This review is only based on the evaluation of Pyridine. The target analyte was not detected in the associated prep blanks and qualification of data was not necessary.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes No NA[x]

Were the LCS recoveries within acceptable limits?

Yes No NA[x]

Comments:

Not applicable.

Sample Results

Were target analytes reported in the investigative samples?

Yes No[x]

Were mass spectra provided for the target analytes detected in the investigative samples?

Yes No NA[x]

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No NA[x]

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes[x] No

Comments:

As stated previously, the chromatograms for instrument C do not show the scans for Pyridine and N-Nitrosodimethylamine, a visual evaluation was not possible. The possibility that the injection peak or other factors might have interfered with or affected the quantitation of the target analyte, Pyridine, cannot be evaluated. Therefore, the reported result for Pyridine in the investigative sample MW0004 was qualified as estimated (J).

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA[x]

Were non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments:

Not applicable.

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes[x]

No

NA

Were sample analyses properly documented and performed in accordance with method protocols?

Yes[x]

No

Comments:

On the Form I for the investigative samples RBGW02 and MW0003, the prep date was entered as 2-02-95, which is incorrect; the correct date is assumed at 2-20-95.

The raw data (chromatogram) for the investigative sample MW0003, 2-27-95, is incorrectly listed as WM003.

No qualification of data.

302967

Calculation Checks

Instrument Tuning m/z of 127, 2-20-95, 9:31, Instrument C

Relative Abundance:

$$\frac{616}{1218} \times 100 = 50.57\%$$

Initial Calibration Std 50, 2-2-95, Instrument H, D5-Phenol

RRF:

$$\frac{52223 \times 20}{27784 \times 25} = 1.5037$$

%RSD:

$$\frac{0.0687}{1.4892} \times 100\% = 4.6137$$

Continuing Calibration Std 50, 2-23-95, 14:56, Instrument H, Pyridine

RRF:

$$\frac{77237 \times 20}{42043 \times 25} = 1.4697$$

%D:

$$\frac{1.01438 - 1.46968}{1.01438} \times 100 = -44.88\%$$

Surrogate Recovery , MW0001, 2-Fluorophenol

$$\frac{151425 \times 20}{51376 \times 1.26758} = 46.5042$$

$$\frac{46.50}{75} \times 100 = 62.0\% \text{ recovery}$$

Matrix Spike Recovery

Detected concentrations not known

RPD: Batch 12244, Phenol

$$\frac{2 \mid 83 - 80 \mid}{\mid 83 + 80 \mid} = 3.6810$$

Sample Results

CRQL: Water sample

Detected Result: No detection

TIC Result

Not required

Case Number: 95022
Project Number: 29872 10.1
Site ID: Island Chemical Company

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier

Comments: None

Case Number: 95022
Project Number: 29872 10.1
Site ID: Island Chemical Company

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
2-20-95	C	Pyridine		33.721	MW0004	J/-

Comments:
None

302971

Case Number: 95022
Project Number: 29872 10.1
Site ID: Island Chemical Company

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
2-23-95, 14:56	H	Pyridine		44.88	MW0001, MW0101	J/UJ
2-24-95, 10:59	H	Pyridine		40.74	MW0005, RBGW02	J/UJ
2-27-95, 14:16	H	Pyridine		31.44	MW0003	J/UJ

Comments:
None

Case Number: 95022
Project Number: 29872 10.1
Site ID: Island Chemical Company

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples

Comments:
None

302973

Summary and Conclusions

The analytical results for Pyridine are acceptable for use as qualified.

The reported results for Pyridine in the investigative sample MW0004 was qualified as estimated (J) since a visual comparison of the peak acquisition was not possible.

The results for Pyridine in the investigative samples MW0003, MW0001, MW0101, MW0005, and RBGW02 were qualified as estimated (J) due to exceeding continuing calibration criteria.

Validator's Signature: <i>Kirsten Meier</i>	
Validator's Initials: <i>KM</i>	Validation Date: <i>4-11-95</i>
QC Reviewer's Signature: <i>Michael N. Kelly</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4-13-95</i>

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0004
Description: NA
Sample ID: WAA-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 02/14/95
Received: 02/16/95
Prepared: 02/17/95
Analyzed: 02/21/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection Limit
		Sample	Blank	
110-86-1	Pyridine	ND	ND	10.0 <u>03</u>

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Kristen Reie

Date

4-11-95

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0005
Description: NA
Sample ID: WAW-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 02/15/95
Received: 02/17/95
Prepared: 02/20/95
Analyzed: 02/24/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		
		(Bl) Sample	Blank	Detection Limit
110-86-1	Pyridine	ND	ND	15.1 UJ

ND-Not Detected at or above the detection limit stated.

(Bl) A reduced sample aliquot was extracted. The detection limit has been elevated accordingly.

VALIDATED

Reviewed By Kristen Heie
Date 4-11-95

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: RBGW02
Description: NA
Sample ID: WAW-002
Matrix: Water
Wet/Dry Basis: NA

Collected: 02/15/95
Received: 02/17/95
Prepared: 02/02/95
Analyzed: 02/24/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection Limit
		Sample	Blank	
110-86-1	Pyridine	ND	ND	10.0 UJ

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Kristen Reie

Date

4-11-95

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270 Harding Lawson Associates

Client ID: MW0003
Description: NA
Sample ID: WAW-003
Matrix: Water
Wet/Dry Basis: NA

Collected: 02/15/95
Received: 02/17/95
Prepared: 02/02,03/01/95
Analyzed: 02/27,03/03/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		
		(D1) Sample	Blank	Detection Limit
110-86-1	Pyridine	ND	ND	10.0 UJ

ND-Not Detected at or above the detection limit stated.

(D1) Sample required re-extraction (and/or re-analysis) due to surrogate recoveries outside the QC limits. Re-analysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.

VALIDATED

Reviewed By

Kristen Kuei

Date

4-11-95

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0001
Description: NA
Sample ID: WAW-004
Matrix: Water
Wet/Dry Basis: NA

Collected: 02/19/95
Received: 02/17/95
Prepared: 02/20/95
Analyzed: 02/23/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection Limit
		Sample	Blank	
110-86-1	Pyridine	ND	ND	10.0 UJ

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Date

Kristen Meier
4-11-95

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0101
Description: NA
Sample ID: WAW-005
Matrix: Water
Wet/Dry Basis: NA

Collected: 02/19/95
Received: 02/17/95
Prepared: 02/20/95
Analyzed: 02/23/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection
		Sample	Blank	Limit
110-86-1	Pyridine	ND	ND	10.0 UJ

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Date

Winston Heier
4-11-95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Organochlorine Pesticides and Polychlorinated Biphenyls Analysis

Case Number : 95022	Project Number: 29872, 10.2
Site: Island Chemical Company	
Contractor Laboratory: PACE, Incorporated	
Validator: J. Whittle	Validation Date: 3/31/95
QC Reviewer: Michael R. Whitten	Review Date: 4/12/95
Sample Matrix: Water (6)	
Analytical Method: EPA CLP Organics SOW (Low Concentration)	

Sample Designations:

MW0001			
MW0003			
MW0004			
MW0005			
MW0101			
RBGW02			

Data for the above samples are:

- ☐ Acceptable for use
☒ Acceptable for use as qualified
☐ Unacceptable for use

Is action required by the Project Manager?

Yes ☐ No ☒

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (February 1994).

DATA COMPLETENESS CHECKLIST

 X Included, no problems
 * Included, problems
 O Not included
 NA Not applicable

Quality Control Summary

 X Case Narrative
 * Surrogate Recovery Summary
 * MS/MSD Summary
 X Reagent Blank Summary

Sample Data

 * Chain of Custody Forms
 * Holding Times
 * Organic Analysis Data Sheets
 X Quantitation Reports
 X GC/EC Chromatograms
 * Pesticide/PCB Identification (for positive detections)

Instrument Calibration and Performance Data

 X Initial Calibration Retention Time Summary
 * Initial Calibration Response Factor Summary
 X Performance Evaluation Mix Summary
 X Continuing Calibration Verification Summary
 X Analytical Run Sequence Summary
 X GPC Calibration and Florisil Cartridge Check Summary
 X Pesticide/PCB Standards Quantitation Reports
 X Pesticide/PCB Standards GC/EC Chromatograms

Reagent and Instrument Blank Data

 X Organic Analysis Data Sheets
 X Quantitation Reports
 X GC/EC Chromatograms
 X Pesticide/PCB Identification (for positive detections)

Matrix Spike Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ GC/EC Chromatograms

Comments:



Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____

JOB NO. _____

DATE 3/30/95

COMPUTED BY J. Whittle

CHECKED BY _____

PROJECT

Island Chemical Company

SUBJECT

Data Validation

Sample Summary

<u>Client ID</u>	<u>Abbreviated ID</u>	<u>Laboratory ID</u>
MW-1/021695	MW0001	WAW004
MW-3/021595	MW0003	WAW003
MW-4/021495	MW0004	WAA001
MW-5/021595	MW0005	WAW001
MW-101/021695	MW0101	WAW005
RBGW/021595	RBGW02	WAW002
TB/021495	TB0214	WAA006
TB/021695	TB0216	WAW006

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes

☒ No

Comments: The water samples were cooled and shipped in good condition. However, four soil samples were shipped warm and the laboratory was instructed not to analyze them. These samples were SBFIA/0-1, SBFIA/13-15, SBFIA/20-22, SBFZA/0-1, and the associated equipment rinseate, RBSO/020395.

Holding Times

Were sample extractions performed within holding times?

Yes

☒ No

Were sample analyses performed within holding times?

☒ Yes

No

Comments: The reanalysis samples were extracted past the 7-day holding time. Samples MW0001RE, MW0003RE, MW0101RE, and RBGW02RE should be considered estimated (J/U). Refer to page 12 for a summary.

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

☒ Yes ☐ No

Were the calibration standards analyzed at the correct concentrations?

☒ Yes ☐ No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes ☒ No

Were retention time windows provided and correctly calculated?

☒ Yes ☐ No

Were peak resolutions acceptable?

☒ Yes ☐ No

Comments: Alpha-BHC failed to meet the 20% RSD limit. Results in samples MW0001, MW0003, MW0004, MW0005, MW0101, and RBGW02 have been qualified as estimated (J/UT).

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

☒ Yes ☐ No

Did the individual mix standards meet the retention time criteria?

☒ Yes ☐ No

Comments:

None

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

☒ Yes ☐ No

Did the performance evaluation mix standards meet the retention time criteria?

☒ Yes ☐ No

None

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

☒ Yes ☐ No

None

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes ☒ No

If the spike recoveries were unacceptable, were the samples reanalyzed?

☒ Yes ☐ No

302987

Comments: Recovery of TCX was problematic due to interferences at the low end of the chromatogram. Recoveries ranged from 0% to over 2000%. Data rejection is not recommended. However, detected compounds should be estimated (J) in samples MW0001, MW0003, MW0003RE, and MW0101. All results should be estimated in samples MW0001RE, MW0101RE, RBGW02, and RBGW02RE. Surrogate recoveries of the laboratory control sample were acceptable, whereas one method blank showed recovery of TCX slightly below the lower control limit on the secondary column. Raw data review did not suggest that recovery problems were due to blanks or system performance.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

☒ Yes ☐ No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

☐ Yes ☐ No

Comments: MS/MSD analysis was performed on sample MW0004. The spike recovery of heptachlor epoxide was slightly below the lower control level on the secondary column, but were acceptable on the primary column and in the sample reanalysis of the MS/MSD. Surrogate recoveries of TCX also were low on the secondary column, but in this case were low in the reanalysis as well. Qualification of the data is not recommended on the basis of MS/MSD results. Refer to discussion of surrogate recoveries (page 6) for further information.

Blank Analyses

Were the appropriate number of blank analyses performed?

☒ Yes ☐ No

Were instrument blanks analyzed at the correct frequency?

☒ Yes ☐ No

Were analytes reported in the blanks?

☐ Yes ☒ No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

☐ Yes ☐ No

☒ NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

☐ Yes ☒ No

Comments:

None

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

☒ Yes ☐ No

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

☒ Yes ☐ No

Comments:

None

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes ☒ No

Was the GPC column check acceptable?

Yes ☐ No ☒ NA

Was a Florisil cartridge check performed?

☒ Yes ☐ No

Was the Florisil cartridge check acceptable?

☒ Yes ☐ No ☐ NA

None

Laboratory Control Samples

Were LCS analyses performed?

☒ Yes ☐ No

Were the LCS recoveries within acceptable limits?

☒ Yes ☐ No ☐ NA

The laboratory indicates in its narrative that an appropriate blank spike Form 3 for each column could not be generated by the software because of the low concentration method used. For this reason, the LCS will not appear in the diskette file. However, internal GC lab Form 3s were submitted in conjunction with the MS/MSD results.

Sample Results

Were target analytes reported in the investigative samples?

☒ Yes ☐ No

Were chromatograms provided for all target analytes reported in the investigative samples?

☒ Yes ☐ No

Were chromatograms of acceptable quality and were analytes correctly identified?

Yes ☒ No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

☒ Yes ☐ No

Comments: Beta-BHC was detected in samples MW0001RE and MW0101RE, and the highest value rather than the lowest on the columns was used for quantitation. The lab doesn't explain the reason for this in the narrative, but review of the raw data suggests that these values may have been judged the most accurate because of interferences at the low end of the chromatogram. Therefore, the quantitated values were not changed. Also, gamma-chlordan could not be verified from the 2^o column raw data since the data was "cut off" in photocopying. Since the pesticide identification summary was complete, no action to qualify was taken.

(continued)



PROJECT Island Chemical Company

SUBJECT Data Validation

All compounds quantitated by the lab showed values that differed by more than 25% between the columns. These compounds were flagged with a "P" by the lab, and should be considered estimated values (J).

For unknown reasons, the following compounds were detected and confirmed at or above the quantitation limit, but were shown as undetected on FORM 1. The quantitated values were added and qualified, if necessary, as shown below.

<u>Sample/ Compound</u>	<u>Col.</u>	<u>RT</u>	<u>RT Window</u>	<u>Conc.</u>	<u>%D</u>	<u>Qual.</u>

MW0003RE

Endrin aldehyde	1	19.320	19.27-19.41	0.0499		
	2	18.485	18.40-18.54	0.0249	100.4	J
Aldrin	1	13.859	13.81-13.91	0.0128		
	2	12.473	12.41-12.51	0.0159	24.2	none

MW0005

Endrin aldehyde	1	19.537	19.43-19.57	0.0752		
	2	19.721	19.70-19.84	0.0367	104.9	J

Calculation Check

Initial Calibration

2/10/95

Retention Time Window:

$$\text{Average of 3 Standard Retention Times} \pm 0.07 \text{ min.} = \text{RT Window}$$
$$\frac{15.36 + 15.34 + 15.34}{3} \pm 0.07 = [15.28 - 15.42] \text{ heptachlor epoxide}$$

%RSD:

$$\frac{\text{Standard Deviation of 3 Calibration Factors}}{\text{Mean of 3 Calibration Factors}} \times 100 = \% \text{RSD}$$

$$\frac{705998}{4663333} \times 100 = 15.1\% \text{ for 4,4'}$$

Continuing Calibration

3/7/95, 1756

$$\%D: \frac{\text{Actual Amount} - \text{Calculated Amount}}{\text{Actual Amount}} \times 100 = \%D$$

$$\frac{0.0400 - 0.0433}{0.0400} \times 100 = 8.2\% \text{ for 4,4'-DC}$$

Surrogate Recovery

MW0001 RE

$$\frac{\text{Amount Recovered}}{\text{Amount Added}} \times 100 = \%R$$

$$\frac{0.5663}{0.0400} \times 100 = 1415\% \text{ for TCX on 1° column}$$

Matrix Spike Recovery

MW0004

$$\frac{\text{MS Found} - \text{Sample Found}}{\text{MS/MSD Added}} \times 100 = \%R$$

$$\frac{0.087 - 0.014}{0.100} \times 100 = 73\% \text{ for gamma-BHC}$$

RPD:

$$\frac{\text{MS \%R} - \text{MSD \%R}}{\text{MS/MSD \%R Average}} \times 100 = \text{RPD}$$

$$\frac{73 - 81}{77} = 10.4\% \text{ for gamma-BHC}$$

Sample Results MW0005

CRQL:

$$\text{Base CRQL} \times \text{Dilution Factor} \times \left(\frac{1000}{700}\right) = \text{Adjusted CRQL}$$
$$0.01 \times 1 \times \left(\frac{1000}{700}\right) = 0.014 \text{ for alpha-BHC}$$

MPP 4-12-95

Positive Result:

$$\frac{\text{Area of Compound} \times \text{Extract Volume}}{\text{Mid-Level Cal. Factor} \times \text{Sample Volume}} = \text{Concentration}$$
$$\frac{36263 \times 2000}{2960000 \times 700} = 0.035 \text{ for endrin aldehyde}$$

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier (+/-)
MW0001RE	2/16/95	2/27/95	3/10/95	7 days	40 days	J/UJ
MW0003RE	2/15/95	2/27/95	3/10/95	7 days	40 days	J/UJ
MW0101RE	2/16/95	2/27/95	3/10/95	7 days	40 days	J/UJ
RBGW02RE	2/15/95	2/27/95	3/10/95	7 days	40 days	J/UJ

Comments:

302994

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier (+/-)
2/10/95	GCI	alpha-BHC	—	20.8	MW0001, MW0003, MW0004, MW0005, MW0101, RBGW02	J/UT

Comments:

302995

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

BLANK SUMMARY FORM

[illegible]

Comments:

302997

Summary and Conclusions

All data necessary for a full validation of the pesticide analysis were present. Holding times were met, except for the extraction of the reanalysis samples. The reanalyses have been qualified as estimated. Raw data were evaluated and calculation checks were made, and no errors were found. However, review of the sample data for MW0003RE and MW0005 showed that aldrin and/or endrin aldehyde were detected and confirmed at or above the detection limit, but not quantitated. Detected values have been entered onto the FORM 1's. Also concerning reported sample values, compounds have been estimated when the percent difference between the primary and secondary column quantitation values was greater than 25% ("P" flagged; qualified "J").

Additional qualification was needed on the basis of surrogate and calibration problems. Alpha-BHC was estimated (U) in MW0001, MW0003, MW0004, MW0005, MW0101, and RBGW02 because of initial calibration results on both columns above the 20% RSD limit. Detected results in MW0001, MW0003, MW0003RE, and MW0101 (J),^{MPP 4-12-95} and all sample results in MW0001RE, MW0101RE, RBGW02, and RBGW02RE were estimated (U) due to particular surrogate recovery problems described in this report.

Validator's Signature: <i>Joyce E. Whittle</i>	
Validator's Initials: <i>JW</i>	Validation Date: 4/5/95
QC Reviewer's Signature: <i>Michael R. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: 4/12/95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001

Lab Name: G S E L I Contract: HLA

Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95022

Matrix: (soil/water) WATER Lab Sample ID: WAW004

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/20/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.010	UJ
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.010	U
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U

VALIDATED

FORM I PEST

Reviewed By James E. White
Date 4/4/95 3/90

302999

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001RE

Lab Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Matrix: (soil/water) WATER

Lab Sample ID: WAW004RE

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 02/27/95

Concentrated Extract Volume: 2000 (uL)

Date Analyzed: 03/10/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 8.2

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

319-84-6-----	alpha-BHC	0.010	UJ
319-85-7-----	beta-BHC	0.17	PJ
319-86-8-----	delta-BHC	0.010	UJ
58-89-9-----	gamma-BHC (Lindane)	0.010	UJ
76-44-8-----	Heptachlor	0.010	UJ
309-00-2-----	Aldrin	0.010	UJ
1024-57-3-----	Heptachlor epoxide	0.010	UJ
959-98-8-----	Endosulfan I	0.010	UJ
60-57-1-----	Dieldrin	0.020	UJ
72-55-9-----	4,4'-DDE	0.020	UJ
72-20-8-----	Endrin	0.020	UJ
33213-65-9-----	Endosulfan II	0.020	UJ
72-54-8-----	4,4'-DDD	0.020	UJ
1031-07-8-----	Endosulfan sulfate	0.020	UJ
50-29-3-----	4,4'-DDT	0.020	UJ
72-43-5-----	Methoxychlor	0.10	UJ
53494-70-5-----	Endrin ketone	0.020	UJ
7421-93-4-----	Endrin aldehyde	0.037	PJ
5103-71-9-----	alpha-Chlordane	0.010	UJ
5103-74-2-----	gamma-Chlordane	0.025	PJ
8001-35-2-----	Toxaphene	1.0	UJ
12674-11-2-----	Aroclor-1016	0.20	UJ
11104-28-2-----	Aroclor-1221	0.40	UJ
11141-16-5-----	Aroclor-1232	0.20	UJ
53469-21-9-----	Aroclor-1242	0.20	UJ
12672-29-6-----	Aroclor-1248	0.20	UJ
11097-69-1-----	Aroclor-1254	0.20	UJ
11096-82-5-----	Aroclor-1260	0.20	UJ

VALIDATED

Reviewed By

FORM I PEST

Date

303000

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003

Lab Name: G S E L I

Contract: HLA

Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95022

Matrix: (soil/water) WATER

Lab Sample ID: WAW003

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 02/20/95

Concentrated Extract Volume: 2000 (uL)

Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.8

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

319-84-6-----	alpha-BHC	0.010	UJ
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.010	U
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U

VALIDATED

Reviewed By

FORM I PEST

Date

3/90

303001

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003RE

Lab Name: G S E L I Contract: HLA

Lab Code: PAGE Case No.: HLA SAS No.: _____ SDG No.: 95022

Matrix: (soil/water) WATER Lab Sample ID: WAW003RE

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/27/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 03/10/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	Q

319-84-6-----alpha-BHC	0.010	UJ
319-85-7-----beta-BHC	0.010	UJ
319-86-8-----delta-BHC	0.010	UJ
58-89-9-----gamma-BHC (Lindane)	0.010	UJ
76-44-8-----Heptachlor	0.010	UJ
309-00-2-----Aldrin	0.013	~~0.010~~ UJ
1024-57-3-----Heptachlor epoxide	0.010	UJ
959-98-8-----Endosulfan I	0.010	UJ
60-57-1-----Dieldrin	0.020	UJ
72-55-9-----4,4'-DDE	0.020	UJ
72-20-8-----Endrin	0.020	UJ
33213-65-9-----Endosulfan II	0.020	UJ
72-54-8-----4,4'-DDD	0.020	UJ
1031-07-8-----Endosulfan sulfate	0.020	UJ
50-29-3-----4,4'-DDT	0.020	UJ
72-43-5-----Methoxychlor	0.10	UJ
53494-70-5-----Endrin ketone	0.020	UJ
7421-93-4-----Endrin aldehyde	0.025	~~0.020~~ UJ
5103-71-9-----alpha-Chlordane	0.010	UJ
5103-74-2-----gamma-Chlordane	0.010	UJ
8001-35-2-----Toxaphene	1.0	UJ
12674-11-2-----Aroclor-1016	0.20	UJ
11104-28-2-----Aroclor-1221	0.40	UJ
11141-16-5-----Aroclor-1232	0.20	UJ
53469-21-9-----Aroclor-1242	0.20	UJ
12672-29-6-----Aroclor-1248	0.20	UJ
11097-69-1-----Aroclor-1254	0.20	UJ
11096-82-5-----Aroclor-1260	0.20	UJ

VALIDATED

FORM I PEST Reviewed By Joyce E. Whittle 3/90
Date 04/04/95

303002

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0004

Lab Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95022

Matrix: (soil/water) WATER

Lab Sample ID: WAA001

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 02/16/95

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 02/20/95

Concentrated Extract Volume: 2000 (uL)

Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.7

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

319-84-6-----	alpha-BHC	0.010	UJ
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.010	U
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U

VALIDATED

FORM I PEST

Reviewed By

Date

Joyce E. Whiteley
4/4/95 3/90

303003

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS-No.: _____ SDG No.: 95022

Matrix: (soil/water) WATER Lab Sample ID: WAW001

Sample wt/vol: 700.0 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/20/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	Q

319-84-6	alpha-BHC	0.014	U J
319-85-7	beta-BHC	0.014	U
319-86-8	delta-BHC	0.014	U
58-89-9	gamma-BHC (Lindane)	0.014	U
76-44-8	Heptachlor	0.014	U
309-00-2	Aldrin	0.014	U
1024-57-3	Heptachlor epoxide	0.014	U
959-98-8	Endosulfan I	0.014	U
60-57-1	Dieldrin	0.029	U
72-55-9	4,4'-DDE	0.029	U
72-20-8	Endrin	0.029	U
33213-65-9	Endosulfan II	0.029	U
72-54-8	4,4'-DDD	0.029	U
1031-07-8	Endosulfan sulfate	0.029	U
50-29-3	4,4'-DDT	0.029	U
72-43-5	Methoxychlor	0.14	U
53494-70-5	Endrin ketone	0.029	U
7421-93-4	Endrin aldehyde	0.037	U J
5103-71-9	alpha-Chlordane	0.014	U
5103-74-2	gamma-Chlordane	0.014	U
8001-35-2	Toxaphene	1.4	U
12674-11-2	Aroclor-1016	0.29	U
11104-28-2	Aroclor-1221	0.57	U
11141-16-5	Aroclor-1232	0.29	U
53469-21-9	Aroclor-1242	0.29	U
12672-29-6	Aroclor-1248	0.29	U
11097-69-1	Aroclor-1254	0.29	U
11096-82-5	Aroclor-1260	0.29	U

VALIDATED

Reviewed By Joyce E. White
Date 4/4/95 3/90

FORM I PEST

303004

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95022

Matrix: (soil/water) WATER Lab Sample ID: WAW005

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/20/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----alpha-BHC	0.010	UJ
319-85-7-----beta-BHC	0.010	U
319-86-8-----delta-BHC	0.010	U
58-89-9-----gamma-BHC (Lindane)	0.010	U
76-44-8-----Heptachlor	0.010	U
309-00-2-----Aldrin	0.010	U
1024-57-3-----Heptachlor epoxide	0.010	U
959-98-8-----Endosulfan I	0.010	U
60-57-1-----Dieldrin	0.020	U
72-55-9-----4,4'-DDE	0.020	U
72-20-8-----Endrin	0.020	U
33213-65-9-----Endosulfan II	0.020	U
72-54-8-----4,4'-DDD	0.020	U
1031-07-8-----Endosulfan sulfate	0.020	U
50-29-3-----4,4'-DDT	0.020	U
72-43-5-----Methoxychlor	0.10	U
53494-70-5-----Endrin ketone	0.020	U
7421-93-4-----Endrin aldehyde	0.020	U
5103-71-9-----alpha-Chlordane	0.010	U
5103-74-2-----gamma-Chlordane	0.010	U
8001-35-2-----Toxaphene	1.0	U
12674-11-2-----Aroclor-1016	0.20	U
11104-28-2-----Aroclor-1221	0.40	U
11141-16-5-----Aroclor-1232	0.20	U
53469-21-9-----Aroclor-1242	0.20	U
12672-29-6-----Aroclor-1248	0.20	U
11097-69-1-----Aroclor-1254	0.20	U
11096-82-5-----Aroclor-1260	0.20	U

VALIDATED

Reviewed By

FORM I PEST

Date

303005

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101RE

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: SDG No.: 95022

Matrix: (soil/water) WATER Lab Sample ID: WAW005RE

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/27/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 03/10/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----alpha-BHC	0.010	UJ
319-85-7-----beta-BHC	0.18	P J
319-86-8-----delta-BHC	0.010	UJ
58-89-9-----gamma-BHC (Lindane)	0.010	UJ
76-44-8-----Heptachlor	0.010	UJ
309-00-2-----Aldrin	0.010	UJ
1024-57-3-----Heptachlor epoxide	0.010	UJ
959-98-8-----Endosulfan I	0.010	UJ
60-57-1-----Dieldrin	0.020	UJ
72-55-9-----4,4'-DDE	0.030	P J
72-20-8-----Endrin	0.020	UJ
33213-65-9-----Endosulfan II	0.020	UJ
72-54-8-----4,4'-DDD	0.020	UJ
1031-07-8-----Endosulfan sulfate	0.035	P J
50-29-3-----4,4'-DDT	0.020	UJ
72-43-5-----Methoxychlor	0.10	UJ
53494-70-5-----Endrin ketone	0.025	P J
7421-93-4-----Endrin aldehyde	0.041	P J
5103-71-9-----alpha-Chlordane	0.010	UJ
5103-74-2-----gamma-Chlordane	0.030	P J
8001-35-2-----Toxaphene	1.0	UJ
12674-11-2-----Aroclor-1016	0.20	UJ
11104-28-2-----Aroclor-1221	0.40	UJ
11141-16-5-----Aroclor-1232	0.20	UJ
53469-21-9-----Aroclor-1242	0.20	UJ
12672-29-6-----Aroclor-1248	0.20	UJ
11097-69-1-----Aroclor-1254	0.20	UJ
11096-82-5-----Aroclor-1260	0.20	UJ

VALIDATED

Reviewed By Joyce E. Whittle
Date 04/4/95 3/90

FORM I PEST

303006

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBGW02

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS-No.: _____ SDG No.: 95022

Matrix: (soil/water) WATER Lab Sample ID: WAW002

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/20/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.010	UJ
319-85-7-----	beta-BHC	0.010	UJ
319-86-8-----	delta-BHC	0.010	UJ
58-89-9-----	gamma-BHC (Lindane)	0.010	UJ
76-44-8-----	Heptachlor	0.010	UJ
309-00-2-----	Aldrin	0.010	UJ
1024-57-3-----	Heptachlor epoxide	0.010	UJ
959-98-8-----	Endosulfan I	0.010	UJ
60-57-1-----	Dieldrin	0.020	UJ
72-55-9-----	4,4'-DDE	0.020	UJ
72-20-8-----	Endrin	0.020	UJ
33213-65-9-----	Endosulfan II	0.020	UJ
72-54-8-----	4,4'-DDD	0.020	UJ
1031-07-8-----	Endosulfan sulfate	0.020	UJ
50-29-3-----	4,4'-DDT	0.020	UJ
72-43-5-----	Methoxychlor	0.10	UJ
53494-70-5-----	Endrin ketone	0.020	UJ
7421-93-4-----	Endrin aldehyde	0.020	UJ
5103-71-9-----	alpha-Chlordane	0.010	UJ
5103-74-2-----	gamma-Chlordane	0.010	UJ
8001-35-2-----	Toxaphene	1.0	UJ
12674-11-2-----	Aroclor-1016	0.20	UJ
11104-28-2-----	Aroclor-1221	0.40	UJ
11141-16-5-----	Aroclor-1232	0.20	UJ
53469-21-9-----	Aroclor-1242	0.20	UJ
12672-29-6-----	Aroclor-1248	0.20	UJ
11097-69-1-----	Aroclor-1254	0.20	UJ
11096-82-5-----	Aroclor-1260	0.20	UJ

VALIDATED

FORM I PEST

Reviewed By Joyce E. White
Date 4/4/95 3/90

303007

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBGW02RE

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95022

Matrix: (soil/water) WATER Lab Sample ID: NAW002RE

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 02/17/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/27/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 03/10/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----alpha-BHC	0.010	UJ
319-85-7-----beta-BHC	0.010	UJ
319-86-8-----delta-BHC	0.010	UJ
58-89-9-----gamma-BHC (Lindane)	0.010	UJ
76-44-8-----Heptachlor	0.010	UJ
309-00-2-----Aldrin	0.010	UJ
1024-57-3-----Heptachlor epoxide	0.010	UJ
959-98-8-----Endosulfan I	0.010	UJ
60-57-1-----Dieldrin	0.020	UJ
72-55-9-----4,4'-DDE	0.020	UJ
72-20-8-----Endrin	0.020	UJ
33213-65-9-----Endosulfan II	0.020	UJ
72-54-8-----4,4'-DDD	0.020	UJ
1031-07-8-----Endosulfan sulfate	0.020	UJ
50-29-3-----4,4'-DDT	0.020	UJ
72-43-5-----Methoxychlor	0.10	UJ
53494-70-5-----Endrin ketone	0.020	UJ
7421-93-4-----Endrin aldehyde	0.020	UJ
5103-71-9-----alpha-Chlordane	0.010	UJ
5103-74-2-----gamma-Chlordane	0.010	UJ
8001-35-2-----Toxaphene	1.0	UJ
12674-11-2-----Aroclor-1016	0.20	UJ
11104-28-2-----Aroclor-1221	0.40	UJ
11141-16-5-----Aroclor-1232	0.20	UJ
53469-21-9-----Aroclor-1242	0.20	UJ
12672-29-6-----Aroclor-1248	0.20	UJ
11097-69-1-----Aroclor-1254	0.20	UJ
11096-82-5-----Aroclor-1260	0.20	UJ

VALIDATED

FORM I PEST Reviewed By James E. White 1/90
Date 4/4/95

303008

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Metals Analysis

Case Number : 95026	Project Number: 29872, 10.2
Site: Island Chemical Company	
Contractor Laboratory: PACE, Incorporated	
Validator: J. Whittle	Validation Date: 4/7/95
QC Reviewer: Michael R. Phillips	Review Date: 4/13/95
Sample Matrix: Water (6)	
Analytical Methods: EPA CLP Dissolved Metals	

Sample Designations:

MW0001			
MW0003			
MW0004			
MW0005			
MW0101			
RBGW02			

Data for the above samples are:

- ☐ Acceptable for use
☒ Acceptable for use as qualified
☐ Unacceptable for use

Is action required by the Project Manager?

Yes ☐ No ☒

Comments: Data were qualified using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (February 1994). Calibration requirements for mercury were obtained from the 7/88 version of the functional guidelines.

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Chain of Custody Forms
X Cover Page
X Holding Times
X Inorganic Analysis Data Sheets
* Initial and Continuing Calibration Summary
X ICP and AA CRDL Check Standard Summary
X Linear Range Verification Standard Summary
* Calibration and Preparation Blank Summary
X ICP Interference Check Sample Summary
* Matrix Spike Summary
* Post Digestion Spike Sample Summary
* Duplicate Sample Summary
* Laboratory Control Sample Summary
NA Method of Standard Additions Summary
X ICP Serial Dilution Summary
X Quarterly Instrument Detection Limits Summary
X Annual Interelement Correction Factors Summary
X Quarterly ICP Linear Range Summary
X Sample Preparation Log Summary
X Sample Analysis Run Log Summary

Sample Raw Data

X ICP Raw Data
X GFAA Raw Data
X Mercury Raw Data
NA Cyanide Raw Data

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

☒ Yes

☐ No

Were custody transfers correctly and completely documented?

☒ Yes

☐ No

Comments:

None

Holding Times

Were sample preparations and analyses performed within holding times?

☒ Yes

☐ No

Comments:

None



Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____

JOB NO. _____

DATE 3/30/95

COMPUTED BY J. Whittle

CHECKED BY _____

PROJECT

Island Chemical Company

SUBJECT

Data Validation

Sample Summary

<u>Client ID</u>	<u>Abbreviated ID</u>	<u>Laboratory ID</u>
MW-1/021695	MW0001	WAW004
MW-3/021595	MW0003	WAW003
MW-4/021495	MW0004	WAA001
MW-5/021595	MW0005	WAW001
MW-101/021695	MW0101	WAW005
RBGW/021595	RBGW02	WAW002
TB/021495	TB0214	WAA006
TB/021695	TB0216	WAW006

Instrument Calibration

Were instruments calibrated daily and each time that sample analyses were performed?

☒ Yes ☐ No

Were the instruments calibrated using the minimum required numbers of blanks and standards?

Yes ☒ No

For the GFAA methods was one standard analyzed at the Contract Required Detection Limit (CRDL)?

Yes ☒ No

For the applicable methods did the correlation coefficients meet the minimum requirement of 0.995?

☒ Yes ☐ No ☐ NA

For the cyanide analyses was a midrange standard distilled and analyzed?

Yes ☐ No ☒ NA

Comments:

The analytical curve for mercury was established using four calibration standards instead of the minimum required five, and none of the standards were at the CRDL. However, since these samples were analyzed under ILM0.20, which allows a minimum of four standards with none at the CRDL, no data were qualified.

Initial and Continuing Calibration Verification

Were the calibration standards and blanks analyzed at the required frequencies?

☒ Yes ☐ No

Were the standard recoveries within QC limits?

☒ Yes ☐ No

Comments:

None

CRDL Standards

Were CRDL standards (CRA and CRA) analyzed at the required frequency?

☒ Yes ☐ No

Were the ICP standards (CRA) analyzed at the required levels?

☒ Yes ☐ No

For the low concentration method, were the CRDL results acceptable?

Yes ☐ No ☒ NA

Comments:

None

Matrix Spike

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this SDG?

☒ Yes ☐ No

Were field or rinse blanks used for the spike analysis sample?

Yes ☒ No

Were the matrix spike recoveries within acceptance criteria?

Yes ☒ No

Were post-digestion spikes performed when required?

Yes ☐ No ☒ NA

Comments: Spike analysis was performed on sample MW0004. The following compounds were outside control limits.

<u>Compound</u>	<u>% R</u>	<u>(+/-) Qualifier</u>	<u>Affected Samples</u>
Antimony	-102.6	J/R	(all samples)
Selenium	46.0	J/UJ	
Silver	125.6	J/-	

Laboratory Control Sample

Were laboratory control sample analyses performed at the required frequency?

☒ Yes ☐ No

Were laboratory control sample recovery results acceptable?

☒ Yes ☐ No

Comments: The %R for beryllium was 3343%. Presumably the stated true value is in error, and the %R should be 100.3% with a true value of 100 µg/l. The noted true value of 3.0 µg/l is assumed to be a typographical error. Therefore, no qualification was made.

ICP Interference Check Sample

Were ICP interference check samples (ICS) analysed at the required frequency?

☒ Yes ☐ No

Were the ICS recovery criteria met?

☒ Yes ☐ No

Were results greater than the IDL reported for elements not present in the ICS solution?

☒ Yes ☒ No

Were negative results with absolute values greater than the IDL reported for elements not present in the ICS solution?

☒ Yes ☒ No

Were the concentrations of metals in the investigative samples similar to the concentrations of the ICS solution?

☒ Yes ☒ No

Did the sample results require qualification due to interference problems?

☐ Yes ☒ No

Comments:

None

Duplicate Sample Results

Were duplicate sample analyses performed at the required frequency?

☒ Yes ☐ No

Did the duplicate sample results meet acceptance criteria?

Yes ☒ No

Comments: Two analytes failed to meet duplicate criteria in the analysis of sample MW0004, and affect all samples (+/-)

Analyte	Control Limit	Duplicate Result	Qualifier
Antimony	< 20% RPD	20.08 %	J/UJ
Copper	difference < CRDL of 25 µg/l	30.78 µg/l	J/UJ

Blank Analyses

Were preparation and calibration blank analyses performed at the required frequency?

☒ Yes ☐ No

Were elements reported in the blanks at levels above the CRDL?

Yes ☒ No

Were elements reported in the blanks at levels between the IDL and the CRDL?

☒ Yes ☐ No

Were negative results with absolute values greater than the IDL reported in the blanks?

Yes ☒ No

If analytes were reported in the blanks, were the same analytes also reported for the associated investigative samples?

☒ Yes ☐ No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

☒ Yes ☐ No

Comments: Refer to page 12 for a summary of blank contaminants and qualifying action levels.

ICP Serial Dilution

Were serial dilution analyses performed at the required frequency?

☒ Yes ☐ No

For analytes with concentrations greater than 50 times the IDL, were the percent differences within acceptance criteria?

☒ Yes ☐ No

Comments:

None

GFAA QC

Were duplicate injections performed for each GFAA sample analysis?

☒ Yes ☐ No

For results greater than the CRDL were the percent RSD results calculated correctly and within control limits?

☒ Yes ☐ No ☐ NA

Were the GFAA analytical spike (post digestion spike) recoveries within acceptance criteria?

☐ Yes ☒ No

If the GFAA analytical spike recoveries were not acceptable, were samples diluted and reanalyzed when required?

☒ Yes ☐ No

Was the method of standard additions (MSA) used for GFAA analysis when required?

☐ Yes ☒ No

When MSA analyses were performed, were the correlation coefficients and spiking levels acceptable?

☐ Yes ☐ No ☒ NA

Comments: Post-digestion spike results exceeded the 85-115% control range for the following analytes and affected the samples noted.

Sample	Analyte	%R	(+/-) Qualifiers
MW-0004	Se	49.3	J/UJ
MW-0001	Se	82.8	J/UJ
MW-0101	Se, TI	79.9, 118.9	J/UJ, J/-
MW-0005	☒ Se, TI	133.3	J/-
MW-0003	TI	117.5	J/-

ICP Interelement Correction Factors

Were annual interelement correction factors provided for each instrument used for sample analysis and were they current?

☒ Yes

☐ No

Comments:

None

ICP Linear Ranges

Were linear ranges provided for each instrument used for sample analysis and were they current?

☒ Yes

☐ No

Was a quarterly linear range verification analysis performed and if so, were the results acceptable?

☒ Yes

☐ No

For the low concentration method was a linear range standard analysis performed as required, and if so, were the results acceptable?

☐ Yes

☐ No

☒ NA

Comments:

None

Log Books

Were all sample preparations properly documented and performed in accordance with method protocols?

☒ Yes

☐ No

Were all sample analyses properly documented and performed in accordance with method protocols?

☒ Yes

☐ No

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

☒ Yes ☐ No

Were the quantitated results for target analytes calculated and reported correctly?

☒ Yes ☐ No ☐ NA

For the applicable methods, were peak integrations performed correctly?

☐ Yes ☐ No ☒ NA

Were detection limits provided for the reported target analytes, and if so, were they current and acceptable?

☒ Yes ☐ No

Comments:

None

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

303020

BLANK SUMMARY FORM

[illegible]

Comments: Sample quantities of the blank contaminants that are below the action level have been qualified as undetected (U).

Sample quantities of the blank contaminants that are below the action level have been qualified as undetected (U).

Summary and Conclusions

All data were present for a full validation of the dissolved metals analyses, and all holding times were met. Review of the raw QC and sample data did not reveal any errors or problems with analyte identification and quantitation. Data are considered usable as qualified on the attached FORM I's.

Due to calibration and preparation blank contamination, arsenic, beryllium, and lead were qualified as (U) undetected in all samples, as well as was selenium in sample RBGW02. Because of spike recovery problems, antimony (J/R), selenium (J/UJ), and silver (J/-) were qualified in all of the samples, and antimony (J/UJ) and copper were qualified, as well, due to duplicate results outside QC limits. Post-digestion spike results were outside of the control range for selenium and thallium. As a result, selenium (J/UJ) was qualified in samples MW0001, MW0101, and MW0004, and thallium (J/-) was qualified in samples MW0003, MW0005, and MW0101.

Validator's Signature: <i>Joyce E. Whittle</i>	
Validator's Initials: <i>JW</i>	Validation Date: <i>4/12/95</i>
QC Reviewer's Signature: <i>Michael P. Whittle</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4/13/95</i>

1
INORGANIC ANALYSIS DATA SHEET

MW0001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095026

Matrix (soil/water): WATER

Lab Sample ID: WBH004

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	51.8	B		P
7440-36-0	Antimony	1.8	B	N* J	F
7440-38-2	Arsenic	7.1	B	U	F
7440-39-3	Barium	124	B		P
7440-41-7	Beryllium	0.67	B	U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	42500			P
7440-47-3	Chromium	4.9	B		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	29.9		* J	P
7439-89-6	Iron	32.1	U		P
7439-92-1	Lead	1.1	B	U	F
7439-95-4	Magnesium	30500			P
7439-96-5	Manganese	1190			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	13.1	U		P
7440-09-7	Potassium	2250	B		P
7782-49-2	Selenium	15.0	B	NW J	F
7440-22-4	Silver	6.9	B	N J	P
7440-23-5	Sodium	389000			P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	28.5	B		P
7440-66-6	Zinc	59.1			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

FORM I - IN

303023

ILM02.0

080004

1
INORGANIC ANALYSIS DATA SHEET

MW0003

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095026

Matrix (soil/water): WATER

Lab Sample ID: WBH003

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	64.0	B		P
7440-36-0	Antimony	4.9	B	N* J	F
7440-38-2	Arsenic	8.6	B	U	F
7440-39-3	Barium	286			P
7440-41-7	Beryllium	0.31	B	U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	125000			P
7440-47-3	Chromium	8.0	B		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	31.5		* J	P
7439-89-6	Iron	454			P
7439-92-1	Lead	0.87	B	U	F
7439-95-4	Magnesium	70700			P
7439-96-5	Manganese	3100			P
7439-97-6	Mercury	0.31			CV
7440-02-0	Nickel	38.2	B		P
7440-09-7	Potassium	15500			P
7782-49-2	Selenium	14.0	U	N J	F
7440-22-4	Silver	5.1	U	N	P
7440-23-5	Sodium	351000			P
7440-28-0	Thallium	2.7	U	W	F
7440-62-2	Vanadium	11.0	B		P
7440-66-6	Zinc	160			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

1

INORGANIC ANALYSIS DATA SHEET

MW0004

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095026

Matrix (soil/water): WATER

Lab Sample ID: WBJ001

Level (low/med): LOW

Date Received: 02/16/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	42.3	B		P
7440-36-0	Antimony	95.6		N* J	F
7440-38-2	Arsenic	1.9	B	U	F
7440-39-3	Barium	70.6	B		P
7440-41-7	Beryllium	0.61	B	U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	49000			P
7440-47-3	Chromium	4.1	B		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	30.8		* J	P
7439-89-6	Iron	32.1	U		P
7439-92-1	Lead	1.7	B	U	F
7439-95-4	Magnesium	35200			P
7439-96-5	Manganese	535			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	25.3	B		P
7440-09-7	Potassium	2000	B		P
7782-49-2	Selenium	1.4	U	NW J	F
7440-22-4	Silver	5.1	U	N	P
7440-23-5	Sodium	374000			P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	26.2	B		P
7440-66-6	Zinc	93.0			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

FORM I - IN

ILM02.0

303025

J80006

U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW0005

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095026

Matrix (soil/water): WATER

Lab Sample ID: WBH001

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	45.7	B		P
7440-36-0	Antimony	1.5	B	N* J	F
7440-38-2	Arsenic	3.4	B	U	F
7440-39-3	Barium	277			P
7440-41-7	Beryllium	2.1		U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	60300			P
7440-47-3	Chromium	5.9	B		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	48.3		* J	P
7439-89-6	Iron	32.1	U		P
7439-92-1	Lead	3.0		U	F
7439-95-4	Magnesium	52700			P
7439-96-5	Manganese	2160			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	33.1	B		P
7440-09-7	Potassium	3300	B		P
7782-49-2	Selenium	14.0	U	N J	F
7440-22-4	Silver	5.1	U	N	P
7440-23-5	Sodium	334000			P
7440-28-0	Thallium	2.7	U	W	F
7440-62-2	Vanadium	26.0	B		P
7440-66-6	Zinc	103			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

George J. Whittle
4/12/95

1
INORGANIC ANALYSIS DATA SHEET

MW0101

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095026

Matrix (soil/water): WATER

Lab Sample ID: WBH005

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.3	B		P
7440-36-0	Antimony	1.4	B	N* J	F
7440-38-2	Arsenic	4.8	B	U	F
7440-39-3	Barium	126	B		P
7440-41-7	Beryllium	0.28	B	U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	46000			P
7440-47-3	Chromium	5.1	B		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U	* J	P
7439-89-6	Iron	32.1	U		P
7439-92-1	Lead	1.2	B	U	F
7439-95-4	Magnesium	33100			P
7439-96-5	Manganese	1020			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	13.1	U		P
7440-09-7	Potassium	2050	B		P
7782-49-2	Selenium	17.6	B	NW J	F
7440-22-4	Silver	5.3	B	N J	P
7440-23-5	Sodium	411000			P
7440-28-0	Thallium	2.7	U	W	F
7440-62-2	Vanadium	31.1	B		P
7440-66-6	Zinc	61.4			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

RBGW02

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095026

Matrix (soil/water): WATER

Lab Sample ID: WBH002

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22.0	B		P
7440-36-0	Antimony	2.2	B	N* J	F
7440-38-2	Arsenic	1.8	B	U	F
7440-39-3	Barium	8.8	U		P
7440-41-7	Beryllium	0.49	B	U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	80.2	B		P
7440-47-3	Chromium	4.1	U		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U	* J	P
7439-89-6	Iron	32.1	U		P
7439-92-1	Lead	3.6		U	F
7439-95-4	Magnesium	26.0	U		P
7439-96-5	Manganese	2.6	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	13.1	U		P
7440-09-7	Potassium	526	U		P
7782-49-2	Selenium	2.5	B	N U J	F
7440-22-4	Silver	5.1	U	N	P
7440-23-5	Sodium	339	U		P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	79.0			P
57-12-5	Cyanide				

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

VALIDATED

Reviewed By

Date

Joyce E. Whittle
04/12/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Metals Analysis

Case Number : 95022	Project Number: 29872, 10.2
Site: Island Chemical Company	
Contractor Laboratory: PACE, Incorporated	
Validator: J. Whittle	Validation Date: 4/12/95
QC Reviewer: Michael P. Phillips	Review Date: 4/14/95
Sample Matrix: Soil (4), Water (7)	
Analytical Methods: EPA CUP Total Metals	

Sample Designations:

A10001	MW0001		
A11315	MW0003		
A12022	MW0004		
A20001	MW0005		
	MW0101		
	RBGW02		
	S00203		

Data for the above samples are:

☐ Acceptable for use
☒ Acceptable for use as qualified
☐ Unacceptable for use

Is action required by the Project Manager?

Yes ☐ No ☒

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (February 1994). Calibration requirements for mercury were obtained from the 7/88 version of the functional guidelines.

DATA COMPLETENESS CHECKLIST

<u>X</u>	Included, no problems
<u>*</u>	Included, problems
<u>O</u>	Not included
<u>NA</u>	Not applicable

Quality Control Summary

<u>X</u>	Case Narrative
<u>*</u>	Chain of Custody Forms
<u>X</u>	Cover Page
<u>X</u>	Holding Times
<u>*</u>	Inorganic Analysis Data Sheets
<u>*</u>	Initial and Continuing Calibration Summary
<u>X</u>	ICP and AA CRDL Check Standard Summary
<u>X</u>	Linear Range Verification Standard Summary
<u>*</u>	Calibration and Preparation Blank Summary
<u>X</u>	ICP Interference Check Sample Summary
<u>*</u>	Matrix Spike Summary
<u>*</u>	Post Digestion Spike Sample Summary
<u>*</u>	Duplicate Sample Summary
<u>*</u>	Laboratory Control Sample Summary
<u>X</u>	Method of Standard Additions Summary
<u>*</u>	ICP Serial Dilution Summary
<u>X</u>	Quarterly Instrument Detection Limits Summary
<u>X</u>	Annual Interelement Correction Factors Summary
<u>X</u>	Quarterly ICP Linear Range Summary
<u>X</u>	Sample Preparation Log Summary
<u>X</u>	Sample Analysis Run Log Summary

Sample Raw Data

<u>X</u>	ICP Raw Data
<u>X</u>	GFAA Raw Data
<u>X</u>	Mercury Raw Data
<u>X</u>	Cyanide Raw Data

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes ☒ No

Were custody transfers correctly and completely documented?

Yes ☒ No

Comments:

Except for S00203, the water samples were shipped properly preserved and cooled. However, the soil samples and the run blank were shipped warm at 20°C. Since the TAL metals were analyzed within holding times, the high temperature should not significantly affect sample results. But for cyanide, possible degradation exists. Samples S00203, A10001, A11315, A12022, and A20001 should be considered estimated for cyanide (J/UJ).

Holding Times

Were sample preparations and analyses performed within holding times?

Yes ☒ No

Comments:

None



Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____

JOB NO. _____

DATE 3/30/95

COMPUTED BY J. Whittle

CHECKED BY _____

PROJECT

Island Chemical Company

SUBJECT

Data Validation

Sample Summary

<u>Client ID</u>	<u>Abbreviated ID</u>	<u>Laboratory ID</u>
MW-1/021695	MW0001	WAW004
MW-3/021595	MW0003	WAW003
MW-4/021495	MW0004	WAA001
MW-5/021595	MW0005	WAW001
MW-101/021695	MW0101	WAW005
RBGW/021595	RBGW02	WAW002
TB/021495	TB0214	WAA006
TB/021695	TB0216	WAW006
RBSO/020395	SO0203	VVO001
SBFIA/0-1	A10001	VVO002
SBFIA/13-15	A11315	VVO003
SBFIA/20-22	A12022	VVO004
SBF2A/0-1	A20001	VVO005

303032

Instrument Calibration

Were instruments calibrated daily and each time that sample analyses were performed?

☒ Yes ☐ No

Were the instruments calibrated using the minimum required numbers of blanks and standards?

Yes ☒ No

For the GFAA methods was one standard analyzed at the Contract Required Detection Limit (CRDL)?

☒ Yes ☐ No

For the applicable methods did the correlation coefficients meet the minimum requirement of 0.995?

☒ Yes ☐ No ☐ NA

For the cyanide analyses was a midrange standard distilled and analyzed?

☒ Yes ☐ No

Comments:

Only four standards were used to calibrate for mercury, and none of the standards were at the CRDL. However, since the data were analyzed under ILM02.0, which requires only four, no action was taken to qualify the data. Current functional guidelines require at least five standards, one of which must be at the CRDL. Earlier functional guidelines require four, none of which must be at the CRDL.

Initial and Continuing Calibration Verification

Were the calibration standards and blanks analyzed at the required frequencies?

☒ Yes ☐ No

Were the standard recoveries within QC limits?

☒ Yes ☐ No

Comments:

None

CRDL Standards

Were CRDL standards (CRL and CRA) analyzed at the required frequency?

☒ Yes ☐ No

Were the ICP standards (CRD) analyzed at the required levels?

☒ Yes ☐ No

For the low concentration method, were the CRDL results acceptable?

Yes ☐ No ☒ NA

Comments:

None

Matrix Spike

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this SDG?

☒ Yes ☐ No

Were field or rinse blanks used for the spike analysis sample?

Yes ☐ No ☒

Were the matrix spike recoveries within acceptance criteria?

Yes ☐ No ☒

Were post-digestion spikes performed when required?

☒ Yes ☐ No ☐ NA

Comments: MS analysis was performed on sample A10001 for the soil matrix, and on MW0004 and VQA001 for the waters. The following analytes failed to recover within the QC range.

Sample	Analyte	%R	Affected samples	Qualifiers ^(+/-)
A10001	Antimony	20.9	all soils ↓	J/R
	Selenium	20.0		J/R
MW0004	Aluminum	55.3	all waters (except S00203) ↓	J/UJ
	Iron	25.5		J/R
	Manganese	57.2		J/UJ
	Selenium	35.0		J/UJ
VQA001	Antimony	127.7 ⁵	S00203 ↓	J/-
	Beryllium	74.0		J/UJ

Laboratory Control Sample

Were laboratory control sample analyses performed at the required frequency?

☒ Yes ☐ No

Were laboratory control sample recovery results acceptable?

Yes ☒ No

Comments: The following analytes did not meet required control limits

Analyte	Control Limit	LCS Result	Affected Samples	Qualifier ^(+/-)
Potassium	80-120% Rec.	120.6%	500203	J/-
Arsenic	35.0-110.0 mg/Kg	33 mg/Kg	all soil samples	J/UJ

ICP Interference Check Sample

Were ICP interference check samples (ICS) analysed at the required frequency?

☒ Yes ☐ No

Were the ICS recovery criteria met?

☒ Yes ☐ No

Were results greater than the IDL reported for elements not present in the ICS solution?

☒ Yes ☒ No

MPP 4-14-95

Were negative results with absolute values greater than the IDL reported for elements not present in the ICS solution?

☒ Yes ☒ No

MPP 4-14-95

Were the concentrations of metals in the investigative samples similar to the concentrations of the ICS solution?

☒ Yes ☒ No

MPP 4-14-95

Did the sample results require qualification due to interference problems?

Yes ☒ No

Comments:

None

Duplicate Sample Results

Were duplicate sample analyses performed at the required frequency?

Yes No

Did the duplicate sample results meet acceptance criteria?

Yes No

Comments:

Duplicate results exceeded the applicable control limits for the following analytes. A less restrictive evaluation was applied to the soil sample, A10001, as allowed by the functional guidelines.

Sample	Analyte	Control Limit	Dup. Result	Affected Samples	Qualifier (+/-)
A10001	Calcium	<35% RPD	25.8%	All soils	none
	Chromium	<2X CRDL = 4.4	4.6 difference	All soils	J/UJ
MW0004	Aluminum	<20% RPD	67.1%	All waters (except 500203)	J/UJ
	Iron	<20% RPD	82.9%	All waters	J/UJ
VQA001	Beryllium	<1X CRDL = 1.0	1.7 difference	500203	J/UJ
Blank Analyses					

Were preparation and calibration blank analyses performed at the required frequency?

Yes No

Were elements reported in the blanks at levels above the CRDL?

Yes No

Were elements reported in the blanks at levels between the IDL and the CRDL?

Yes No

Were negative results with absolute values greater than the IDL reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported for the associated investigative samples?

Yes No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments:

Refer to pages 12A and 12B for a summary of blank contaminants, action levels, and associated samples. Samples with blank contaminants at concentrations below the action levels were qualified undetected (U) for those analytes.

ICP Serial Dilution

Were serial dilution analyses performed at the required frequency?

☒ Yes ☐ No

For analytes with concentrations greater than 50 times the IDL, were the percent differences within acceptance criteria?

Yes ☒ No

Comments: The following analytes did not meet the 10% acceptance criteria for analytes with concentrations greater than 50x the I

Sample	Analyte	% D	Affected Samples	Qualifiers
A10001	Zinc	15.2	all soils	J/UJ
MW0004	Aluminum	14.1	all waters (except	J/UJ
	Calcium	13.7	500203)	J/UJ
	Magnesium	11.8		J/UJ
	Manganese	14.1		J/UJ
GFAA QC	Sodium	10.8		J/UJ

Were duplicate injections performed for each GFAA sample analysis?

☒ Yes ☐ No

For results greater than the CRDL were the percent RSD results calculated correctly and within control limits?

☒ Yes ☐ No ☐ NA

Were the GFAA analytical spike (post-digestion spike) recoveries within acceptance criteria?

Yes ☒ No

If the GFAA analytical spike recoveries were not acceptable, were samples diluted and reanalyzed when required?

☒ Yes ☐ No

Was the method of standard additions (MSA) used for GFAA analysis when required?

☒ Yes ☐ No

When MSA analyses were performed, were the correlation coefficients and spiking levels acceptable?

☒ Yes ☐ No

Comments: Post-digestion spike results were outside the 85-115% control limit for the following analytes.

Affected Sample	Analyte	% R	(+/-) Qualifiers
AZ0001	As, Pb*	83.5, 84.3	J/UJ
A10001	Sb, Pb*, Se	79.8, 78.5, 79.0	J/UJ
MW0004	Be, Se	84.3, 65.3	J/UJ
RBGW02	Be	82.4	J/UJ
MW0101	Be, Se	82.0, 74.7	J/UJ
A11315	Se	☒ 19.2 46.6	J/UJ
500203	Se, Ti	78.2, 83.3	J/UJ
MW0001	Se	69.6	J/UJ

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8

Form MET 1.0

303037

* Reanalyzed using Method of Standard Additions. No qualification needed.

ICP Interelement Correction Factors

Were annual interelement correction factors provided for each instrument used for sample analysis and were they current?

☒ Yes No

Comments:

None

ICP Linear Ranges

Were linear ranges provided for each instrument used for sample analysis and were they current?

☒ Yes No

Was a quarterly linear range verification analysis performed and if so, were the results acceptable?

☒ Yes No

For the low concentration method was a linear range standard analysis performed as required, and if so, were the results acceptable?

Yes No ☒ NA

Comments:

None

Log Books

Were all sample preparations properly documented and performed in accordance with method protocols?

☒ Yes No

Were all sample analyses properly documented and performed in accordance with method protocols?

☒ Yes No

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

☒ Yes ☐ No

Were the quantitated results for target analytes calculated and reported correctly?

☒ Yes ☐ No ☐ NA

For the applicable methods, were peak integrations performed correctly?

☐ Yes ☐ No ☒ NA

Were detection limits provided for the reported target analytes, and if so, were they current and acceptable?

☒ Yes ☐ No

Comments:

Raw sample results were calculated into ppb and adjusted for mg/kg automatically by computer at the lab.

Also, review of raw data for mercury showed that samples A10001 and A11315 were undetected. It seems that the "U" was inadvertently left off the FORM I because the nondetect was manually entered in the raw data. Calculation verification of the lowest detectable absorbance confirms that mercury is undetected at the detection limit for these two samples (0.11 U).

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

BLANK SUMMARY FORM
(SOIL SAMPLES)

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples	Qualifier
CCB5	Aluminum	-36.8 µg/l	36.8 mg/Kg	A10001, A11315, A12022,	
ICB2	Beryllium	0.2 µg/l	0.2 mg/Kg	A20001	
ICB2	Calcium	-53.6 µg/l	53.6 mg/Kg		
ICB1	Chromium	4.1 µg/l	4.1 mg/Kg		
PBS1	Iron	6.87 mg/Kg	34.35 mg/Kg		
CCB7	Lead	2.2 µg/l	2.2 mg/Kg		
ICB2	Magnesium	-50.9 µg/l	50.9 mg/Kg		
CCB10	Selenium	2.3 µg/l	2.3 mg/Kg		
PBS1	Zinc	2.524 mg/Kg	12.62 mg/Kg	↓	

Comments:

303041

BLANK SUMMARY FORM
(WATER SAMPLES)

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples	Qualifier
CCB5	Aluminum	-36.8 µg/l	184 µg/l	MW0001, MW0003, MW0004,	
PBW1	Beryllium	0.804 µg/l	4.02 µg/l	MW0005, MW0101, RBGW02,	
ICB2	Calcium	-53.6 µg/l	268 µg/l	500203	
ICB1	Chromium	4.1 µg/l	20.5 µg/l	↓	
CCB7	Lead	2.2 µg/l	11 µg/l		
ICB2	Magnesium	-50.9 µg/l	254.5 µg/l		
CCB10	Selenium	2.3 µg/l	11.5 µg/l		
PBW2	Zinc	9.095 µg/l	45.5 µg/l		

Comments:

303042

Summary and Conclusions

All material necessary for a full validation of the total metals analyses was present and all holding times were met. However, cyanide was estimated in the soil samples and in 500203 since the possibility of degradation exists due to shipping at warm temperatures. Raw data were reviewed and no errors in identification or quantitation were found. Samples A10001 and A11315 were changed on the FORM I's to reflect nondetection of mercury, as the raw data indicate, however.

Numerous and multiple qualifications of analytes had to be made in the data. Compounds were qualified as undetected (U) based on action levels listed on pages 12A and 12B. Several compounds were estimated (J/UJ) or rejected (R) based on spike recoveries as listed on page 5 of this report. Likewise, several analytes were estimated (J/UJ) on the basis of laboratory control sample (page 6), duplicate sample (page 7), serial dilution (page 8), and post-digestion spike (page 8) problems.

Validator's Signature: <i>Joyce E. Whittle</i>	
Validator's Initials: <i>Jaw</i>	Validation Date: <i>4/13/95</i>
QC Reviewer's Signature: <i>Michael P. Whittle</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4/14/95</i>

1
INORGANIC ANALYSIS DATA SHEET

A10001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): SOIL

Lab Sample ID: VV0002

Level (low/med): LOW

Date Received: 02/06/95

% Solids: 91.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14200			P
7440-36-0	Antimony	0.46	B	NW J	F
7440-38-2	Arsenic	0.96	B	J	F
7440-39-3	Barium	63.2			P
7440-41-7	Beryllium	0.21	B	U	F
7440-43-9	Cadmium	1.1			P
7440-70-2	Calcium	119000		*	P
7440-47-3	Chromium	14.8		* J	P
7440-48-4	Cobalt	10.4	B		P
7440-50-8	Copper	28.7			P
7439-89-6	Iron	18100			P
7439-92-1	Lead	5.3	S	J	F
7439-95-4	Magnesium	6830			P
7439-96-5	Manganese	489			P
7439-97-6	Mercury	0.11		U	CV
7440-02-0	Nickel	11.4			P
7440-09-7	Potassium	1240			P
7782-49-2	Selenium	3.1	U	NW R	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	556	B		P
7440-28-0	Thallium	0.59	U		F
7440-62-2	Vanadium	48.7			P
7440-66-6	Zinc	87.9		E J	P
57-12-5	Cyanide	1.1	U	J	AS

MPP 4-14-95

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/13/95

050006

ILM02.0

1
INORGANIC ANALYSIS DATA SHEET

A11315

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): SOIL

Lab Sample ID: VVO003

Level (low/med): LOW

Date Received: 02/06/95

% Solids: 91.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19200			P
7440-36-0	Antimony	0.31	UN	R	F
7440-38-2	Arsenic	1.5	B	J	F
7440-39-3	Barium	110			P
7440-41-7	Beryllium	0.31			F
7440-43-9	Cadmium	1.4			P
7440-70-2	Calcium	9900	*		P
7440-47-3	Chromium	15.9	*	J	P
7440-48-4	Cobalt	11.1			P
7440-50-8	Copper	39.9			P
7439-89-6	Iron	24600			P
7439-92-1	Lead	2.7			F
7439-95-4	Magnesium	5780			P
7439-96-5	Manganese	542			P
7439-97-6	Mercury	0.11		U	CV
7440-02-0	Nickel	15.8			P
7440-09-7	Potassium	1230			P
7782-49-2	Selenium	0.31	UNW	R	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	1360			P
7440-28-0	Thallium	0.59	U		F
7440-62-2	Vanadium	105			P
7440-66-6	Zinc	42.1	E	J	P
57-12-5	Cyanide	1.1	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/13/95

050007

1
INORGANIC ANALYSIS DATA SHEET

A12022

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): SOIL

Lab Sample ID: VVO004

Level (low/med): LOW

Date Received: 02/06/95

% Solids: 83.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21700			P
7440-36-0	Antimony	0.34	U	N R	F
7440-38-2	Arsenic	1.2	B	J	F
7440-39-3	Barium	122			P
7440-41-7	Beryllium	0.46			F
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium	7950	*		P
7440-47-3	Chromium	31.4	*	J	P
7440-48-4	Cobalt	21.4			P
7440-50-8	Copper	61.7			P
7439-89-6	Iron	38500			P
7439-92-1	Lead	5.0			F
7439-95-4	Magnesium	10300			P
7439-96-5	Manganese	1120			P
7439-97-6	Mercury	0.25			CV
7440-02-0	Nickel	21.3			P
7440-09-7	Potassium	1120	B		P
7782-49-2	Selenium	3.4	U	N R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	1790			P
7440-28-0	Thallium	0.65	U		F
7440-62-2	Vanadium	138			P
7440-66-6	Zinc	70.7		E J	P
57-12-5	Cyanide	1.2	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:

ROCKS

VALIDATED

Reviewed By

Date

Joyce Z. Whittle
04/13/95

050008

1
INORGANIC ANALYSIS DATA SHEET

A20001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): SOIL

Lab Sample ID: VVO005

Level (low/med): LOW

Date Received: 02/06/95

% Solids: 89.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16300			P
7440-36-0	Antimony	0.39	B N J		F
7440-38-2	Arsenic	0.95	B W J		F
7440-39-3	Barium	95.2			P
7440-41-7	Beryllium	0.31			F
7440-43-9	Cadmium	1.3			P
7440-70-2	Calcium	101000	*		P
7440-47-3	Chromium	21.4	* J		P
7440-48-4	Cobalt	13.3			P
7440-50-8	Copper	40.0			P
7439-89-6	Iron	23500			P
7439-92-1	Lead	4.8	S J		F
7439-95-4	Magnesium	6730			P
7439-96-5	Manganese	601			P
7439-97-6	Mercury	0.24			CV
7440-02-0	Nickel	13.2			P
7440-09-7	Potassium	1970			P
7782-49-2	Selenium	3.1	B N R		F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	491	B		P
7440-28-0	Thallium	0.61	U		F
7440-62-2	Vanadium	89.1			P
7440-66-6	Zinc	178	E J		P
57-12-5	Cyanide	1.1	U J		AS

MPP 4-14-95

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/13/95

050009

1
INORGANIC ANALYSIS DATA SHEET

MW0001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): WATER

Lab Sample ID: WAW004

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	656		EN* J	P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	4.4	B		F
7440-39-3	Barium	145	B		P
7440-41-7	Beryllium	0.20	B	N* U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	49800		E J	P
7440-47-3	Chromium	4.4	B	U	P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U		P
7439-89-6	Iron	640		N* J	P
7439-92-1	Lead	1.9	B	U	F
7439-95-4	Magnesium	34400		EN J	P
7439-96-5	Manganese	1450		E J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	13.1	U		P
7440-09-7	Potassium	2350	B		P
7782-49-2	Selenium	24.2	B	NW J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	432000		E J	P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	33.3	B		P
7440-66-6	Zinc	31.4		U	P
57-12-5	Cyanide	10.0	U	~~U~~	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/13/95

650010

1
INORGANIC ANALYSIS DATA SHEET

MW0003

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): WATER

Lab Sample ID: WAW003

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3340		EN* J	P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	5.4	B		F
7440-39-3	Barium	189	B		P
7440-41-7	Beryllium	0.30	B	N* U	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	148000		E J	P
7440-47-3	Chromium	8.2	B	U	P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	35.0			P
7439-89-6	Iron	5140		N* J	P
7439-92-1	Lead	1.7	B	U	F
7439-95-4	Magnesium	81900		EN J	P
7439-96-5	Manganese	4180		E J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	21.0	B		P
7440-09-7	Potassium	17100			P
7782-49-2	Selenium	20.5	B	N J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	396000		E J	P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	57.1			P
7440-66-6	Zinc	78.6			P
57-12-5	Cyanide	10.0	U		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

058011

1
INORGANIC ANALYSIS DATA SHEET

MW0004

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): WATER

Lab Sample ID: WAA001

Level (low/med): LOW

Date Received: 02/16/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1560		EN* J	P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	1.8	B		F
7440-39-3	Barium	131	B		P
7440-41-7	Beryllium	0.60	B	NW* UJ	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	54200		E J	P
7440-47-3	Chromium	5.9	B	U	P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	23.1	B		P
7439-89-6	Iron	1380		N* J	P
7439-92-1	Lead	3.0		U	F
7439-95-4	Magnesium	37900		E J	P
7439-96-5	Manganese	1000		EN J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	21.9	B		P
7440-09-7	Potassium	1920	B		P
7782-49-2	Selenium	1.4	U	NW J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	388000		E J	P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	46.6	B		P
7440-66-6	Zinc	65.3			P
57-12-5	Cyanide	10.0	U	~~U~~	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

Joyce S. Whittle
4/13/95

950012

1
INORGANIC ANALYSIS DATA SHEET

MW0005

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): WATER

Lab Sample ID: WAW001

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18500		EN* J	P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	2.1	B		F
7440-39-3	Barium	270			P
7440-41-7	Beryllium	1.3		N* (A)	F
7440-43-9	Cadmium	3.8	B		P
7440-70-2	Calcium	148000		E J	P
7440-47-3	Chromium	23.8			P
7440-48-4	Cobalt	82.5			P
7440-50-8	Copper	367			P
7439-89-6	Iron	28400		N* J	P
7439-92-1	Lead	17.0			F
7439-95-4	Magnesium	81500		E J	P
7439-96-5	Manganese	14100		EN J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	79.8			P
7440-09-7	Potassium	4110	B		P
7782-49-2	Selenium	14.0	U	N J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	349000		E J	P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	456			P
7440-66-6	Zinc	227			P
57-12-5	Cyanide	10.0	U	AS	AS

Color Before: YELLOW

Clarity Before: OPAQUE

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: YES

Comments:

MUD

VALIDATED

Reviewed By

Date

Joyce S. Whittle
4/13/95

650013

1
INORGANIC ANALYSIS DATA SHEET

MW0101

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): WATER

Lab Sample ID: WAW005

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	693		EN* J	P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	7.7	B		F
7440-39-3	Barium	138	B		P
7440-41-7	Beryllium	0.20	B	NW* U J	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	47900		E J	P
7440-47-3	Chromium	5.2	B	U	P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U		P
7439-89-6	Iron	678		N* J	P
7439-92-1	Lead	2.7	B	U	F
7439-95-4	Magnesium	32900		E J	P
7439-96-5	Manganese	1380		EN J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	13.1	U		P
7440-09-7	Potassium	2310	B		P
7782-49-2	Selenium	19.6	B	NW J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	406000		E J	P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	34.1	B		P
7440-66-6	Zinc	17.8	B	U	P
57-12-5	Cyanide	10.0	U		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/13/95

050014

1
INORGANIC ANALYSIS DATA SHEET

RBGW02

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): WATER

Lab Sample ID: WAW002

Level (low/med): LOW

Date Received: 02/17/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	30.7	~~B~~ EN*	UJ	P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	1.1	U		F
7440-39-3	Barium	8.8	U		P
7440-41-7	Beryllium	0.19	~~B~~ NW*	UJ	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	96.9	~~B~~ E	UJ	P
7440-47-3	Chromium	4.1	U		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U		P
7439-89-6	Iron	32.1	~~B~~ N*	R	P
7439-92-1	Lead	1.1	~~B~~	U	F
7439-95-4	Magnesium	27.5	~~B~~ E	UJ	P
7439-96-5	Manganese	3.1	~~B~~ EN	J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	13.1	U		P
7440-09-7	Potassium	526	U		P
7782-49-2	Selenium	1.4	U	N J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U	E J	P
7440-28-0	Thallium	2.7	U		F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	16.7	~~B~~	U	P
57-12-5	Cyanide	10.0	U	~~BT~~	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/13/95

050015

1
INORGANIC ANALYSIS DATA SHEET

SO0203

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095022

Matrix (soil/water): WATER

Lab Sample ID: VV0001

Level (low/med): LOW

Date Received: 02/06/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	29.6	B	EN* U	P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	1.1	U		F
7440-39-3	Barium	8.8	U		P
7440-41-7	Beryllium	0.10	U	N* J	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	59.2	B	E U	P
7440-47-3	Chromium	5.3	B	U	P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U		P
7439-89-6	Iron	32.1	U	N*	P
7439-92-1	Lead	0.50	U		F
7439-95-4	Magnesium	30.3	B	E U	P
7439-96-5	Manganese	2.6	U	EN	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	13.1	U		P
7440-09-7	Potassium	526	U		P
7782-49-2	Selenium	1.4	U	NW J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U	E	P
7440-28-0	Thallium	2.7	U	W J	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	18.5	B	U	P
57-12-5	Cyanide	10.0	U	J	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

Joyce E. Whittle
4/13/95

050016

303055

APPENDIX F

Data Validation - May 1995 Groundwater Sampling

OFFICE MEMORANDUM

To: Jason Schindler
HLA, Philadelphia

From: Mike Phillips MPP
HLA, Denver

Date: July 20, 1995

Subject: Island Chemical Company Data Review

Project Number: 29872 10.3

The completed reports for the data validation for the water samples collected May 9 and 10, 1995 as part of the Island Chemical Company Remedial Investigation are enclosed. We will retain copies of the data validation reports for this project as well as the data packages themselves.

If you have any questions regarding these reports, please call me at (303)293-6052.

MPP/lz
schind.trn

Enclosures

cc: Brian LaFlamme, HLA Denver
Island Chemical Company Project File

Harding Lawson Associates
Engineering and Environmental Services
707 Seventeenth Street, Suite 2400
Denver, CO 80202 — (303) 292-5365

303057

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Volatile Organic Compound Analysis

Case Number: SDG 95053	Project Number: 29872 10.3
Site: Island Chemical Company - RI	
Contractor Lab: Pace Incorporated, New Orleans, Louisiana	
Validator: Kirsten Meier	Validation Date: June 26, 1995
QC Reviewer: <i>Michael P. Phillips</i>	Review Date: 7-11-95
Sample Matrix: Water	
Analytical Method: EPA Superfund Low Concentration VOA Method	

Sample Designations:

MW0001	MW0003	MW0004	MW0005
MW0101	RBGW00	TB0509	TB0510

Data for the above samples are:

- ☐ Acceptable for use
☒ Acceptable for use as qualified
☐ Unacceptable for use

Is action required by the Project Manager?

Yes No☒

Comments:

The analytical data were reviewed in accordance with the EPA Functional Guidelines, February 1995.

DATA COMPLETENESS CHECKLIST

- [x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

- ☒ Case Narrative
☒ Surrogate Recovery Summary
☒ MS/MSD Summary
☒ Reagent Blank Summary
☒ GC/MS Instrument Performance Summary

Sample Data

- ☒ Chain of Custody Forms
☒ Holding Times
☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☒ TIC Mass Spectra Library Searches

Initial Calibration Data

- ☒ Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

- ☒ Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms
☒ Internal Standards Summary

Instrument Performance Data

- ☒ BFB Mass Spectra
☒ Reconstructed Ion Chromatogram
☒ BFB Mass Listings

Reagent Blank Data

- ☒ Organic Analysis Data Sheets
- ☒ Quantitation Reports
- ☒ Reconstructed Ion Chromatograms
- ☒ Mass Spectra Printouts
- ☒ TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

- ☒ Organic Analysis Data Sheets
- ☒ Quantitation Reports
- ☒ Reconstructed Ion Chromatograms

Laboratory Control Sample

- ☒ Organic Analysis Data Sheets
- ☒ Quantitation Reports
- ☒ Reconstructed Ion Chromatograms
- ☒ Mass Spectra Printouts
- ☒ TIC Mass Spectra Library Searches

Comments:

Matrix spikes are not required under the Low Concentration method, however the lab performed MS/MSD and LSC sample analyses.

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes[x] No

Were custody transfers correctly and completely documented?

Yes[x] No

Comments:

Sample TB0511 was sampled on 5/11/95 and included in the cooler with sample MW0003, however, the lab did not analyze it.

Holding Times

Were sample analyses performed within holding times?

Yes[x] No

Comments:

None

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes[x] No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes[x] No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes☒ No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No☒

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No☒

Comments:

See table "Initial Calibration Summary" for outliers and applied qualifiers,

The relative standard deviation (%RSD) of the listed analyte(s) exceeded the upper QC limit of 30.0%. Therefore, the positive detections of these analytes in the associated investigative samples were qualified as estimated (J).

The relative response factors of the listed analytes were less than 0.05. Therefore, positive detections of the listed analytes in the associated investigative samples were qualified as estimated (J), while non-detections were qualified as unusable (R).

The initial calibration on 5-22-95 was also used as a continuing calibration. No additional qualification was necessary.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No☒

Did the continuing calibration meet the minimum RRF criteria?

Yes No☒

Comments:

See table "Continuing Calibration Summary" for outliers and applied qualifiers.

The percent difference (%D) of the listed analyte(s) exceeded the upper QC limit of 30.0%. Therefore, the results for these analytes in the associated investigative samples were qualified as estimated (J).

The relative response factors of the listed analytes were less than 0.05. Therefore, positive detections of the listed analytes in the associated investigative samples were qualified as estimated (J), while non-detections were qualified as unusable (R).

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes[x] No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA[x]

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes[x] No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes[x] No

Comments:

Matrix spike analyses are not required under the Low Concentration method. However, the lab analyzed matrix spikes with the investigative samples and the results are acceptable.

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes[x] No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA[x]

Comments:

None

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes[x] No

Were analytes detected in the blanks?

Yes[x] No

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

Yes[x] No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes[x] No

Comments:

See table "Blank Summary Form" for detections and applied qualifiers.

The action levels for the common lab contaminants Methylene Chloride, Acetone and 2-Butanone are 10 times the amount found in the associated blank. For all other analytes the action level is 5 times the amount found in the associated blank. Detections of the listed analytes in the investigative samples below the appropriate action level were qualified as undetected (U). As required by the Functional Guidelines, those results which were less than the Contract Required Quantitation Limit (CRQL) were raised to the CRQL.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes[x] No

Were the LCS recoveries within acceptable limits?

Yes[x] No

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

Yes[x] No

Were mass spectra provided for the target analytes detected in the investigative samples?

Yes[x] No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes[x] No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes[x] No

Comments:

The Ethylbenzene concentrations in the investigative samples MW0001 and MW0101 were outside the linear calibration range of the instrument. These reported concentrations have been qualified with an "E" by the lab and have been qualified as estimated (J) by the data reviewer.

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes[x] No NA

Were non-target peaks evaluated as required?

Yes[x] No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes[x] No

Comments:

None

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes[x]

No

Were sample analyses properly documented and performed in accordance with method protocols?

Yes[x]

No

Comments:

None

Calculation Checks

Instrument Tuning, 5-22-95, 1532, 75 m/z

Relative Abundance:

$$\frac{4216}{7520} \times 100\% = 56.06$$

Initial Calibration, 5-22-95, VSTD005, Acetone

RRF:

$$\frac{(6560) \times (5)}{(77826) \times (25)} = 0.017$$

%RSD:

$$\frac{0.00167}{0.018} \times 100\% = 9.3$$

Continuing Calibration, 5-19-95, 1708, Acetone

RRF:

$$\frac{(8723) \times (5)}{(82498) \times (25)} = 0.021$$

%D:

$$\frac{0.020 - 0.021}{0.020} \times 100\% = -5.0$$

Surrogate Recovery, MW0001, Bromofluorobenzene

% Recovery:

$$\frac{4.635}{5} \times 100\% = 92.7$$

Lab Control Spike Recovery, VLCS01, Benzene

% Recovery:

$$\frac{5.270 - 0}{5} \times 100\% = 105.4$$

Sample Results, MW0001DL

CRQL:

$$1.0 \text{ ug/l} \times 5 = 5 \text{ ug/l}$$

Detected Result for Ethylbenzene

$$\frac{(365214) \times (5)}{(56219) \times (1.539)} \times 5 = 105.528$$

TIC Result, Unknown, RT=4.15

$$\frac{(153550) \times (5)}{(207589) \times (1)} \times 5 = 18.492$$

Case Number: SDG 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Analyzed	Analysis Holding Time	Qualifier

303069

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Qualified Samples	Qualifier
1/31/95	F	Methylene Chloride		60.8	None	-
		Acetone	0.02	48.9	TB0509, MW0001, TB0510	R
		2-Butanone	0.023	33.2	TB0509, MW0001, TB0510	R
		2-Hexanone	0.049	37.3	TB0509, MW0001, TB0510	R
5/22/95	F	Acetone	0.018		MW0101, RBGW00, MW0001DL, MW0101DL, MW0003, MW0004, MW0005	J/R
		2-Butanone	0.021		MW0101, RBGW00, MW0001DL, MW0101DL, MW0003, MW0004, MW0005	R
		2-Hexanone	0.043		MW0101, RBGW00, MW0001DL, MW0101DL, MW0003, MW0004, MW0005	R

303070

Case Number: SDG 95053
 Project Number: 29872 10.3
 Site ID: Island Chemical Company - R1

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Qualified Samples	Qualifier
5/19/95, 1708	F	Acetone	0.021		TB0509, MW0001, TB0510	R
		2-Butanone	0.021		TB0509, MW0001, TB0510	R
		Chloroethane		-34.6	TB0509, MW0001, TB0510	J
		Methylene Chloride		41.8	TB0509, MW0001, TB0510	J
		1,1-Dichloroethane		-32.3	TB0509, MW0001, TB0510	J
		Bromoform		38.7	TB0509, MW0001, TB0510	J
5/23/95, 1231	F	Methylene Chloride		-44.6	MW0003, MW0004, MW0005	J
		Acetone	0.023		MW0003, MW0004, MW0005	R
		2-Butanone	0.019		MW0003, MW0004, MW0005	R
		2-Hexanone	0.039		MW0003, MW0004, MW0005	R

303071

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (ug/l)	Action Level (ug/l)	Qualified Samples
VBLK01	Methylene Chloride	0.8	8	TB0509, TB0510
VBLK02	Methylene Chloride	2	20	RBGW00
	4-Methyl-2-Pentanone	5	25	None
	2-Hexanone	3	15	None
	1,2-Dichlorobenzene	1	5	None
VBLK03	Methylene Chloride	2	20	MW0004, MW0005
VBLK04	Methylene Chloride	0.7	7	None

303072

Summary and Conclusions

The volatile organic results for SDG 95053 were found to be acceptable for use as qualified.

Sample TB0511 was not analyzed by the lab.

The relative response factors for Acetone, 2-Butanone and 2-Hexanone were less than 0.05 in the initial calibration on 1-31-95. Therefore, the undetected results for these analytes in the investigative samples TB0509, MW0001 and TB0510 were qualified as unusable (R).

The relative response factors for Acetone, 2-Butanone and 2-Hexanone were less than 0.05 in the initial calibration on 5-22-95. Therefore, the undetected results for these analytes in the investigative samples MW0001DL, MW0101DL, MW0101, MW0003, MW0004, MW0005 and RBGW00 were qualified as unusable (R), while the detection of Acetone in the investigative sample RBGW00 was qualified as estimated.

In the continuing calibration on 5-19-95 the percent difference values for Chloroethane, Methylene Chloride, 1,1-Dichloroethane, and Bromoform exceeded the QC criteria of 30.0%. Therefore, the results for these analytes in the investigative samples TB0509, MW0001 and TB0510 were qualified as estimated (J).

The relative response factors for Acetone and 2-Butanone were below 0.05 in the continuing calibration on 5-19-95. Therefore, the non-detections of Acetone and 2-Butanone in the investigative samples TB0509, MW0001 and TB0510 were qualified as unusable (R).

In the continuing calibration on 5-23-95 the percent difference value for Methylene Chloride exceeded the QC criteria of 30.0%. Therefore, the results for this analyte in the investigative samples MW0003, MW0004 and MW0005 were qualified as estimated (J).

The relative response factors for Acetone, 2-Butanone and 2-Hexanone were below 0.05 in the continuing calibration on 5-23-95. Therefore, the non-detections of these analytes in the investigative samples MW0003, MW0004 and MW0005 were qualified as unusable (R).

Blank contamination was observed for Methylene Chloride in the investigative samples TB0509, TB0510, RBGW00, MW0004 and MW0005. The reported detections were qualified as undetected (U) and the reporting limits were raised to the CRQLs.

The ethylbenzene concentrations in the investigative samples MW0001 and MW0101 exceeded the linear calibration range of the instrument. These results were qualified as estimated (J).

Validator's Signature:	<i>Kristen Reier</i>	
Validator's Initials:	<i>KM</i>	Validation Date: <i>6-26-95</i>
QC Reviewer's Signature:	<i>Michael P. Phyllis</i>	
QC Reviewer's Initials:	<i>MPP</i>	Review Date: <i>7-11-95</i>

303073

ILCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PM00001

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XGU001 Date Received: 05/12/95

Lab File ID: VOXGU01 Date Analyzed: 05/19/95

Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	@
74-87-3	Chloromethane	2	
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	UT
75-09-2	Methylene Chloride	2	UJ
67-64-1	Acetone	5	NR
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	UJ
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	NR
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	UJ
106-93-4	1,2-Dibromoethane	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	NR
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	100	EJ
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	3	
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

Reviewed By

303074

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

RW0001

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XGU001 Date Received: 05/12/95

Lab File ID: VOXGU01 Date Analyzed: 05/19/95

Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	4.20	31	J

VALIDATED

Reviewed By

Date

303075

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0509

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XGU009 Date Received: 05/12/95
Lab File ID: VOXGU09R Date Analyzed: 05/19/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	UJ
75-09-2	Methylene Chloride	2	UJ
67-64-1	Acetone	5	UR
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	UJ
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	UR
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	UJ
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	UJ
106-93-4	1,2-Dibromoethane	1	UJ
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	UR
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	0.2	J
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

303076

Reviewed By

Date

6-26-95

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB0509

Lab Name: ETC/GULF SOUTH Contract:

Lab Code: GULF Case No.: HLA SAS No.: SDG No.: 95053

Lab Sample ID: XGU009 Date Received: 05/12/95

Lab File ID: VOXGU09R Date Analyzed: 05/19/95

Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q

VALIDATED

Reviewed By

Date

303077

ILCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TE0510

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH004

Date Received: 05/12/95

Lab File ID: VOXHH04

Date Analyzed: 05/19/95

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	UJ
75-09-2	Methylene Chloride	2	UJ
67-64-1	Acetone	5	NR
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	UJ
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	NR
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	UJ
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	UJ
106-93-4	1,2-Dibromoethane	1	UJ
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	NR
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	0.7	J
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

303078

Reviewed By

Date

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB0510

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XHH004 Date Received: 05/12/95
Lab File ID: VOXHH04 Date Analyzed: 05/19/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATED

Reviewed By Kirsten Reier
Date 6-26-95

303079

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MM0003

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XHH009 Date Received: 05/12/95
Lab File ID: VOXHH09 Date Analyzed: 05/23/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	UJ
67-64-1	Acetone	5	NR
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	UJ ^{MPP} 7/10/95
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	NR
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	UJ ^{MPP} 7/10/95
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
106-93-4	1,2-Dibromoethane	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	NR
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	0.9	J
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

303080

Reviewed By

Date

6-26-95

1LCE

EPA SAMPLE NO.

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW0003

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XHH009 Date Received: 05/12/95
Lab File ID: VOXHH09 Date Analyzed: 05/23/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	18.15	3	J

VALIDATED

Reviewed By

Date

303081

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W900004

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XHH003 Date Received: 05/12/95
Lab File ID: VOXHH03 Date Analyzed: 05/23/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
106-93-4	1,2-Dibromoethane	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

Reviewed By

Date

303082

1LCE

EPA SAMPLE NO.

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

M65003

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH003 Date Received: 05/12/95

Lab File ID: VOXHH03 Date Analyzed: 05/23/95

Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	18.30	2	J

VALIDATED

Reviewed By

Date

303083

ILCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XHH002 Date Received: 05/12/95
Lab File ID: VOXHH02 Date Analyzed: 05/23/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	20.6	U
67-64-1	Acetone	5	UR
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	UR
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
106-93-4	1,2-Dibromoethane	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	UR
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

303084

Reviewed By

Date

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0005

Lab Name: ETC/GULF SOUTH , Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 25053

Lab Sample ID: XHH002 Date Received: 05/12/95

Lab File ID: VOXHH02 Date Analyzed: 05/23/95

Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q

VALIDATED

Reviewed By

Date

6-26-95

303085

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

REBW00

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XHH001 Date Received: 05/12/95
Lab File ID: VOXHH01 Date Analyzed: 05/23/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2.1	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	NR
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
106-93-4	1,2-Dibromoethane	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	NR
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

303086

Reviewed By

Date

1LCE

EPA SAMPLE NO.

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

REGW00

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH001 Date Received: 05/12/95

Lab File ID: VOXHH01 Date Analyzed: 05/23/95

Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATEDReviewed By K. K. K.Date 6-26-95

303087

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XGU002 Date Received: 05/12/95
Lab File ID: VOXGU02R2 Date Analyzed: 05/23/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	2	
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	NR
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	NR
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
106-93-4	1,2-Dibromoethane	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	NR
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	120	EJ
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	4	
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

Reviewed By Heather Kline

Date 6-26-95

303088

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MR0101

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XGU002 Date Received: 05/12/95
Lab File ID: VOXGU02R2 Date Analyzed: 05/23/95
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	4.10	25	J

VALIDATED

Reviewed By

Date

303089

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101DL

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XGU002DL Date Received: 05/12/95

Lab File ID: VOXGU02R Date Analyzed: 05/22/95

Purge Volume: 25.00 (ml) Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	20	U
67-64-1	Acetone	50	NR
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	50	NR
74-97-5	Bromochloromethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
106-93-4	1,2-Dibromoethane	10	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	NR
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	100	D
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	5	DJ
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U

VALIDATED

William H. H. H.
for 26-95

Reviewed By
303090
Date

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0101DL

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XGU002DL Date Received: 05/12/95

Lab File ID: VOXGU02R Date Analyzed: 05/22/95

Purge Volume: 25.00 (ml) Dilution Factor: 10

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	4.17	25	J

VALIDATED

Reviewed By

Date

303091

1LCA

EPA SAMPLE NO.

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

PW0001DL

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SOG No.: 95053

Lab Sample ID: XGU001DL

Date Received: 05/12/95

Lab File ID: VOXGU01D

Date Analyzed: 05/22/95

Purge Volume: 25.00 (ml)

Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl Chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	25	NR
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	25	NR
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
106-93-4	1,2-Dibromoethane	5	U
108-10-1	4-Methyl-2-Pentanone	25	U
591-78-6	2-Hexanone	25	NR
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	110	D
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U

VALIDATED

Reviewed By

303092

Date

6-26-95

1LCE
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0001DL

Lab Name: ETC/GULF SOUTH, Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XGU001DL Date Received: 05/12/95

Lab File ID: VOXGU01D Date Analyzed: 05/22/95

Purge Volume: 25.00 (ml) Dilution Factor: 5.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	4.15	18	J

VALIDATED

Reviewed By

Date

303093

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compound Analysis

Case Number:	SDG 95053	Project Number:	29872 10.3
Site:	Island Chemical Company - RI		
Contractor Lab:	Pace Incorporated, New Orleans, Louisiana		
Validator:	Kirsten Meier	Validation Date:	June 30, 1995
QC Reviewer:	<i>Michael P. Shilley</i>	Review Date:	7-11-95
Sample Matrix:	Water		
Analytical Method:	EPA Superfund Low Concentration Semivolatile Method		

Sample Designations:

MW0001	MW0003	MW0004	MW0005
MW0101	RBGW00		

Data for the above samples are:

- ☐ Acceptable for use
☒ Acceptable for use as qualified
☐ Unacceptable for use

Is action required by the Project Manager?

Yes No☒

Comments:

The analytical data were reviewed in accordance with the EPA Functional Guidelines, February 1994.

303094

DATA COMPLETENESS CHECKLIST

- [X] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

- ☒ Case Narrative
☒ Surrogate Recovery Summary
☐ NR MS/MSD Summary
☐ * Reagent Blank Summary
☒ GC/MS Instrument Performance Summary

Sample Data

- ☒ Chain of Custody Forms
☐ * Holding Times
☐ * Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☐ * Mass Spectra Printouts
☒ TIC Mass Spectra Library Searches

Initial Calibration Data

- ☐ * Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

- ☐ * Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms
☒ Internal Standards Summary

Instrument Performance Data

- ☒ DFTPP Mass Spectra
☒ Reconstructed Ion Chromatogram
☒ DFTPP Mass Listings

303095

Reagent Blank Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☒ TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

☐ NR Organic Analysis Data Sheets
☐ NR Quantitation Reports
☐ NR Reconstructed Ion Chromatograms

Laboratory Control Sample

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☒ TIC Mass Spectra Library Searches

Comments:

None

303096

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes[x] No

Were custody transfers correctly and completely documented?

Yes[x] No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No[x]

Were sample analyses performed within holding times?

Yes[x] No

Comments:

The investigative samples were extracted on 5-15-95 and received surrogate spikes at one fourth the concentration required under the analytical method. The lab then re-extracted the investigative samples on 5-25-95, outside of hold time. Therefore, the results from the re-analyses were qualified as estimated (J).

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes[x] No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes[x] No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes☒ No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No☒

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes☒ No

Comments:

The relative standard deviation (%RSD) of two analytes exceeded the upper QC limit of 30.0%. However, no detection were reported for these analytes and qualification of data was not necessary.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No☒

Did the continuing calibration meet the minimum RRF criteria?

Yes☒ No

Comments:

See table "Initial Calibration Summary" for outliers and applied qualifiers.

The relative standard deviation (%RSD) of the listed analyte(s) exceeded the upper QC limit of 25.0%. Therefore, the results of these analytes in the associated investigative samples were qualified as estimated (J).

303098

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes[x] No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA[x]

Comments:

The surrogate recoveries from the original extracts as well as from the re-extracts are within QC requirements. Qualification of data is not necessary.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes No NA[x]

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No NA[x]

Comments:

Under the Low Concentration method matrix spikes are not required. Qualification of data not necessary.

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes[x] No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA[x]

Comments:

None

303099

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes☒ No

Were analytes detected in the blanks?

Yes☒ No

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

Yes☒ No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes☒ No

Comments:

The action levels for the common lab contaminant Bis(2-ethylhexyl)phthalate is 10 times the amount found in the associated blank. Detections of Bis(2-ethylhexyl)phthalate in the investigative samples below the appropriate action level were qualified as undetected (U). As required by the Functional Guidelines, those results which were less than the Contract Required Quantitation Limit (CRQL) were raised to the CRQL.

See table "Blank Summary Form" for detections and applied qualifiers.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes☒ No

Were the LCS recoveries within acceptable limits?

Yes No☒

Comments:

Two LCSs were performed, SLCS01 is associated with the first sample extract on 5-15-95, SLCS02 is associated with the second sample extract on 5-25-95. The recoveries for 4-Chloroaniline were below the QC limit in both LCSs. Therefore, the non-detected results for 4-Chloroaniline in all the investigative samples were qualified as unusable (R).

303100

Sample Results

Were target analytes reported in the investigative samples?

Yes[x] No

Were mass spectra provided for the target analytes detected in the investigative samples?

Yes[x] No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No[x]

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes[x] No

Comments:

The lab reported Phenol as detectable between the IDL and the CRQL in the investigative samples MW0003 and MW0003RE. While reviewing the target compound spectrum comparisons, the data reviewer found that several ions at high intensities were present in the sample spectrum, but were not accounted for in the standard mass spectrum. Also the relative intensities of the ions between standard and sample mass spectra were not within the required 20%. Therefore, the results for Phenol were qualified as undetected (U) and the concentrations raised to the CRQL of 5 ug/l.

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes[x] No

Were non-target peaks evaluated as required?

Yes[x] No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes[x] No

Comments:

None

303101

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes☒ No

Were sample analyses properly documented and performed in accordance with method protocols?

Yes☒ No

Comments:

As stated before, the surrogate and spike concentrations in the original extracts were one fourth of the method required concentrations. The lab corrected that by re-extracting the investigative samples. Qualification of data was not necessary.

303102

Calculation Checks

Instrument Tuning, 6-2-95, 9:15, 127 m/z

Relative Abundance:

$$\frac{1078}{2108} \times 100\% = 51.139$$

Initial Calibration, 5-25-95, SST080, Pyrene

RRF:

$$\frac{(92540) \times (20)}{(13447) \times (80)} = 1.720$$

%RSD:

$$\frac{0.229}{1.655} \times 100\% = 13.869$$

Continuing Calibration, 6-1-95, 8:46, Pyrene

RRF:

$$\frac{(24487) \times (20)}{(19606) \times (20)} = 1.249$$

%D:

$$\frac{1.655 - 1.249}{1.655} \times 100\% = 24.532$$

Surrogate Recovery, MW0004, Phenol-d5

% Recovery:

$$\frac{7.576}{10} \times 100\% = 75.76$$

Lab Control Spike Recovery, SLCS01, Naphthalene

% Recovery:

$$\frac{3.563 - 0}{5.0} \times 100\% = 71.260$$

Sample Results, MW0004

CRQL:

Detected Result for Bis(2-ethylhexyl)phthalate

$$\frac{(13409) \times (20)}{(21914) \times (1.140)} = 10.735$$

TIC Result, Unknown, RT=11.05 min

$$\frac{(87913) \times (20)}{91345} = 19.249$$

Case Number: SDG 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Extracted	Extraction Holding Time	Qualifier
MW0001	5-9-95	5-25-95	7 days	J
MW0003	5-10-95	5-25-95	7 days	J
MW0004	5-10-95	5-25-95	7 days	J
MW0005	5-10-95	5-25-95	7 days	J
MW0101	5-9-95	5-25-95	7 days	J
RBGW00	5-10-95	5-25-95	7 days	J

303105

Case Number: SDG 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Qualified Samples	Qualifier
5-25-95, 0812	B	N-Nitrosodiphenylamine		30.1	None	-
		3,3'-Dichlorobenzidine		43.1	None	-

303106

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Qualified Samples	Qualifier
5-26-95, 0819	B	Hexachlorocyclopentadiene		-30.9	MW0001, MW0003, MW0004, MW0005, MW0101, RBGW00	J
		3-Nitroaniline		-58.9		
		2,4-Dinitrophenol		-36.7		
		4-Nitrophenol		-36.6		
		Butylbenzylphthalate		-27.9		
		3,3-Dichlorobenzidine		-41.2		
6-1-95, 0846	B	Hexachlorocyclopentadiene		-34.0	MW0001RE, MW0003RE, MW0004RE, MW0101RE, RBGW00RE	J
		2,4-Dinitrophenol		-33.3		
		4-Nitrophenol		-64.8		
		N-Nitrosodiphenylamine		42.5		
		Hexachlorobenzene		-32.3		
		3,3-Dichlorobenzidine		45.4		
		2,4,6-Tribromophenol (Surrogate)		-66.7		

303107

Case Number: SDG 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Qualified Samples	Qualifier
6-2-95, 1020	B	3-Nitroaniline		-42.9	MW0005RE	J
		2,4-Dinitrophenol		-43.3		
		4-Nitrophenol		-76.1		
		4-Nitroaniline		-42.6		
		3,3-Dichlorobenzidine		-37.0		

303108

Case Number: SDG 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

BLANK SUMMARY FORM

[illegible]

303109

Summary and Conclusions

The analytical results for the semivolatile analyses are acceptable for use as qualified.

The investigative samples were re-extracted on 5-25-95, outside of hold time. Therefore, the results from the re-analyses, investigative samples MW0001RE, MW0003RE, MW0004RE, MW0005RE, MW0101RE, RBGW00RE were qualified as estimated (J).

The relative standard deviation (%RSD) of several analyte(s) exceeded the upper QC limit of 25.0%. Therefore, the results of these analytes in the associated investigative samples were qualified as estimated (J). See the table "Continuing Calibration Summary" for detailed listing.

Detections of Bis(2-ethylhexyl)phthalate were observed in the prep blanks, therefore, detections of this compound in the investigative samples below the action level were qualified as undetected (U). As required by the Functional Guidelines, those results which were less than the Contract Required Quantitation Limit (CRQL) were raised to the CRQL.

The recoveries for 4-Chloroaniline in the LCSs were below the QC limit in both LCSs. Therefore, the non-detected results for 4-Chloroaniline in all the investigative samples were qualified as unusable (R).

The lab reported Phenol as detectable between the IDL and the CRQL in the investigative samples MW0003 and MW0003RE. After reviewing the target compound spectrum comparisons, the reviewer does not agree with the lab's finding. Therefore, the results for Phenol were qualified as undetected (U) and the concentrations raised to the CRQL of 5 ug/l.

Validator's Signature: <i>Kirsten Keier</i>	
Validator's Initials: <i>KM</i>	Validation Date: <i>6-30-95</i>
QC Reviewer's Signature: <i>Michael P. Phyllis</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>7-11-95</i>

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053
Lab Sample ID: XGU001 Date Received: 05/12/95
Lab File ID: SVXGU01L Date Extracted: 05/15/95
Sample volume: 1000 (ml) Date Analyzed: 05/26/95
Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0
Injection Volume: 1.0 (ul) pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	NR
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	UJ
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	UJ
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By

Theresa
6-30-95

Date

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU001

Date Received: 05/12/95

Lab File ID: SVXGU01L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U J
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Fentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U J
91-94-1	3,3'-Dichlorobenzidine	5	U J
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	11	U ✓
117-84-0	Di-n-Octyl Phthalate	5	U
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kristen Muir

Date 6-30-95

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0001

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XGU001 Date Received: 05/12/95

Lab File ID: SVXGU01L Date Extracted: 05/15/95

Sample volume: 1000 (ml) Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 8.2

Number TICs found: 3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	6.00	150	J
2.	UNKNOWN	9.85	14	J
3.	UNKNOWN	11.09	55	J

VALIDATED

Reviewed By

Date

Kristen Marie
6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU001RE

Date Received: 05/12/95

Lab File ID: SVXGU01LR

Date Extracted: 05/25/95

Sample volume: 400.0 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

108-95-2	Phenol	12	U J
111-44-4	bis(2-Chloroethyl)Ether	12	U
95-57-8	2-Chlorophenol	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	2,2'-oxybis(1-Chloropropane)	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitroso-Di-n-Propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethylphenol	12	U
111-91-1	bis(2-Chloroethoxy)Methane	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U J
106-47-8	4-Chloroaniline	12	U R
87-68-3	Hexachlorobutadiene	12	U J
59-50-7	4-Chloro-3-Methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	12	U
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	12	U J

VALIDATED

Reviewed By K. J. H. H. H.

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU001RE

Date Received: 05/12/95

Lab File ID: SVXGU01LR

Date Extracted: 05/25/95

Sample volume: 400.0 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	50	U J
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-phenylether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	12	U
101-55-3	4-Bromophenyl-phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
84-74-2	Di-n-Butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	12	U
56-55-3	Benzo(a)Anthracene	12	U
218-01-9	Chrysene	12	U J
117-81-7	bis(2-Ethylhexyl)Phthalate	12	U J
117-84-0	Di-n-Octyl Phthalate	12	U J
205-99-2	Benzo(b)Fluoranthene	12	U
207-08-9	Benzo(k)Fluoranthene	12	U
50-32-8	Benzo(a)Pyrene	12	U
193-39-5	Indeno(1,2,3-cd)Pyrene	12	U
53-70-3	Dibenz(a,h)Anthracene	12	U
191-24-2	Benzo(g,h,i)Perylene	12	U J

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kirsten Heie

Date 6-30-95

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0001RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU001RE

Date Received: 05/12/95

Lab File ID: SVXGU01LR

Date Extracted: 05/25/95

Sample volume: 400.0 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	10.75	98	J

VALIDATED

Reviewed By Kirsten Meier

Date 630-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH009

Date Received: 05/12/95

Lab File ID: SVXHH09L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	2	J
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	UJ
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	UJ
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By Kirsten Meier

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH009

Date Received: 05/12/95

Lab File ID: SVXHH09L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	UJ
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	UJ
91-94-1	3,3'-Dichlorobenzidine	5	UJ
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	U
117-84-0	Di-n-Octyl Phthalate	5	U
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kristen Heie

Date 6-30-95

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0003

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH009

Date Received: 05/12/95

Lab File ID: SVXHH09L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.8

Number TICs found: 6

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1. 119-61-9	METHANONE, DIPHENYL-	14.55	59	JN
2.	UNKNOWN	14.89	27	J
3.	UNKNOWN	15.15	49	J
4.	PHENOL, -(PHENYLMETHYL)	15.29	13	J
5. 57-68-1	BENZENESULFONAMIDE, 4-AMINO-	22.82	23	JN
6.	UNKNOWN	13.05	510	J

VALIDATED

Reviewed By Kirsten, Meri

Date 6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MIW0003RE

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH009RE Date Received: 05/12/95

Lab File ID: SVXHH09LR Date Extracted: 05/25/95

Sample volume: 450.0 (ml) Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)Ether	11	U
95-57-8	2-Chlorophenol	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-Di-n-Propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)Methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	1	J
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-Methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	44	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	44	U
131-11-3	Dimethyl Phthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	44	U
83-32-9	Acenaphthene	11	U

VALIDATED

Reviewed By Kristen Keri
Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH009RE

Date Received: 05/12/95

Lab File ID: SVXHH09LR

Date Extracted: 05/25/95

Sample volume: 450.0 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 7.8

CAS NO. COMPOUND CONCENTRATION (ug/L) Q

51-28-5	2,4-Dinitrophenol	44	U J
100-02-7	4-Nitrophenol	44	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	44	U
534-52-1	4,6-Dinitro-2-Methylphenol	44	U
86-30-6	N-Nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	44	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
84-74-2	Di-n-Butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)Anthracene	11	U
218-01-9	Chrysene	11	U J
117-81-7	bis(2-Ethylhexyl)Phthalate	42	U J
117-84-0	Di-n-Octyl Phthalate	11	U J
205-99-2	Benzo(b)Fluoranthene	11	U
207-08-9	Benzo(k)Fluoranthene	11	U
50-32-8	Benzo(a)Pyrene	11	U
193-39-5	Indeno(1,2,3-cd)Pyrene	11	U
53-70-3	Dibenz(a,h)Anthracene	11	U
191-24-2	Benzo(g,h,i)Perylene	11	U J

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kirsten Hie

Date 6-30-95

FORM I LCSV-2

303121

7 10/92

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0003RE

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH009RE Date Received: 05/12/95

Lab File ID: SVXHH09LR Date Extracted: 05/25/95

Sample volume: 450.0 (ml) Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 7.8

Number TICs found: 3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	12.65	520	J
2. 119-61-9	METHANONE, DIPHENYL	14.15	51	JN
3. 57-68-1	BENZENESULFONAMIDE, 4-AMINO-	21.77	27	JN

VALIDATED

Reviewed By Kirsten Meier
Date 6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0004

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH003

Date Received: 05/12/95

Lab File ID: SVXHH03L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	UR
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	UJ
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	UJ
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By W. J. H. H. H.

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0004

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH003

Date Received: 05/12/95

Lab File ID: SVXHH03L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	UJ
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	UJ
91-94-1	3,3'-Dichlorobenzidine	5	UJ
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	11	U ✓
117-84-0	Di-n-Octyl Phthalate	5	U
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kirsten Marie

Date 6-30-95

FORM I LCSV-2

303124

10/92

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0004

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH003

Date Received: 05/12/95

Lab File ID: SVXHH03L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	11.09	19	J
2.	UNKNOWN	12.97	18	J

VALIDATED

Reviewed By

Date

Kirsten Price
6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0004RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH003RE

Date Received: 05/12/95

Lab File ID: SVXHH03LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	UJ
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	UJ
106-47-8	4-Chloroaniline	5	U R
87-68-3	Hexachlorobutadiene	5	UJ
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	UJ

VALIDATED

Reviewed By Kirsten Meier

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0004RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH003RE

Date Received: 05/12/95

Lab File ID: SVXHH03LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U J
117-81-7	bis(2-Ethylhexyl)Phthalate	14	X U J
117-84-0	Di-n-Octyl Phthalate	5	U J
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U J

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kirsten Meier

Date 6-30-95

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0004RE

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH003RE Date Received: 05/12/95

Lab File ID: SVXHH03LR Date Extracted: 05/25/95

Sample volume: 1000 (ml) Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 8.3

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	10.70	38	J
2.	UNKNOWN	12.59	18	J

VALIDATED

Reviewed By Kristen Meier

Date 6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH002

Date Received: 05/12/95

Lab File ID: SVXHH02L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U R
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U J
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U J
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By Kristen Heise

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH002

Date Received: 05/12/95

Lab File ID: SVXHH02L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	UJ
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	UJ
91-94-1	3,3'-Dichlorobenzidine	5	UJ
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	7	U ✓
117-84-0	Di-n-Octyl Phthalate	5	U
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By

Date

FORM I LCSV-2

303130

10/92

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0005

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH002 Date Received: 05/12/95

Lab File ID: SVXHH02L Date Extracted: 05/15/95

Sample volume: 1000 (ml) Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 8.1

Number TICs found: 3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	11.05	14	J
2.	UNKNOWN	12.97	41	J
3. 119-61-9	METHANONE, DIPHENYL	14.52	7	JN

VALIDATED

Reviewed By Kirsten Merle
Date 6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH002RE

Date Received: 05/12/95

Lab File ID: SVXHH02LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/02/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U J
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U J
106-47-8	4-Chloroaniline	5	U R
87-68-3	Hexachlorobutadiene	5	U J
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U J

VALIDATED

Reviewed By Kristen Meier

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH002RE

Date Received: 05/12/95

Lab File ID: SVXHH02LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/02/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	7	UJ
117-84-0	Di-n-Octyl Phthalate	5	UJ
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	UJ

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Walter Keric

Date 6-30-95

FORM I LCSV-2

10/92

303133

1LCF

EPA SAMPLE NO.

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW0005RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH002RE

Date Received: 05/12/95

Lab File ID: SVXHH02LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/02/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.1

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	10.65	29	J
2.	UNKNOWN	12.52	24	J

VALIDATED

Reviewed By

Date

Theresa Meier
6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU002

Date Received: 05/12/95

Lab File ID: SVXGU02L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	UR
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	UJ
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	UJ
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By

Date

Kirsten Meier
6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU002

Date Received: 05/12/95

Lab File ID: SVXGU02L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	UJ
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	UJ
91-94-1	3,3'-Dichlorobenzidine	5	UJ
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	U
117-84-0	Di-n-Octyl Phthalate	5	U
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By

Date

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0101

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XGU002 Date Received: 05/12/95

Lab File ID: SVXGU02L Date Extracted: 05/15/95

Sample volume: 1000 (ml) Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 8.3

Number TICs found: 3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	5.93	120	J
2.	UNKNOWN	9.82	15	J
3.	UNKNOWN	11.07	51	J

VALIDATED

Reviewed By *Justin Merie*
Date 6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU002RE

Date Received: 05/12/95

Lab File ID: SVXGU02LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

108-95-2	Phenol	5	U J
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U J
106-47-8	4-Chloroaniline	5	U R
87-68-3	Hexachlorobutadiene	5	U J
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U J

VALIDATED

Reviewed By Justin Price

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU002RE

Date Received: 05/12/95

Lab File ID: SVXGU02LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	6	UJ
117-84-0	Di-n-Octyl Phthalate	5	UJ
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	UJ

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kirsten Reic

Date 6-30-95

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW0101RE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XGU002RE

Date Received: 05/12/95

Lab File ID: SVXGU02LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.	UNKNOWN	5.80	26	J
2. 930-68-7	2-CYCLOHEXEN-1-ONE	7.33	12	JN
3.	UNKNOWN	10.74	91	J
4.	UNKNOWN	11.04	17	J
5.	UNKNOWN	11.15	50	J

VALIDATED

Reviewed By

Date

FORM I LCSV-TIC

303140

10/92

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

REGW00

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH001

Date Received: 05/12/95

Lab File ID: SVXHH01L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U R
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U J
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U J
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By Kristen Meier

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBGW00

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH001 Date Received: 05/12/95

Lab File ID: SVXHH01L Date Extracted: 05/15/95

Sample volume: 1000 (ml) Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0

Injection Volume: 1.0 (ul) pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	UJ
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	2	J
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	UJ
91-94-1	3,3'-Dichlorobenzidine	5	UJ
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	U
117-84-0	Di-n-Octyl Phthalate	5	U
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By [Signature]
Date 6-30-95

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

REGW00

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH001

Date Received: 05/12/95

Lab File ID: SVXHH01L

Date Extracted: 05/15/95

Sample volume: 1000 (ml)

Date Analyzed: 05/26/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q

VALIDATED

Reviewed By Kristen Meier

Date 6-30-95

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

REGWOORE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH001RE

Date Received: 05/12/95

Lab File ID: SVXHH01LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

108-95-2	Phenol	5	UJ
111-44-4	bis(2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-Di-n-Propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)Methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	UJ
106-47-8	4-Chloroaniline	5	UR
87-68-3	Hexachlorobutadiene	5	UJ
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethyl Phthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	UJ

VALIDATED

Reviewed By Robert H. H. H.

Date 6-30-95

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBGWOORE

Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 95053

Lab Sample ID: XHH001RE

Date Received: 05/12/95

Lab File ID: SVXHH01LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q

51-28-5	2,4-Dinitrophenol	20	UJ
100-02-7	4-Nitrophenol	20	UJ
132-64-9	Dibenzofuran	5	UJ
121-14-2	2,4-Dinitrotoluene	5	UJ
84-66-2	Diethylphthalate	1	J
7005-72-3	4-Chlorophenyl-phenylether	5	UJ
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-Methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-Butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	16	UJ
117-84-0	Di-n-Octyl Phthalate	5	UJ
205-99-2	Benzo(b)Fluoranthene	5	U
207-08-9	Benzo(k)Fluoranthene	5	U
50-32-8	Benzo(a)Pyrene	5	U
193-39-5	Indeno(1,2,3-cd)Pyrene	5	U
53-70-3	Dibenz(a,h)Anthracene	5	U
191-24-2	Benzo(g,h,i)Perylene	5	UJ

(1) - Cannot be separated from Diphenylamine

VALIDATED

Reviewed By Kristen Meier

Date 6-30-95

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

RBGWOORE

Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Lab Sample ID: XHH001RE

Date Received: 05/12/95

Lab File ID: SVXHH01LR

Date Extracted: 05/25/95

Sample volume: 1000 (ml)

Date Analyzed: 06/01/95

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
=====	=====	=====	=====	=====

VALIDATED

Reviewed By

Date

Kristen Heier
6-30-95

303146

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Low Concentration Organochlorine Pesticides and Polychlorinated Biphenyls Analysis

Case Number: SDG 95053	Project Number: 29872 10.3
Site: Island Chemical Company - RI	
Contractor Lab: Pace Incorporated, New Orleans, Louisiana	
Validator: Kirsten Meier	Validation Date: July 6, 1995
QC Reviewer: <i>Michael P. Phillips</i>	Review Date: <i>7/17/95</i>
Sample Matrix: Water	
Analytical Method: EPA Superfund Low Concentration Method	

Sample Designations:

MW0001	MW0003	MW0004	MW0005
MW0101	RBGW00		

Data for the above samples are:

- ☐ Acceptable for use
- ☒ Acceptable for use as qualified
- ☐ Unacceptable for use

Is action required by the Project Manager?

Yes No☒

Comments:

The analytical data were reviewed in accordance with the EPA Functional Guidelines, February 1994.

Case Number:
Project Number:
Site ID:

DATA COMPLETENESS CHECKLIST

- [x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

- ☐ * Case Narrative
☐ * Surrogate Recovery Summary
☒ LCS Summary
☒ Reagent Blank Summary

Sample Data

- ☒ Chain of Custody Forms
☐ * Holding Times
☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ GC/EC Chromatograms
☒ Pesticide/PCB Identification (for positive detections)

Instrument Calibration and Performance Data

- ☒ Initial Calibration Retention Time Summary
☒ Initial Calibration Response Factor Summary
☒ Performance Evaluation Mix Summary
☒ Continuing Calibration Verification Summary
☒ Analytical Run Sequence Summary
☒ GPC Calibration and Florisil Cartridge Check Summary
☒ Pesticide/PCB Standards Quantitation Reports
☒ Pesticide/PCB Standards GC/EC Chromatograms

Reagent and Instrument Blank Data

- ☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ GC/EC Chromatograms
☒ Pesticide/PCB Identification (for positive detections)

Case Number:
Project Number:
Site ID:

Lab Control Spike Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ GC/EC Chromatograms

Comments:

None

Case Number:
Project Number:
Site ID:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes☒ No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No☒

Were sample analyses performed within holding times?

Yes☒ No

Comments:

The investigative samples RBGW00, MW0005, and MW0003 were reextracted on 5-23-95, outside hold time. Therefore, the results for the investigative samples RBGW00RE, MW0005RE, and MW0003RE were qualified as estimated (J).

Case Number:
Project Number:
Site ID:

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes[x] No

Were the calibration standards analyzed at the correct concentrations?

Yes[x] No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes[x] No

Were retention time windows provided and correctly calculated?

Yes[x] No

Were peak resolutions acceptable?

Yes[x] No

Comments:

None

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes[x] No

Did the individual mix standards meet the retention time criteria?

Yes[x] No

Comments:

None

Case Number:
Project Number:
Site ID:

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?
Yes[x] No

Did the performance evaluation mix standards meet the retention time criteria?
Yes[x] No

Comments:
None

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?
Yes[x] No

Comments:
On page 115 the matrix spike from a different run was entered into the analytical sequence. Matrix spikes are not required under the Low Concentration method, qualification of data was not necessary.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?
Yes No[x]

If the spike recoveries were unacceptable, were the samples reanalyzed?
Yes No[x]

Comments:
The following analytical samples had surrogate recoveries outside the QC requirement of 60-150%. If either of the surrogate recoveries is below 60%, the results for the compounds in the associated investigative samples were qualified as estimated (J).

Sample ID	TCX 1, %Rec	DCB 1, %Rec	TCX 2, %Rec	DCB 2, %Rec	Qualifier
MW0001		50	178	49	J
MW0003		32		57	J
MW0003RE	178	32			J
MW0004		47		45	J
MW0005		48		50	J
MW0005RE		56		57	J
MW0101		33	348	37	J

Case Number:
Project Number:
Site ID:

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No NA[x]

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments:

Matrix spike analyses are not required under the Low Concentration method. Data was not qualified.

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes[x] No

Were instrument blanks analyzed at the correct frequency?

Yes[x] No

Were analytes reported in the blanks?

Yes[x] No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

Yes No[x]

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No[x]

Comments:

None

303153

Case Number:
Project Number:
Site ID:

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

Yes[x] No

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

Yes[x] No

Comments:

None

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes No[x]

Was the GPC column check acceptable?

Yes No NA[x]

Was a Florisil cartridge check performed?

Yes[x] No

Was the Florisil cartridge check acceptable?

Yes[x] No

Comments:

None

303154

Case Number:
Project Number:
Site ID:

Laboratory Control Samples

Were LCS analyses performed?

Yes[x] No

Were the LCS recoveries within acceptable limits?

Yes[x] No

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

Yes[x] No

Were chromatograms provided for all target analytes reported in the investigative samples?

Yes[x] No

Were chromatograms of acceptable quality and were analytes correctly identified?

Yes[x] No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

Yesx[] No

Comments:

The lab provided detailed information for the sample identifications. Due to the strong matrix interferences, which mostly resulted in poor peak resolutions in the investigative samples, it is not possible to reevaluate peak identifications without the use of a computer and the actual data files. The lab sufficiently showed that the instruments used were in good operating conditions, so that the reviewer accepts the lab's decisions on the peak identifications. No data was qualified.

The lab used the qualifier "P" when the percent difference between both analytical column detections exceeded 25%. The reviewer added the qualifier "J" to indicate that it is an estimated value.

303155

Case Number:
Project Number:
Site ID:

Calculation Check

Initial Calibration, 5-18-95, DB-1701, Methoxychlor

Retention Time Window:

Average RT=19.31, window is ± 0.07 min

Window: 19.24 - 19.38 min

%RSD:

$$168226.04 / 1230000 \times 100 = 13.68 \%$$

Continuing Calibration, 5-19-95, 0831, DB-608, Methoxychlor

%D:

$$(0.204 - 0.20) / 0.204 \times 100 = 1.96 \%$$

Surrogate Recovery, MW0004, TCX1

$$0.0299 / 0.04 \times 100 = 74.75 \%$$

Matrix Spike Recovery, MW0001MS, gamma-BHC

$$0.177 / 0.150 \times 100 = 118.0\%$$

RPD:

$$(2 | 118 - 105 |) / (118 + 105) \times 100 = 11.66 \%$$

303156

Case Number:
Project Number:
Site ID:

Sample Results, MW0101

CRQL:

Positive Result: Heptachlor

$$101289 \times 2000 / 8290000 / 1000 = 0.024$$

303157

Case Number:
Project Number:
Site ID:

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
RBGW00RE	5-10-95	5-23-95		7 days		J
MW0005RE	5-10-95	5-23-95		7 days		J
MW0003RE	5-10-95	5-23-95		7 days		J

Comments:
None

303158

Case Number:
Project Number:
Site ID:

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Qualified Samples	Qualifier

Comments:

303159

Case Number:
Project Number:
Site ID:

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Qualified Samples	Qualifier

Comments:

303160

Case Number:
Project Number:
Site ID:

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Qualified Samples	Qualifier
PBLKW2	Dieldrin	0.028	ug/l	0.14	None	---

Comments:

303161

Case Number:
Project Number:
Site ID:

Summary and Conclusions

The analytical results for the low concentration pesticide/PCB analyses are acceptable for use as qualified.

The investigative samples RBGW00, MW0005, and MW0003 were reextracted outside hold time. Therefore, the results for the investigative samples RBGW00RE, MW0005RE, and MW0003RE were qualified as estimated (J).

The surrogate recoveries exceeded the QC criteria in the investigative samples MW0001, MW0003, MW0003RE, MW0004, MW0005, MW0005RE, and MW0101; therefore, the results in these samples were qualified as estimated (J).

The lab used the qualifier "P" when the percent difference between both analytical column detections exceeded 25%. The reviewer added the qualifier "J" to indicate that it is an estimated value.

Validator's Signature: <i>Kirsten Meier</i>	
Validator's Initials: <i>KM</i>	Validation Date: <i>7-6-95</i>
QC Reviewer's Signature: <i>Michael R. Schellman</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>7-17-95</i>

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0001

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XGU001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/15/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/22/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.039	PJ
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.057	P
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.025	P
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.014	P
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.043	P
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.017	P
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	UJ

303163

VALIDATE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XHH009

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/17/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/22/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.8 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

319-84-6-----	alpha-BHC	0.010	U J
319-85-7-----	beta-BHC	0.017	P
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.013	P
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U J

303164

VALIDATED

Reviewed By Rick K. Kline
Date 7-6-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0003RE

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XHH009RE

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/23/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/24/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.083	J
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.014	P
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.011	P
5103-74-2-----	gamma-Chlordane	0.010	U
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U

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VALIDATED

FORM I PEST

Reviewed By Rick Mice
Date 7-6-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0004

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XHH003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/15/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/22/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.3 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.010	UJ
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.010	U
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	UJ

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VALIDATED

FORM I PEST

Reviewed By R. S. H. H.
Date 7-6-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XHH002

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/15/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/22/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----alpha-BHC	0.010	UJ
319-85-7-----beta-BHC	0.010	U
319-86-8-----delta-BHC	0.010	U
58-89-9-----gamma-BHC (Lindane)	0.010	U
76-44-8-----Heptachlor	0.010	U
309-00-2-----Aldrin	0.010	U
1024-57-3-----Heptachlor epoxide	0.010	U
959-98-8-----Endosulfan I	0.010	U
60-57-1-----Dieldrin	0.020	U
72-55-9-----4,4'-DDE	0.020	U
72-20-8-----Endrin	0.020	U
33213-65-9-----Endosulfan II	0.020	U
72-54-8-----4,4'-DDD	0.020	U
1031-07-8-----Endosulfan sulfate	0.020	U
50-29-3-----4,4'-DDT	0.020	U
72-43-5-----Methoxychlor	0.10	U
53494-70-5-----Endrin ketone	0.020	U
7421-93-4-----Endrin aldehyde	0.020	U
5103-71-9-----alpha-Chlordane	0.010	U
5103-74-2-----gamma-Chlordane	0.010	U
8001-35-2-----Toxaphene	1.0	U
12674-11-2-----Aroclor-1016	0.20	U
11104-28-2-----Aroclor-1221	0.40	U
11141-16-5-----Aroclor-1232	0.20	U
53469-21-9-----Aroclor-1242	0.20	U
12672-29-6-----Aroclor-1248	0.20	U
11097-69-1-----Aroclor-1254	0.20	U
11096-82-5-----Aroclor-1260	0.20	UJ

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VALIDATED

Reviewed By Kristen Hise
Date 7-6-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0005RE

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XHH002RE

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/23/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/24/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.010	UJ
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.010	U
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U

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VALIDATED

FORM I PEST

Reviewed By 1/25/95
Date 7-6-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW0101

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XGU002

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/15/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/22/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.3 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.032	P J
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.017	P
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.022	
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.025	P
72-20-8-----	Endrin	0.044	P
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.015	P
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U J

303169

VALIDATED

Reviewed By W. H. H. H.
Date 7-6-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBGW00

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XHH001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/15/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/22/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.010	U
319-85-7-----	beta-BHC	0.010	U
319-86-8-----	delta-BHC	0.010	U
58-89-9-----	gamma-BHC (Lindane)	0.010	U
76-44-8-----	Heptachlor	0.010	U
309-00-2-----	Aldrin	0.010	U
1024-57-3-----	Heptachlor epoxide	0.010	U
959-98-8-----	Endosulfan I	0.010	U
60-57-1-----	Dieldrin	0.020	U
72-55-9-----	4,4'-DDE	0.020	U
72-20-8-----	Endrin	0.020	U
33213-65-9-----	Endosulfan II	0.020	U
72-54-8-----	4,4'-DDD	0.020	U
1031-07-8-----	Endosulfan sulfate	0.020	U
50-29-3-----	4,4'-DDT	0.020	U
72-43-5-----	Methoxychlor	0.10	U
53494-70-5-----	Endrin ketone	0.020	U
7421-93-4-----	Endrin aldehyde	0.020	U
5103-71-9-----	alpha-Chlordane	0.010	U
5103-74-2-----	gamma-Chlordane	0.010	U
8001-35-2-----	Toxaphene	1.0	U
12674-11-2-----	Aroclor-1016	0.20	U
11104-28-2-----	Aroclor-1221	0.40	U
11141-16-5-----	Aroclor-1232	0.20	U
53469-21-9-----	Aroclor-1242	0.20	U
12672-29-6-----	Aroclor-1248	0.20	U
11097-69-1-----	Aroclor-1254	0.20	U
11096-82-5-----	Aroclor-1260	0.20	U

303170

VALIDATED

FORM I PEST Reviewed By W. J. H. 3/90
Date 7-0-92

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBGW00RE

Lab Name: G S E L I Contract: HLA

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 95053

Matrix: (soil/water) WATER Lab Sample ID: XHH001RE

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 05/12/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/23/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 05/24/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

319-84-6-----	alpha-BHC	0.010	U	J
319-85-7-----	beta-BHC	0.010	U	
319-86-8-----	delta-BHC	0.010	U	
58-89-9-----	gamma-BHC (Lindane)	0.010	U	
76-44-8-----	Heptachlor	0.010	U	
309-00-2-----	Aldrin	0.010	U	
1024-57-3-----	Heptachlor epoxide	0.010	U	
959-98-8-----	Endosulfan I	0.010	U	
60-57-1-----	Dieldrin	0.020	U	
72-55-9-----	4,4'-DDE	0.020	U	
72-20-8-----	Endrin	0.020	U	
33213-65-9-----	Endosulfan II	0.020	U	
72-54-8-----	4,4'-DDD	0.020	U	
1031-07-8-----	Endosulfan sulfate	0.020	U	
50-29-3-----	4,4'-DDT	0.020	U	
72-43-5-----	Methoxychlor	0.10	U	
53494-70-5-----	Endrin ketone	0.020	U	
7421-93-4-----	Endrin aldehyde	0.020	U	
5103-71-9-----	alpha-Chlordane	0.010	U	
5103-74-2-----	gamma-Chlordane	0.010	U	
8001-35-2-----	Toxaphene	1.0	U	
12674-11-2-----	Aroclor-1016	0.20	U	
11104-28-2-----	Aroclor-1221	0.40	U	
11141-16-5-----	Aroclor-1232	0.20	U	
53469-21-9-----	Aroclor-1242	0.20	U	
12672-29-6-----	Aroclor-1248	0.20	U	
11097-69-1-----	Aroclor-1254	0.20	U	
11096-82-5-----	Aroclor-1260	0.20	U	J

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VALIDATED

FORM I PEST

Reviewed By Heisterkamp 3/90
Date 7-6-95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Metals Analysis

Case Number: 95053	Project Number: 29872 10.3
Site: Island Chemical Company - RI	
Contractor Lab: Pace Incorporated, New Orleans, Louisiana	
Validator: Kirsten Meier	Validation Date: July 7, 1995
QC Reviewer: <i>Michael P. Phyllis</i>	Review Date: 7/19/95
Sample Matrix: Water	
Analytical Method: EPA CLP ILM02.0 for Metals, including Cyanide	

Sample Designations:

Client ID (Lab ID)

MW0001 (XGU001)	MW0003 (XHH009)	MW0004 (XHH003)	MW0005 (XHH002)
MW0101 (XGU002)	RBGW00 (XHH001)	DW0001* (XGU005)	DW0003* (XHH010)
DW0004* (XHH007)	DW0005* (XHH006)	DW0101* (XGU006)	DBGW00* (XHH005)

(*) Dissolved metals only

Data for the above samples are:

- ☐ Acceptable for use
- ☒ Acceptable for use as qualified
- ☐ Unacceptable for use

Is action required by the Project Manager?

Yes No[x]

Comments:

The investigative samples were analyzed following the EPA CLP Method ILM02.0 and the data were reviewed in accordance with the Functional Guidelines, February 1994.

The metals Antimony, Arsenic, Beryllium, Lead, Selenium and Thallium were analyzed by GFAA.

DATA COMPLETENESS CHECKLIST

- [x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

- ☒ Case Narrative
☒ Chain of Custody Forms
☒ Cover Page
☒ Holding Times
☒ Inorganic Analysis Data Sheets
☒ Initial and Continuing Calibration Summary
☒ ICP and AA CRDL Check Standard Summary
☒ Linear Range Verification Standard Summary
☒ Calibration and Preparation Blank Summary
☒ ICP Interference Check Sample Summary
☒ Matrix Spike Summary
☒ Post Digestion Spike Sample Summary
☒ Duplicate Sample Summary
☒ Laboratory Control Sample Summary
☒ Method of Standard Additions Summary
☒ ICP Serial Dilution Summary
☒ Quarterly Instrument Detection Limits Summary
☒ Annual Interelement Correction Factors Summary
☒ Quarterly ICP Linear Range Summary
☒ Sample Preparation Log Summary
☒ Sample Analysis Run Log Summary

Sample Raw Data

- ☒ ICP Raw Data
☒ GFAA Raw Data
☒ Mercury Raw Data
☒ Cyanide Raw Data

Comments:

The IDL (Instrument Detection Limit) for Cyanide was not provided. The lab was contacted to submit this information.

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SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes☒ No

Were custody transfers correctly and completely documented?

Yes☒ No

Comments:

None

Holding Times

Were sample preparations and analyses performed within holding times?

Yes☒ No

Comments:

None

Instrument Calibration

Were instruments calibrated daily and each time that sample analyses were performed?

Yes[x] No

Were the instruments calibrated using the minimum required numbers of blanks and standards?

Yes[x] No

For the GFAA methods was one standard analyzed at the Contract Required Detection Limit (CRDL)?

Yes[x] No

For the applicable methods did the correlation coefficients meet the minimum requirement of 0.995?

Yes[x] No NA

For the cyanide analyses was a midrange standard distilled and analyzed?

Yes[x] No NA

Comments:

For the Cyanide analyses, the raw data for the initial calibration were not submitted. At this point the calibration and its linearity cannot be verified. The lab was contacted to provide this information. Data were not qualified.

Initial and Continuing Calibration Verification

Were the calibration standards and blanks analyzed at the required frequencies?

Yes[x] No

Were the standard recoveries within QC limits?

Yes No[x]

Comments:

For Mercury, Form II, page 17, the CCV recovery is listed as 1814%, which is a typo and does not match the raw data. The lab was contacted to resubmit the corrected form. Data were not qualified.

For Silver, one of the CCV recoveries was 89.9%, below the requirement of 90.0%. Therefore, the results for silver in the associated samples MW0001, MW0101, DW0001, DW0101, RBGW00, MW0005, MW0004, DBGW00, DW0005, DW0004, MW0003 and DW0003 were qualified as estimated (J).

CRDL Standards

Were CRDL standards (CRI and CRA) analyzed at the required frequency?

Yes[x] No

Were the ICP standards (CRI) analyzed at the required levels?

Yes[x] No

For the low concentration method, were the CRDL results acceptable?

Yes No NA[x]

Comments:

None

Matrix Spike

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this SDG?

Yes[x] No

Were field or rinse blanks used for the spike analysis sample?

Yes No[x]

Were the matrix spike recoveries within acceptance criteria?

Yes No[x]

Were post-digestion spikes performed when required?

Yes[x] No

303176

Comments:

Matrix spikes were performed for dissolved and total metals. For spike recoveries between 30.0% and 75.0%, the results of the affected analyte in the associated investigative samples were qualified as estimated (J). For spike recoveries below 30.0%, the detections of that metal were qualified as estimated (J), while the non-detections were rejected (R). Cyanide was spiked at four times the reporting limit and no spike recovery was observed. Until the lab can provide more information for the Cyanide analyses, the results for Cyanide have to be rejected (R). The table below lists the exceeding spike recoveries and the associated investigative samples and qualifiers.

Analyte	% Recovery	Associated samples	Qualifier
Beryllium	60.0	DW0001, DW0003, DW0004, DW0005, DW0101, DBGW00	J
Copper	71.3	DW0001, DW0003, DW0004, DW0005, DW0101, DBGW00	J
Lead	35.7	DW0001, DW0003, DW0004, DW0005, DW0101, DBGW00	J
Manganese	36.8	DW0001, DW0003, DW0004, DW0005, DW0101, DBGW00	J
Mercury	33.4	DW0001, DW0003, DW0004, DW0005, DW0101, DBGW00	J
Aluminum	73.0	MW0001, MW0003, MW0004, MW0005, MW0101, RBGW00	J
Beryllium	7.5	MW0001, MW0003, MW0004, MW0005, MW0101, RBGW00	J/R
Iron	36.9	MW0001, MW0003, MW0004, MW0005, MW0101, RBGW00	J
Cyanide	0	MW0001, MW0003, MW0004, MW0005, MW0101, RBGW00	R

The Arsenic spike recoveries for both the dissolved and the total metals samples were above the upper acceptance limit of 125% (i.e., 131.2% for dissolved and 136.1% for total metals). However, because Arsenic was not detected in any of the investigative samples, qualification of data was not necessary.

Laboratory Control Sample

Were laboratory control sample analyses performed at the required frequency?

Yes No[x]

Were laboratory control sample recovery results acceptable?

Yes[x] No

Comments:

For Cyanide an LCS was not performed. No further qualification of data.

ICP Interference Check Sample

Were ICP interference check samples (ICS) analysed at the required frequency?

Yes[x] No

Were the ICS recovery criteria met?

Yes[x] No

Were results greater than the IDL reported for elements not present in the ICS solution?

Yes[x] No

Were negative results with absolute values greater than the IDL reported for elements not present in the ICS solution?

Yes[x] No

Were the concentrations of metals in the investigative samples similar to the concentrations of the ICS solution?

Yes No[x]

Did the sample results require qualification due to interference problems?

Yes No[x]

Comments:

None

Duplicate Sample Results

Were duplicate sample analyses performed at the required frequency?

Yes☒ No

Did the duplicate sample results meet acceptance criteria?

Yes No☒

Comments:

For the dissolved metals, Copper had a difference of 59.419 ug/l and Lead had a difference of 13.197 ug/l, both larger than the required minimum difference of one CRDL. Therefore, the results for Copper and Lead in the investigative samples DW0001, DW0003, DW0004, DW0005, DW0101, and DBGW00 were qualified as estimated (J).

For the total metals, Aluminum had a difference of 335.79 ug/l and Iron had a %RPD of 25.5%, both exceeding the required QC limits of one CRDL or 20.0% RPD. Therefore, the results for Aluminum and Iron in the investigative samples MW0001, MW0003, MW0004, MW0005, MW0101 and RBGW00 were qualified as estimated (J).

Zinc was marked by the lab as exceeding the QC criteria, but the results are acceptable, data were not qualified.

Blank Analyses

Were preparation and calibration blank analyses performed at the required frequency?

Yes☒ No

Were elements reported in the blanks at levels above the CRDL?

Yes No☒

Were elements reported in the blanks at levels between the IDL and the CRDL?

Yes☒ No

Were negative results with absolute values greater than the IDL reported in the blanks?

Yes☒ No

If analytes were reported in the blanks, were the same analytes also reported for the associated investigative samples?

Yes☒ No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes☒ No

Comments:

See table "Blank Summary Form" for blank contamination and qualifiers added.

The action levels for the blank contaminants are five times the amount found in the associated blank. Detections of these contaminants in the investigative samples below the appropriate action level were qualified as undetected (U).

303179

ICP Serial Dilution

Were serial dilution analyses performed at the required frequency?

Yes[x] No

For analytes with concentrations greater than 50 times the IDL, were the percent differences within acceptance criteria?

Yes[x] No

Comments:

None

GFAA QC

Were duplicate injections performed for each GFAA sample analysis?

Yes[x] No

For results greater than the CRDL were the percent RSD results calculated correctly and within control limits?

Yes[x] No NA

Were the GFAA analytical spike (post-digestion spike) recoveries within acceptance criteria?

Yes No[x]

If the GFAA analytical spike recoveries were not acceptable, were samples diluted and reanalyzed when required?

Yes No[x]

Was the method of standard additions (MSA) used for GFAA analysis when required?

Yes[x] No

When MSA analyses were performed, were the correlation coefficients and spiking levels acceptable?

Yes No[x]

303180

Comments:

For the following analytes the analytical spike recoveries exceeded 85%-115%. The samples were not reanalyzed at a dilution. Therefore, the results for the analytes in the associated investigative samples were qualified as estimated (J).

Analyte	Sample ID	% Recovery	Qualifier
Arsenic	DW0101	119	J
	DW0005	119	J
Antimony	DW0005	81.5	J
	DW0004	82.0	J
	MW0003	82.5	J
Beryllium	MW0101	28.1	J
	DW0001	84.3	J
	DW0101	83.5	J
	DW0005	84.5	J
	DW0004	84.1	J
Lead	MW0001	78.5	J
	MW0101	82.7	J
	RBGW00	83.9	J
	MW0004	78.8	J
	MW0003	70.7	J
Selenium	MW0001	81.1	J
	MW0101	76.1	J
	DW0001	77.0	J
	DW0101	77.2	J
	MW0005	80.7	J
	MW0004	57.0	J
	DW0005	72.5	J
	DW0004	56.3	J
	MW0003	28.3	J
	DW0003	42.4	J

Thallium	MW0001	63.1	J
	MW0101	73.6	J
	DW0001	63.0	J
	DW0101	76.8	J
	RGBW00	84.7	J
	MW0005	67.4	J
	MW0004	71.8	J
	DW0005	68.8	J
	DW0004	70.5	J
	MW0003	67.2	J
	DW0003	69.7	J

For the investigative sample DW0101 the method of standard addition (MSA) was performed for the Lead analyses. The linear correlation coefficient was 0.9936, below the requirement of 0.995. The laboratory repeated the MSA analysis as per the method and obtained a correlation coefficient of 1.000. The lab reported the result from the run with the correlation coefficient of 0.9936 (i.e., 13.1 ug/l) and flagged the result with "+". Instead the lab should have reported the results from the run with the correlation coefficient of 1.000 (i.e., 12.3 ug/l) and flagged the result with the letter "S". These changes have been made on Form I by the data reviewer.

ICP Interelement Correction Factors

Were annual interelement correction factors provided for each instrument used for sample analysis and were they current?

Yes[x]

No

Comments:

None

ICP Linear Ranges

Were linear ranges provided for each instrument used for sample analysis and were they current?

Yes

No[x]

Was a quarterly linear range verification analysis performed and if so, were the results acceptable?

Yes[x]

No

For the low concentration method was a linear range standard analysis performed as required, and if so, were the results acceptable?

Yes

No

NA[x]

Comments:

The ICP linear ranges provided were dated 1/26/95, which is beyond the quarterly requirement of the method. No data were qualified as result of this problem.

Log Books

Were all sample preparations properly documented and performed in accordance with method protocols?

Yes[x]

No

Were all sample analyses properly documented and performed in accordance with method protocols?

Yes[x]

No

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

Yes[x] No

Were the quantitated results for target analytes calculated and reported correctly?

Yes[x] No NA

For the applicable methods, were peak measurements performed correctly?

Yes No NA[x]

Were detection limits provided for the reported target analytes, and if so, were they current and acceptable?

Yes[x] No

Comments:

For Cyanide the IDL were not reported. The lab was contacted to supply that information. Data were not further qualified.

For the GFAA analyses of Antimony, Arsenic, Beryllium, Lead, Selenium and Thallium the analyst did not differentiate the client sample ID between dissolved and total metal analyses. The correct samples can only be tracked by the Lab ID. See copies attached for corrected client IDs. Data were not qualified as a result of this problem.

303184

Case Number: 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Analysis Holding Time	Qualifier

Comments:
None

303185

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (ug/l)	Action Level (ug/l)	Qualified Samples	Qualifier
CCB	Aluminum	-33.7	168.5	DW0101	U
CCB	Antimony	-1.8	9.0	DBGW00, DW0101	U
Prepblank	Arsenic	-2.020	10.1	DW0001, DW0003, DW0005, DW0101, MW0001, MW0101, MW0003	U
Prepblank	Beryllium	0.180	0.9	DBGW00, DW0003, DW0005, DW0101, MW0003, MW0004, MW0005	U
Prepblank	Iron	-12.197	61.0	DW0001, DW0101	U
CCB	Manganese	1.5	7.5	None	-
CCB	Selenium	1.6	8.0	None	-

Comments:

Detections of the listed analytes in the investigative sample below the action level were qualified as undetected (U) due to blank contamination.

303186

Summary and Conclusions

The analytical results for the metal analyses are acceptable for use as qualified.

For Silver, one of the CCV recoveries was below the QC requirement of 90.0%. Therefore, the results for silver in the associated samples MW0001, MW0101, DW0001, DW0101, RBGW00, MW0005, MW0004, DBGW00, DW0005, DW0004, MW0003 and DW0003 were qualified as estimated (J).

Matrix spikes were performed for dissolved and total metals. For spike recoveries between 30.0% and 75.0%, the results of the affected analyte in the associated investigative samples were qualified as estimated (J). For spike recoveries below 30.0%, the detections of that metal were qualified as estimated (J), while the non-detections were rejected (R). The results for Cyanide have to be rejected (R) due to zero recovery of the matrix spike. The table in the report lists the exceeding spike recoveries and the associated investigative samples and qualifiers.

For the dissolved metals, Copper and Lead exceeded the required minimum difference of one CRDL for duplicate analysis. Therefore, the results for Copper and Lead in the investigative samples DW0001, DW0003, DW0004, DW0005, DW0101, and DBGW00 were qualified as estimated (J).

For the total metals, Aluminum and Iron exceeding the required QC limits for duplicate analysis. Therefore, the results for Aluminum and Iron in the investigative samples MW0001, MW0003, MW0004, MW0005, MW0101 and RBGW00 were qualified as estimated (J).

Blank contamination was observed for Aluminum, Antimony, Arsenic, Beryllium, Iron, Manganese and Selenium. Reported detections below five times the amount found in the associated blank in the investigative samples were qualified as undetected (U). See table "Blank Summary Form" for blank contamination and qualifiers added.

For several analytes the analytical spike recoveries for GFAA analyses exceeded the QC criteria. See the report for a complete list. Therefore, the results for these analytes in the associated investigative samples were qualified as estimated (J).

For the investigative sample DW0101 the method of standard addition (MSA) was performed for the Lead analyses and did not meet the linear correlation coefficient criteria. The lab repeated the MSA and obtained acceptable results, but then reported the wrong result with an incorrect qualifier. These errors were corrected on the Form I by the data reviewer.

Validator's Signature: <i>Kirsten Krier</i>	
Validator's Initials: <i>KK</i>	Validation Date: <i>7-7-95</i>
QC Reviewer's Signature: <i>Michael P. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>7/19/95</i>

303187

1
INORGANIC ANALYSIS DATA SHEET

DBGW00

Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH005

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.8	U		P
7440-36-0	Antimony	1.4	B W U		F
7440-38-2	Arsenic	1.5	U N		F
7440-39-3	Barium	11.8	U		P
7440-41-7	Beryllium	0.18	B N U J		F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	40.4	B		P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	23.0	B N * J		P
7439-89-6	Iron	12.1	U		P
7439-92-1	Lead	14.5		NS * J	F
7439-95-4	Magnesium	29.7	U X		P
7439-96-5	Manganese	1.5	U N J		P
7439-97-6	Mercury	0.26		N J	CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	348	U		P
7782-49-2	Selenium	1.6	U		F
7440-22-4	Silver	3.6	U J		P
7440-23-5	Sodium	475	B		P
7440-28-0	Thallium	2.6	U		F
7440-62-2	Vanadium	3.6	U		P
7440-66-6	Zinc	55.7			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATEDReviewed By: Kristen HeierDate: 7-7-95

1
INORGANIC ANALYSIS DATA SHEET

DW0001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XGU005

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.8	U		P
7440-36-0	Antimony	1.4	U	W	F
7440-38-2	Arsenic	2.4	B	N ✓	F
7440-39-3	Barium	161	B		P
7440-41-7	Beryllium	0.10	U	N J	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	43000			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	72.8		N* J	P
7439-89-6	Iron	17.9	B	✓	P
7439-92-1	Lead	14.3		NS* J	F
7439-95-4	Magnesium	29500			P
7439-96-5	Manganese	1530		N J	P
7439-97-6	Mercury	0.20	U	N ✓ J	CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	1220	B		P
7782-49-2	Selenium	1.6	U	W J	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	384000			P
7440-28-0	Thallium	2.6	U	W J	F
7440-62-2	Vanadium	31.1	B		P
7440-66-6	Zinc	89.5			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By Robert K. [Signature]Date 7-7-95

1
INORGANIC ANALYSIS DATA SHEET

DW0003

b Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH010

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.8	U		P
7440-36-0	Antimony	1.4	U	WJ	F
7440-38-2	Arsenic	8.2	B	NO	F
7440-39-3	Barium	236			P
7440-41-7	Beryllium	0.20	B	NOJ	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	211000			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	13.4	U	N*J	P
7439-89-6	Iron	9770			P
7439-92-1	Lead	24.4		NS*J	F
7439-95-4	Magnesium	89800			P
7439-96-5	Manganese	5130		NJ	P
7439-97-6	Mercury	0.42		NJ	CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	26500			P
7782-49-2	Selenium	1.6	U	WJ	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	348000			P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	3.6	U		P
7440-66-6	Zinc	52.4			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

Kirsten Keic
7-7-95

1
INORGANIC ANALYSIS DATA SHEET

DW0004

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH007

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.8	U		P
7440-36-0	Antimony	1.4	U	WJ	F
7440-38-2	Arsenic	1.5	U	N	F
7440-39-3	Barium	75.1	B		P
7440-41-7	Beryllium	0.10	U	NWJ	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	48200			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	13.4	U	N*J	P
7439-89-6	Iron	12.1	U		P
7439-92-1	Lead	1.9	B	NW*J	F
7439-95-4	Magnesium	33800			P
7439-96-5	Manganese	705		NJ	P
7439-97-6	Mercury	0.45		NJ	CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	1530	B		P
7782-49-2	Selenium	1.6	U	MJ	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	392000			P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	22.1	B		P
7440-66-6	Zinc	49.7			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

1
INORGANIC ANALYSIS DATA SHEET

DW0005

b Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH006

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.8	U		P
7440-36-0	Antimony	1.4	U	WJ	F
7440-38-2	Arsenic	1.8	B	N03	F
7440-39-3	Barium	164	B		P
7440-41-7	Beryllium	0.34	B	NW03	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	64300			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	22.5	B	N*J	P
7439-89-6	Iron	105			P
7439-92-1	Lead	44.4		NS*J	F
7439-95-4	Magnesium	51500			P
7439-96-5	Manganese	81.4		NJ	P
7439-97-6	Mercury	0.21		NJ	CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	1210	B		P
7782-49-2	Selenium	1.6	U	WJ	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	316000			P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	27.7	B		P
7440-66-6	Zinc	76.5			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATEDReviewed By Kirsten MeierDate 7-7-95

1
INORGANIC ANALYSIS DATA SHEET

DW0101

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XGU006

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	31.0	B	U	P
7440-36-0	Antimony	6.8		WU	F
7440-38-2	Arsenic	1.6	B	NVJ	F
7440-39-3	Barium	161	B		P
7440-41-7	Beryllium	0.10	B	NWUJ	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	42400			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	34.7		N*J	P
7439-89-6	Iron	26.3	B	U	P
7439-92-1	Lead	12.3 ~~13.1~~		N*J SJ	F
7439-95-4	Magnesium	29200			P
7439-96-5	Manganese	1520		NJ	P
7439-97-6	Mercury	0.20	U	NJ	CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	1290	B		P
7782-49-2	Selenium	1.6	U	WJ	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	381000			P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	32.5	B		P
7440-66-6	Zinc	77.2			P
57-12-5	Cyanide				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATEDReviewed By Kate M. [Signature]Date 7-7-95

1
INORGANIC ANALYSIS DATA SHEET

MW0001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XGU001

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1330		N*J	P
7440-36-0	Antimony	1.4	U	W	F
7440-38-2	Arsenic	3.9	B	N	F
7440-39-3	Barium	181	B		P
7440-41-7	Beryllium	1.4		NJ	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	44900			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	13.4	U		P
7439-89-6	Iron	1590		N*J	P
7439-92-1	Lead	3.8		WJ	F
7439-95-4	Magnesium	31200			P
7439-96-5	Manganese	1560			P
7439-97-6	Mercury	0.44			CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	1260	B		P
7782-49-2	Selenium	1.6	U	WJ	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	397000			P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	42.4	B		P
7440-66-6	Zinc	21.6			P
57-12-5	Cyanide	10.0	B	NR	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By Kristen MueDate 7-7-95

1
INORGANIC ANALYSIS DATA SHEET

MW0003

b Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH009

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1270		N*J	P
7440-36-0	Antimony	1.4	U	W J	F
7440-38-2	Arsenic	5.4	B	NU	F
7440-39-3	Barium	125	B		P
7440-41-7	Beryllium	0.18	B	NR	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	211000			P
7440-47-3	Chromium	2.8	B		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	13.4	U		P
7439-89-6	Iron	11700		N*J	P
7439-92-1	Lead	1.6	B	W J	F
7439-95-4	Magnesium	90500			P
7439-96-5	Manganese	5270			P
7439-97-6	Mercury	1.4			CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	26400			P
7782-49-2	Selenium	16.0	U	J	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	348000			P
7440-28-0	Thallium	2.6	U	W J	F
7440-62-2	Vanadium	15.3	B		P
7440-66-6	Zinc	22.9			P
57-12-5	Cyanide	10.0	B	NR	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Kirsten Mue

Date

7-7-95

1
INORGANIC ANALYSIS DATA SHEET

MW0004

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH003

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2670		N*J	P
7440-36-0	Antimony	1.4	U	W	F
7440-38-2	Arsenic	1.5	U	N	F
7440-39-3	Barium	145	B		P
7440-41-7	Beryllium	0.24	B	NOR	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	53500			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	8.3	B		P
7440-50-8	Copper	13.4	U		P
7439-89-6	Iron	2560		N*J	P
7439-92-1	Lead	2.1	B	WJ	F
7439-95-4	Magnesium	36000			P
7439-96-5	Manganese	1170			P
7439-97-6	Mercury	0.31			CV
7440-02-0	Nickel	12.0	B		P
7440-09-7	Potassium	1610	B		P
7782-49-2	Selenium	1.6	U	WJ	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	394000			P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	44.2	B		P
7440-66-6	Zinc	25.9			P
57-12-5	Cyanide	10.0	B	NR	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATEDReviewed By Kristen KeireDate 7-7-95

1
INORGANIC ANALYSIS DATA SHEET

MW0005

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH002

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	306		N*J	P
7440-36-0	Antimony	1.4	U	W	F
7440-38-2	Arsenic	1.5	U	N	F
7440-39-3	Barium	162	B		P
7440-41-7	Beryllium	0.15	B	N R	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	66000			P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	13.4	U		P
7439-89-6	Iron	339		N*J	P
7439-92-1	Lead	20.3		S	F
7439-95-4	Magnesium	52000			P
7439-96-5	Manganese	108			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.3	U		P
7440-09-7	Potassium	1320	B		P
7782-49-2	Selenium	1.6	U	WJ	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	314000			P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	30.3	B		P
7440-66-6	Zinc	20.3			P
57-12-5	Cyanide	10.0		N R	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATED

Reviewed By

Date

1
INORGANIC ANALYSIS DATA SHEET

MW0101

b Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XGU002

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7890	-	N*J	P
7440-36-0	Antimony	1.4	U	W	F
7440-38-2	Arsenic	3.4	B	N	F
7440-39-3	Barium	177	B		P
7440-41-7	Beryllium	1.6		N	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	39800			P
7440-47-3	Chromium	7.0	B		P
7440-48-4	Cobalt	5.5	B		P
7440-50-8	Copper	18.7	B		P
7439-89-6	Iron	9980		N*J	P
7439-92-1	Lead	2.8	B	W	F
7439-95-4	Magnesium	28900			P
7439-96-5	Manganese	1450			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	14.1	B		P
7440-09-7	Potassium	1700	B		P
7782-49-2	Selenium	1.6	U	W	F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	349000			P
7440-28-0	Thallium	2.6	U	W	F
7440-62-2	Vanadium	55.0			P
7440-66-6	Zinc	77.9			P
57-12-5	Cyanide	10.0	U	NR	AS

Color Before: COLORLESS

Clarity Before: OPAQUE

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: YES

Comments:

WHITE PARTICLES

VALIDATED

Reviewed By

Date

1
INORGANIC ANALYSIS DATA SHEET

RBGW00

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095053

Matrix (soil/water): WATER

Lab Sample ID: XHH001

Level (low/med): LOW

Date Received: 05/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.8	U	N*J	P
7440-36-0	Antimony	1.4	U	W	F
7440-38-2	Arsenic	1.5	U	N	F
7440-39-3	Barium	11.8	U		P
7440-41-7	Beryllium	0.10	U	NR	F
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	54.8	B		P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	3.8	U		P
7440-50-8	Copper	49.1			P
7439-89-6	Iron	12.1	U	N*J	P
7439-92-1	Lead	6.2		WJ	F
7439-95-4	Magnesium	29.7	U		P
7439-96-5	Manganese	1.5	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	15.2	B		P
7440-09-7	Potassium	348	U		P
7782-49-2	Selenium	1.6	U		F
7440-22-4	Silver	3.6	U	J	P
7440-23-5	Sodium	287	B		P
7440-28-0	Thallium	2.6	U	WJ	F
7440-62-2	Vanadium	3.6	U		P
7440-66-6	Zinc	47.5			P
57-12-5	Cyanide	10.0	U	NR	AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATEDReviewed By Kirsten HeierDate 7-7-95

Data file: J0602A.PRN

PHN 20 ✓

Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
1 S0 <i>As</i>	0 ug/L	2.0 ug/L	U	1.0	1030	06/02/95
2 S10	0 ug/L	2.0 ug/L	U	1.0	1035	06/02/95
3 S25	27.9 ug/L	27.9 ug/L	—	1.0	1040	06/02/95
4 S50	42.3 ug/L	42.3 ug/L	—	1.0	1046	06/02/95
5 S100	90.0 ug/L	90.0 ug/L	—	1.0	1051	06/02/95
6 ICV	57.4 ug/L	95.7 %	—	1.0	1057	06/02/95
7 ICB	.68 ug/L	Pass	—	1.0	1102	06/02/95
8 CRA	9.81 ug/L	98.1 %	—	1.0	1107	06/02/95
9 CCV	50.1 ug/L	100 %	—	1.0	1113	06/02/95
10 CCB	.29 ug/L	Pass	—	1.0	1119	06/02/95
11 PBW13497	-2.02 ug/L	OK	—	1.0	1124	06/02/95
12 PBW13497A		96.6 %	M	1.0	1129	06/02/95
13 PBW13497A	17.3 ug/L	Fail	—	1.0	1135	06/02/95
14 LCSW13497	70.1 ug/L	117 %	—	1.0	1140	06/02/95
15 LCSW13497A		70.7 %	*	1.0	1146	06/02/95
16 XGU001/MW0001	3.93 ug/L	3.93 ug/L	B	1.0	1151	06/02/95
17 XGU001A/MW0001A		94.7 %	—	1.0	1157	06/02/95
18 XGU002/MW0101	3.38 ug/L	3.38 ug/L	B	1.0	1202	06/02/95
19 XGU002A/MW0101A		111 %	—	1.0	1208	06/02/95
20 XGU003S/MW0001S	58.3 ug/L	58.3 ug/L	—	1.0	1214	06/02/95
21 CCV 2	50.5 ug/L	101 %	—	1.0	1219	06/02/95
22 CCB	.24 ug/L	Pass	—	1.0	1225	06/02/95
23 XGU004D/MW0001D	2.35 ug/L	2.35 ug/L	B	1.0	1230	06/02/95
24 XGU004DA/MW0001D		114 %	—	1.0	1236	06/02/95
25 XGU005/MW0001	2.41 ug/L	2.41 ug/L	B	1.0	1241	06/02/95
26 XGU005A/MW0001A		100 %	—	1.0	1247	06/02/95
27 XGU006/MW0101	1.55 ug/L	2.0 ug/L	U	1.0	1252	06/02/95
28 XGU006A/MW0101A		119 %	W	1.0	1258	06/02/95
29 XGU007S/MW0001S <i>44</i>	54.9 ug/L	54.9 ug/L	—	1.0	1304	06/02/95
30 XGU007SA/MW0001S <i>titlt</i>		94.8 %	—	1.0	1309	06/02/95
31 XGU008D/MW0001D	.65 ug/L	2.0 ug/L	U	1.0	1315	06/02/95
32 XGU008DA/MW0001D		113 %	—	1.0	1321	06/02/95
33 CCV 3	51.5 ug/L	103 %	—	1.0	1326	06/02/95
34 CCB 3	-.07 ug/L	Pass	—	1.0	1332	06/02/95
35 XHH001/RBGW00	-.03 ug/L	2.0 ug/L	U	1.0	1337	06/02/95
36 XHH001A/RBGW00A		91.3 %	—	1.0	1343	06/02/95
37 XHH002/MW0005	-1.31 ug/L	2.0 ug/L	U	1.0	1348	06/02/95
38 XHH002A/MW0005A		103 %	—	1.0	1354	06/02/95
39 XHH003/MW0004	-.62 ug/L	2.0 ug/L	U	1.0	1400	06/02/95
40 XHH003A/MW0004A		92.1 %	—	1.0	1405	06/02/95

Water IDL 2.0 ug/L

Water CRDL 10.0 ug/L

LCSW 60.0 ug/L 80 - 120 % recovery

Post digest. spike 20.0 ug/L 85 - 115 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

* denotes recovery excursion (includes need for HSA).

As denotes blank is below IDL given.

Soil IDL

0.4 ug/g

Soil CRDL

2.0 ug/g

LCSS

150.0 ug/g 75 - 224 % recovery

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

Data file: J0602A.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
41	XHH005/RBGW00	.3 ug/L	2.0 ug/L	U_	1.0	1411	06/02/95
42	XHH005A/RBGW00A		102 %	—	1.0	1416	06/02/95
43	XHH006/MW0005	1.75 ug/L	2.0 ug/L	U_	1.0	1422	06/02/95
44	XHH006A/MW0005A		119 %	_W	1.0	1427	06/02/95
45	CCV 4	54.8 ug/L	110 %	—	1.0	1433	06/02/95
46	CCB 4	.28 ug/L	Pass	—	1.0	1439	06/02/95
47	XHH007/MW0004	-.45 ug/L	2.0 ug/L	U_	1.0	1444	06/02/95
48	XHH007A/MW0004A		103 %	—	1.0	1449	06/02/95
49	XHH009/MW0003	5.4 ug/L	5.4 ug/L	B_	1.0	1455	06/02/95
50	XHH009A/MW0003A		109 %	—	1.0	1500	06/02/95
51	XHH010/MW0003	8.18 ug/L	8.18 ug/L	B_	1.0	1506	06/02/95
52	XHH010A/MW0003A		105 %	—	1.0	1511	06/02/95
53	CCV 3	54.1 ug/L	108 %	—	1.0	1517	06/02/95
54	CCB 3	.26 ug/L	Pass	—	1.0	1522	06/02/95
55							
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79							
80							

Water IDL 2.0 ug/L
 Water CRDL 10.0 ug/L
 LCSM 60.0 ug/L 80 - 120 % recovery
 Post digest. spike 20.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 2.0 ug/g
 LCSS 150.0 ug/g 75 - 224 % recovery

U denotes run not used.

H denotes duplicate injection XBSD exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

* denotes recovery excursion (includes need for MSA).

SS denotes blank is below IDL given.

H denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

RUN 22 ✓

PAGE/NO

Metals Department Run Log for Instrument J for (3b)

Data file: J0607A.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
1	S0 Sb	0 ug/L	2.0 ug/L	U_	1.0	1205	06/07/95
2	S5	0 ug/L	2.0 ug/L	U_	1.0	1210	06/07/95
3	S25	31.6 ug/L	31.6 ug/L	---	1.0	1215	06/07/95
4	S50	38.7 ug/L	38.7 ug/L	---	1.0	1221	06/07/95
5	S100	78.3 ug/L	78.3 ug/L	---	1.0	1227	06/07/95
6	ICV	0 ug/L	0 %	*_	1.0	1232	06/07/95
7							
8	ICV /	59.8 ug/L	99.7 %	---	1.0	1236	06/07/95
9	ICB /	-.7 ug/L	Pass	---	1.0	1241	06/07/95
10	CRA /	3.8 ug/L	190 %	---	1.0	1247	06/07/95
11	CCV /	51.3 ug/L	103 %	---	1.0	1252	06/07/95
12	CCB /	-.3 ug/L	Pass	---	1.0	1258	06/07/95
13	PBW13498	-.8 ug/L	Pass	---	1.0	1303	06/07/95
14	PBW13498A		96.0 %	---	1.0	1308	06/07/95
15	LCSW13498	61.3 ug/L	6.1 %	*_	1.0	1314	06/07/95
16	LCSW13498A		60.0 %	*_	1.0	1319	06/07/95
17	XGU001/MW0001	-3.6 ug/L	-3.61 ug/L	E_	1.0	1325	06/07/95
18	XGU001A/MW0001A		100 %	---	1.0	1330	06/07/95
19	XGU002/MW0101	-4.3 ug/L	-4.33 ug/L	E_	1.0	1336	06/07/95
20	XGU002A/MW0101A		98.0 %	---	1.0	1341	06/07/95
21	XGU003S/MW0001S f.c./s	51.3 ug/L	51.3 ug/L	---	1.0	1347	06/07/95
22	~~XGU003SA/MW0001S 122222~~		74.0 %	*_	1.0	1353	06/07/95
23	CV Z	49.9 ug/L	99.8 %	---	1.0	1358	06/07/95
24	CCB Z	-1.8 ug/L	Pass	---	1.0	1404	06/07/95
25	XGU004D/MW0001D	-3.3 ug/L	-3.31 ug/L	E_	1.0	1409	06/07/95
26	XGU004DA/MW0001D		85.0 %	---	1.0	1415	06/07/95
27	XGU005/MW0001 D	-2.3 ug/L	-2.31 ug/L	E_	1.0	1420	06/07/95
28	XGU005A/MW0001A D		85.0 %	---	1.0	1426	06/07/95
29	XGU006/MW0101 D	6.9 ug/L	6.86 ug/L	---	1.0	1431	06/07/95
30	XGU006A/MW0101A D		107 %	---	1.0	1437	06/07/95
31	XGU007S/MW0001S f.c./s	53.2 ug/L	53.2 ug/L	---	1.0	1443	06/07/95
32	~~XGU007SA/MW0001S 122222~~		77.0 %	*_	1.0	1448	06/07/95
33	XGU008D/MW0001D	-3.4 ug/L	-3.37 ug/L	E_	1.0	1454	06/07/95
34	XGU008DA/MW0001D		90.5 %	---	1.0	1500	06/07/95
35	CCV 3	51.3 ug/L	103 %	---	1.0	1505	06/07/95
36	CCB 3	0 ug/L	Pass	---	1.0	1511	06/07/95
37	XHH001/RBGW00	.4 ug/L	2.0 ug/L	U_	1.0	1516	06/07/95
38	XHH001A/RBGW00A		96.5 %	---	1.0	1522	06/07/95
39	XHH002/MW0005	-1.9 ug/L	2.0 ug/L	U_	1.0	1527	06/07/95
40	XHH002A/MW0005A		87.5 %	---	1.0	1533	06/07/95

Water IDL 2.0 ug/L
Water CRDL 2.0 ug/L
LCSW 1000.0 ug/L 80 - 120 % recovery
Post digest. spike 20.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
Soil CRDL 0.4 ug/g
LCSS 29.8 ug/g 13 - 130 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

ten post spike recovery is acceptable but requires flag.

* denotes recovery excursion (includes need for HSA).

PASS denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

(IK) denotes blank is above IDL but below CRDL given.

080164

PAGE/NO

Metals Department Run Log for Instrument J for (5b)

Data file: J0607A.PRN

Cyc	Lab ID/Client ID	<u>Sb</u> Digestate result	Sample result	Flag	Sample Factor	Injection Time	Date
41	XHH003/MW0004	-2.7 ug/L	-2.68 ug/L	E_	1.0	1539	06/07/95
42	XHH003A/MW0004A		90.5 %		1.0	1544	06/07/95
43	XHH005/RBGW00	1.5 ug/L	2.0 ug/L	U_	1.0	1550	06/07/95
44	XHH005A/RBGW00A		114 %		1.0	1555	06/07/95
45	XHH006/MW0005	-.8 ug/L	2.0 ug/L	U_	1.0	1601	06/07/95
46	XHH006A/MW0005A		81.5 %	_W	1.0	1606	06/07/95
47	CCV 4	50.2 ug/L	100 %		1.0	1612	06/07/95
48	CCB 4	1.0 ug/L	Pass		1.0	1618	06/07/95
49	XHH007/MW0004	-4.7 ug/L	-4.67 ug/L	E_	1.0	1623	06/07/95
50	XHH007A/MW0004A		82.0 %	_W	1.0	1628	06/07/95
51	XHH009/MW0003	-.1 ug/L	2.0 ug/L	U_	1.0	1634	06/07/95
52	XHH009A/MW0003A		82.5 %	_W	1.0	1639	06/07/95
53	XHH010/MW0003	-1.1 ug/L	2.0 ug/L	U_	1.0	1645	06/07/95
54	XHH010A/MW0003A		96.5 %		1.0	1650	06/07/95
55	CCV 5	47.5 ug/L	95.0 %		1.0	1656	06/07/95
56	CCB 5	-.9 ug/L	Pass		1.0	1701	06/07/95

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Water IDL 2.0 ug/L
Water CRDL 2.0 ug/L
LCSS 1000.0 ug/L 80 - 120 % recovery
Post digest. spike 20.0 ug/L 85 - 115 % recovery

NU denotes run not used.

• denotes duplicate injection XRS exceeds 20%.

• denotes post spike recovery is acceptable but requires flag.

• denotes recovery excursion (includes need for MSA).

PASS denotes blank is below IDL given.

Soil IDL 0.4 ug/g
Soil CRDL 0.4 ug/g
LCSS 29.8 ug/g 13 - 130 % recovery

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

080165

Data file: H0608A.PRN

RUN 25 ✓

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Date
1	S0	0 ug/L	0 ug/L	—	1.0	1121	06/08/95
2	S1	0 ug/L	0 ug/L	—	1.0	1125	06/08/95
3	S2	2.07 ug/L	2.07 ug/L	—	1.0	1129	06/08/95
4	S4	3.59 ug/L	3.59 ug/L	—	1.0	1133	06/08/95
5	S8	7.88 ug/L	7.88 ug/L	—	1.0	1137	06/08/95
6	ICV/	3.29 ug/L		—	1.0	1142	06/08/95
7	ICB/	.09 ug/L	Fail	_M	1.0	1146	06/08/95
8	CRA/	1.05 ug/L		—	1.0	1150	06/08/95
9	CCV/	3.71 ug/L		—	1.0	1154	06/08/95
10	CCB/	.09 ug/L	Fail	_M	1.0	1159	06/08/95
11	PBW13497	.18 ug/L	Fail	—	1.0	1203	06/08/95
12	PBW13497A			—	1.0	1207	06/08/95
13	LCSW13497	4.67 ug/L		—	1.0	1212	06/08/95
14	LCSW13497A			—	1.0	1216	06/08/95
15	XGU001/MW0001	1.38 ug/L	1.38 ug/L	—	1.0	1220	06/08/95
16	XGU001A/MW0001A			—	1.0	1225	06/08/95
17	XGU002/MW0101	1.64 ug/L	1.64 ug/L	_M	1.0	1229	06/08/95
18	XGU002A/MW0101A			—	1.0	1234	06/08/95
19	XGU003S/MW0001S	1.75 ug/L	1.75 ug/L	—	1.0	1238	06/08/95
20	XGU003SA/MW0001S			—	1.0	1242	06/08/95
21	CCV 2	4.12 ug/L		—	1.0	1247	06/08/95
22	ICB 2	.06 ug/L	Fail	_M	1.0	1251	06/08/95
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Water IDL 0.0 ug/L
 Water CRDL 0.0 ug/L
 LCSW 0.0 ug/L 0 - 0 % recovery
 Post digest. spike 0.0 ug/L 0 - 0 % recovery

Soil IDL 0.0 ug/g
 Soil CRDL 0.0 ug/g
 LCSS 0.0 ug/g 0 - 0 % recovery

NU denotes run not used.

• denotes duplicate injection XRS exceeds 20%.

• denotes post spike recovery is acceptable but requires flag.

• denotes recovery excursion (includes need for MSA).

PASS denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

080160

Data file: H0608B.PRN

Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
SO	0 ug/L	0 ug/L	—	1.0	1345	06/08/95
2 S1	0 ug/L	0 ug/L	—	1.0	1349	06/08/95
3 S2	2.59 ug/L	2.59 ug/L	—	1.0	1354	06/08/95
4 S4	2.83 ug/L	2.83 ug/L	—	1.0	1358	06/08/95
5 S8	5.85 ug/L	5.85 ug/L	—	1.0	1402	06/08/95
6 ICV	3.14 ug/L	—	—	1.0	1406	06/08/95
7 ICB	.04 ug/L	Fail	—	1.0	1410	06/08/95
8 CRA	.97 ug/L	—	—	1.0	1414	06/08/95
9 CCV	4.57 ug/L	—	—	1.0	1419	06/08/95
10 CCB	.03 ug/L	Fail	M	1.0	1423	06/08/95
11 SO	0 ug/L	0 ug/L	—	1.0	1427	06/08/95
12 S1	.87 ug/L	.87 ug/L	—	1.0	1431	06/08/95
13 S2	2.51 ug/L	2.51 ug/L	—	1.0	1435	06/08/95
14 S4	2.88 ug/L	2.88 ug/L	—	1.0	1439	06/08/95
15 S8	5.92 ug/L	5.92 ug/L	—	1.0	1443	06/08/95
16						
17 SO	0 ug/L	0 ug/L	—	1.0	1528	06/08/95
18 S1	0 ug/L	0 ug/L	—	1.0	1532	06/08/95
19 S2	2.29 ug/L	2.29 ug/L	—	1.0	1536	06/08/95
20 S4	3.13 ug/L	3.13 ug/L	—	1.0	1540	06/08/95
21 S8	7.3 ug/L	7.3 ug/L	—	1.0	1544	06/08/95
22 ICV	3.54 ug/L	—	—	1.0	1548	06/08/95
23						
24 SO	.02 ug/L	.02 ug/L	M	1.0	1554	06/08/95
25 S1	.95 ug/L	.95 ug/L	—	1.0	1558	06/08/95
26 S2	2.35 ug/L	2.35 ug/L	—	1.0	1603	06/08/95
27 S4	3.01 ug/L	3.01 ug/L	—	1.0	1607	06/08/95
28 S8	6.73 ug/L	6.73 ug/L	—	1.0	1611	06/08/95
29 ICV 2	3.2 ug/L	—	—	1.0	1615	06/08/95
30 ICB 2	.02 ug/L	Fail	M	1.0	1619	06/08/95
31 CRA 2	.96 ug/L	—	—	1.0	1623	06/08/95
32 CCV 3	4.23 ug/L	—	—	1.0	1628	06/08/95
33 CCB 3	.01 ug/L	Fail	M	1.0	1632	06/08/95
34 XGU004D/MW0001D	.87 ug/L	.87 ug/L	—	1.0	1636	06/08/95
35 XGU004DA/MW0001D	—	—	—	1.0	1640	06/08/95
36 XGU005/MW0001 D	.05 ug/L	.05 ug/L	M	1.0	1645	06/08/95
37 XGU005A/MW0001A D	—	—	—	1.0	1649	06/08/95
38 XGU006/MW0101 D	.1 ug/L	.1 ug/L	—	1.0	1653	06/08/95
39 XGU006A/MW0101A D	—	—	—	1.0	1658	06/08/95
40 XGU007S/MW0001S	3.0 ug/L	3.0 ug/L	—	1.0	1702	06/08/95

Water IDL 0.0 ug/L
 Water CRDL 0.0 ug/L
 LCSV 0.0 ug/L 0 - 0 % recovery
 Post digest. spike 0.0 ug/L 0 - 0 % recovery

Soil IDL 0.0 ug/g
 Soil CRDL 0.0 ug/g
 LCSS 0.0 ug/g 0 - 0 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

• denotes recovery excursion (includes need for MSA).

P denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

Data file: H0608B.PRN

Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
41 XGU007SA/MW0001S				1.0	1706	06/08/95
42 XGU008D/MW0001D	.03 ug/L	.03 ug/L	M	1.0	1710	06/08/95
43 XGU008DA/MW0001D				1.0	1715	06/08/95
44 CCV 7	4.37 ug/L			1.0	1719	06/08/95
45 CCB 7	.02 ug/L	Fail	M	1.0	1723	06/08/95
46 XHH001/RBGW00	.04 ug/L	.04 ug/L		1.0	1727	06/08/95
47 XHH001A/RBGW00A				1.0	1731	06/08/95
48 XHH002/MW0005	.11 ug/L	.11 ug/L		1.0	1736	06/08/95
49 XHH002A/MW0005A				1.0	1740	06/08/95
50 XHH003/MW0004	.24 ug/L	.24 ug/L		1.0	1744	06/08/95
51 XHH003A/MW0004A				1.0	1748	06/08/95
52 XHH005/RBGW00	.18 ug/L	.18 ug/L		1.0	1752	06/08/95
53 XHH005A/RBGW00A				1.0	1756	06/08/95
54 XHH006/MW0005	.33 ug/L	.33 ug/L		1.0	1801	06/08/95
55 XHH006A/MW0005A				1.0	1805	06/08/95
56 CCV	4.44 ug/L			1.0	1809	06/08/95
57 CCB RUN 21 ✓	.01 ug/L	Fail	M	1.0	1813	06/08/95
58 S0	-.02 ug/L	-.02 ug/L	E	1.0	1817	06/08/95
59 S1	.93 ug/L	.93 ug/L		1.0	1821	06/08/95
60 S2	2.35 ug/L	2.35 ug/L		1.0	1826	06/08/95
61 S4	3.04 ug/L	3.04 ug/L		1.0	1830	06/08/95
62 S8	6.43 ug/L	6.43 ug/L		1.0	1834	06/08/95
63 ICV 3	3.17 ug/L			1.0	1838	06/08/95
ICB 3	.05 ug/L	Fail		1.0	1842	06/08/95
CRA 3	.97 ug/L			1.0	1846	06/08/95
66 CCV 5	4.36 ug/L			1.0	1851	06/08/95
67 CCB 3	.05 ug/L	Fail		1.0	1855	06/08/95
68 XHH001/RBGW00	.09 ug/L	.09 ug/L		1.0	1859	06/08/95
69 XHH001A/RBGW00A				1.0	1903	06/08/95
70 XHH002/MW0005	.15 ug/L	.15 ug/L		1.0	1907	06/08/95
71 XHH002A/MW0005A				1.0	1912	06/08/95
72 XHH003/MW0004	.24 ug/L	.24 ug/L		1.0	1916	06/08/95
73 XHH003A/MW0004A				1.0	1920	06/08/95
74 XHH005/RBGW00 D	.18 ug/L	.18 ug/L		1.0	1924	06/08/95
75 XHH005A/RBGW00A D				1.0	1928	06/08/95
76 XHH006/MW0005 D	.34 ug/L	.34 ug/L		1.0	1932	06/08/95
77 XHH006A/MW0005A D				1.0	1937	06/08/95
78 CCV 6	4.32 ug/L			1.0	1941	06/08/95
79 CCB 6	.04 ug/L	Fail	M	1.0	1945	06/08/95
80 ZZZZZZ			NU	1.0	1949	06/08/95

Water IDL 0.0 ug/L
 Water CRDL 0.0 ug/L
 LCSV 0.0 ug/L 0 - 0 % recovery
 Post digest. spike 0.0 ug/L 0 - 0 % recovery

Soil IDL 0.0 ug/g
 Soil CRDL 0.0 ug/g
 LCSS 0.0 ug/g 0 - 0 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

notes recovery excursion (includes need for MSA).

notes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

Data file: H0608B.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
81	XHH007/MW0004	1.69 ug/L	1.69 ug/L	4_	4.0	1954	06/08/95
82	XHH009/MW0003	.18 ug/L	.18 ug/L	—	1.0	1958	06/08/95
83	XHH009A/MW0003A			—	4.0	2002	06/08/95
84	XHH010/MW0003	.2 ug/L	.2 ug/L	—	1.0	2006	06/08/95
85	XHH010A/MW0003A			—	4.0	2011	06/08/95
86	CCV ?	4.23 ug/L		—	1.0	2015	06/08/95
87	CCB ?	.04 ug/L	Fail	M	1.0	2019	06/08/95
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Water IDL 0.0 ug/L
 Water CRDL 0.0 ug/L
 LCSW 0.0 ug/L 0 - 0 % recovery
 Post digest. spike 0.0 ug/L 0 - 0 % recovery

Soil IDL 0.0 ug/g
 Soil CRDL 0.0 ug/g
 LCSS 0.0 ug/g 0 - 0 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

notes recovery excursion (includes need for MSA).

PAC denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

080169

Data file: J0601A.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Factor	Time	Injection Date
41	XHH005/RBGW00	1.35 ug/L	2.0 ug/L	U	1.0	2008	06/01/95
42	XHH005A/RBGW00A		95.8 %		1.0	2013	06/01/95
43	XHH006/MW0005	1.02 ug/L	2.0 ug/L	U	1.0	2019	06/01/95
44	XHH006A/MW0005A		113 %		1.0	2024	06/01/95
45	CCV	54.2 ug/L	108 %		1.0	2030	06/01/95
46	CCB	1.51 ug/L	Pass		1.0	2035	06/01/95
47	XHH007/MW0004	.35 ug/L	2.0 ug/L	U	1.0	2041	06/01/95
48	XHH007A/MW0004A		105 %		1.0	2046	06/01/95
49	XHH009/MW0003	7.72 ug/L	7.72 ug/L	B	1.0	2052	06/01/95
50	XHH009A/MW0003A		93.0 %		1.0	2057	06/01/95
51	XHH010/MW0003	9.04 ug/L	9.04 ug/L	B	1.0	2103	06/01/95
52	XHH010A/MW0003A		93.5 %		1.0	2108	06/01/95
53	CCV	57.2 ug/L	114 %	*	1.0	2114	06/01/95
54	CCB	.92 ug/L	Pass		1.0	2119	06/01/95
55	S0	.58 ug/L	2.0 ug/L	U	1.0	2124	06/01/95
56	S10	11.7 ug/L	11.7 ug/L		1.0	2129	06/01/95
57	S25	23.1 ug/L	23.1 ug/L		1.0	2135	06/01/95
58	S50	53.5 ug/L	53.5 ug/L		1.0	2140	06/01/95
59	S100	106 ug/L	106 ug/L		1.0	2146	06/01/95
60	ICV	58.3 ug/L	97.2 %		1.0	2151	06/01/95
61	ICB	.24 ug/L	Pass		1.0	2156	06/01/95
62	CRA	9.58 ug/L	95.8 %		1.0	2202	06/01/95
63	CCV	47.0 ug/L	94.0 %		1.0	2207	06/01/95
64	CCB	-.39 ug/L	Pass		1.0	2213	06/01/95
65	XHH007/MW0004	.44 ug/L	2.0 ug/L	U	1.0	2218	06/01/95
66	XHH007A/MW0004A		83.9 %	W	1.0	2224	06/01/95
67	XHH009/MW0003	5.87 ug/L	5.87 ug/L	B	1.0	2229	06/01/95
68	XHH009A/MW0003A		87.1 %		1.0	2234	06/01/95
69	XHH010/MW0003	6.98 ug/L	6.98 ug/L	B	1.0	2240	06/01/95
70	XHH010A/MW0003A		81.1 %	W	1.0	2245	06/01/95
71	CCV	47.5 ug/L	95.0 %		1.0	2251	06/01/95
72	CCB	.87 ug/L	Pass		1.0	2256	06/01/95
73	S0	0 ug/L	2.0 ug/L	U	1.0	2302	06/01/95
74	S3	0 ug/L	2.0 ug/L	U	1.0	2307	06/01/95
75	S25	27.8 ug/L	27.8 ug/L		1.0	2312	06/01/95
76	S50	42.7 ug/L	42.7 ug/L		1.0	2317	06/01/95
77	S100	97.5 ug/L	97.5 ug/L		1.0	2321	06/01/95
78	ICV	62.3 ug/L	104 %		1.0	2326	06/01/95
79	ICB	.19 ug/L	Pass		1.0	2331	06/01/95
80	CRA	3.01 ug/L	30.1 %	*	1.0	2336	06/01/95

Water IDL 2.0 ug/L
 Water CRDL 10.0 ug/L
 LCSV 60.0 ug/L 80 - 120 % recovery
 Post digest. spike 20.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 2.0 ug/g
 LCSS 150.0 ug/g 75 - 224 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

notes recovery excursion (includes need for MSA).

P denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

Data file: J0601A.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Date
81	CCV/ ^{Pb}	49.2 ug/L	98.4 %	—	1.0	2341	06/01/95
82	CCB/	.04 ug/L	Pass	—	1.0	2346	06/01/95
83	PBW13497/	.29 ug/L	Pass	—	1.0	2350	06/01/95
84	PBW13497A		86.0 %	—	1.0	2355	06/01/95
85	LCSW13497/	61.5 ug/L	103 %	—	1.0	0001	06/01/95
86	LCSW13497A		77.2 %	—*	1.0	0006	06/02/95
87	XGU001/MW0001	3.75 ug/L	3.75 ug/L	B_	1.0	0011	06/02/95
88	XGU001A/MW0001A		78.5 %	_W	1.0	0016	06/02/95
89	XGU002/MW0101	2.83 ug/L	2.83 ug/L	B_	1.0	0021	06/02/95
90	XGU002A/MW0101A		82.7 %	_W	1.0	0026	06/02/95
91	XGU003S/MW0001S ^{KC/4}	21.9 ug/L	21.9 ug/L	—	1.0	0031	06/02/95
92	~~XGU003SA/MW0001S~~ ^{tit}		76.2 %	—*	1.0	0036	06/02/95
93	CCV ²	48.8 ug/L	97.6 %	—	1.0	0041	06/02/95
94	CCB ²	-.05 ug/L	Pass	—	1.0	0046	06/02/95
95	XGU004D/MW0001D	2.83 ug/L	2.83 ug/L	B_	1.0	0050	06/02/95
96	XGU004DA/MW0001D		82.3 %	_W	1.0	0055	06/02/95
97	XGU005/MW0001D ^{MSA}	12.9 ug/L	12.9 ug/L	—	1.0	0100	06/02/95
98	XGU005A/MW0001A ^{MSA}		77.1 %	—*	1.0	0105	06/02/95
99	XGU006/MW0101 ^{MSA}	11.4 ug/L	11.4 ug/L	—	1.0	0110	06/02/95
00	XGU006A/MW0101A ^{MSA}		78.2 %	—*	1.0	0115	06/02/95
01	XGU007S/MW0001S ^{KC/4}	21.4 ug/L	21.4 ug/L	—	1.0	0120	06/02/95
02	~~XGU007SA/MW0001S~~ ^{tit}		75.2 %	—*	1.0	0125	06/02/95
03	XGU008D/MW0001D	.28 ug/L	2.0 ug/L	U_	1.0	0130	06/02/95
04	GU008DA/MW0001D		81.7 %	_W	1.0	0135	06/02/95
05	CCV ³	48.0 ug/L	96.0 %	—	1.0	0140	06/02/95
06	CCB ³	.01 ug/L	Pass	—	1.0	0145	06/02/95
07	XHH001/RBGW00	6.16 ug/L	6.16 ug/L	B_	1.0	0149	06/02/95
08	XHH001A/RBGW00A		83.9 %	_W	1.0	0154	06/02/95
09	XHH002/MW0005 ^{MA}	17.7 ug/L	17.7 ug/L	—	1.0	0159	06/02/95
10	XHH002A/MW0005A ^{MA}		73.2 %	—*	1.0	0204	06/02/95
11	XHH003/MW0004	2.12 ug/L	2.12 ug/L	B_	1.0	0209	06/02/95
12	XHH003A/MW0004A		78.8 %	_W	1.0	0214	06/02/95
13	XHH005/RBGW00 ^{MA}	11.5 ug/L	11.5 ug/L	—	1.0	0219	06/02/95
14	XHH005A/RBGW00A ^{MA}		84.0 %	—*	1.0	0223	06/02/95
15	XHH006/MW0005 ^{MA}	34.7 ug/L	34.7 ug/L	—	1.0	0228	06/02/95
16	XHH006A/MW0005A ^{MA}		77.4 %	—*	1.0	0233	06/02/95
17	CCV ⁴	48.9 ug/L	97.8 %	—	1.0	0238	06/02/95
18	CCB ⁴	-.35 ug/L	Pass	—	1.0	0243	06/02/95
19	XHH007/MW0004 ^D	1.9 ug/L	2.0 ug/L	U_	1.0	0248	06/02/95
20	XHH007A/MW0004A ^D		86.8 %	—	1.0	0253	06/02/95

Water IDL 2.0 ug/L
 Water CRDL 10.0 ug/L
 LCSV 60.0 ug/L 84 - 120 % recovery
 Post digest. spike 20.0 ug/L 85 - 115 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

V denotes post spike recovery is acceptable but requires flag.

* denotes recovery excursion (includes need for MSA).

AS denotes blank is below IDL given.

Soil IDL 0.4 ug/g
 Soil CRDL 2.0 ug/g
 LCSS 150.0 ug/g 75 - 224 % recovery

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

(UK denotes blank is above IDL but below CRDL given.

Data file: J0601A.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Factor	Injection Time	Date
121	XHH009/MW0003	1.55 ug/L	2.0 ug/L	U_	1.0	0258	06/02/95
122	XHH009A/MW0003A		70.6 %	_W	1.0	0303	06/02/95
123	XHH010/MW0003	14.7 ug/L	14.7 ug/L	---	1.0	0307	06/02/95
124	XHH010A/MW0003A		66.3 %	---	1.0	0312	06/02/95
125	CCV	47.7 ug/L	95.4 %	---	1.0	0317	06/02/95
126	CCB	-.1 ug/L	Pass	---	1.0	0322	06/02/95
127	S0	0 ug/L	2.0 ug/L	U_	1.0	0328	06/02/95
128	S5	0 ug/L	2.0 ug/L	U_	1.0	0334	06/02/95
129	S25	21.7 ug/L	21.7 ug/L	---	1.0	0339	06/02/95
130	S50	60.6 ug/L	60.6 ug/L	---	1.0	0345	06/02/95
131	S100	106 ug/L	106 ug/L	---	1.0	0350	06/02/95
132	ICV	59.1 ug/L	98.5 %	---	1.0	0355	06/02/95
133	ICB	.81 ug/L	Pass	---	1.0	0401	06/02/95
134	CRA	5.32 ug/L	53.2 %	---	1.0	0406	06/02/95
135	CCV	46.4 ug/L	92.8 %	---	1.0	0411	06/02/95
136	CCB	.98 ug/L	Pass	---	1.0	0417	06/02/95
137	PBW13497	2.71 ug/L	OK	---	1.0	0422	06/02/95
138	PBW13497A		37.2 %	E_	1.0	0428	06/02/95
139	LCSW13497	58.8 ug/L	98.1 %	---	1.0	0433	06/02/95
140	LCSW13497A		47.3 %	---	1.0	0438	06/02/95
141	XGU001/MW0001	.07 ug/L	2.0 ug/L	U_	1.0	0444	06/02/95
142	XGU001A/MW0001A		39.0 %	E_	1.0	0449	06/02/95
143	XGU002/MW0101	-1.0 ug/L	2.0 ug/L	U_	1.0	0455	06/02/95
144	XGU002A/MW0101A		29.9 %	E_	1.0	0500	06/02/95
145	XGU003S/MW0001S	7.29 ug/L	7.29 ug/L	B_	1.0	0506	06/02/95
146	XGU003SA/MW0001S		34.3 %	E_	1.0	0512	06/02/95
147	CCV	48.1 ug/L	96.2 %	---	1.0	0517	06/02/95
148	CCB	.33 ug/L	Pass	---	1.0	0523	06/02/95
149	XGU004D/MW0001D	-.97 ug/L	2.0 ug/L	U_	1.0	0528	06/02/95
150	XGU004DA/MW0001D		39.0 %	E_	1.0	0533	06/02/95
151	XGU005/MW0001	-1.93 ug/L	2.0 ug/L	U_	1.0	0539	06/02/95
152	XGU005A/MW0001A		25.9 %	E_	1.0	0545	06/02/95
153	XGU006/MW0101	-1.72 ug/L	2.0 ug/L	U_	1.0	0550	06/02/95
154	XGU006A/MW0101A		31.1 %	E_	1.0	0556	06/02/95
155	XGU007S/MW0001S	8.03 ug/L	8.03 ug/L	B_	1.0	0601	06/02/95
156	XGU007SA/MW0001S		22.8 %	E_	1.0	0607	06/02/95
157	XGU008D/MW0001D	-1.52 ug/L	2.0 ug/L	U_	1.0	0613	06/02/95
158	XGU008DA/MW0001D		17.9 %	E_	1.0	0618	06/02/95
159	CCV	49.2 ug/L	98.4 %	---	1.0	0624	06/02/95
160	CCB	-.21 ug/L	Pass	---	1.0	0629	06/02/95

Water IDL 2.0 ug/L
 Water CRDL 10.0 ug/L
 LCSW 60.0 ug/L 80 - 120 % recovery
 Post digest. spike 20.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 2.0 ug/g
 LCSS 150.0 ug/g 75 - 224 % recovery

NU denotes run not used.

M denotes duplicate injection IRSD exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

A denotes recovery excursion (includes need for MSA).

PASS denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

(OK denotes blank is above IDL but below CRDL given.

3 3

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09:58/06-05-95 GF42 ETC/GS 02/01/94 rev

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PACIE/NO

Metals Department Run Log for Instrument J for Pb

PWN 31 ✓

MSA

Data file: J0612A.PRN

Cyc: Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
1 S0	0 ug/L	2.0 ug/L	U_	1.0	1702	06/12/95
2 S3	0 ug/L	2.0 ug/L	U_	1.0	1707	06/12/95
3 S25	24.6 ug/L	24.6 ug/L	—	1.0	1712	06/12/95
4 S50	50.1 ug/L	50.1 ug/L	—	1.0	1717	06/12/95
5 S100	92.8 ug/L	92.8 ug/L	—	1.0	1721	06/12/95
6 ICV 2	59.0 ug/L	98.3 %	—	1.0	1726	06/12/95
7 ICB 2	.21 ug/L	Pass	—	1.0	1731	06/12/95
8 CRA 2	5.41 ug/L	180 %	—	1.0	1736	06/12/95
9 CCV 6	50.7 ug/L	101 %	—	1.0	1741	06/12/95
10 CCB 6	.6 ug/L	Pass	—	1.0	1746	06/12/95
11 ZZZZZZ			NU	1.0	1751	06/12/95
12 XGU005 D	18.8 ug/L	18.8 ug/L	4_	4.0	1754	06/12/95
13 D						
14 ZZZZZZ			NU	1.0	1758	06/12/95
15 XGU005 D	33.5 ug/L	33.5 ug/L	4_	4.0	1801	06/12/95
16 ZZZZZZ			NU	1.0	1803	06/12/95
17 ZZZZZZ 10			NU	4.0	1806	06/12/95
18 ZZZZZZ 20			NU	4.0	1809	06/12/95
19 ZZZZZZ 30			NU	4.0	1812	06/12/95
20 ZZZZZZ			NU	4.0	1815	06/12/95
21 ZZZZZZ			NU	4.0	1818	06/12/95
22 ZZZZZZ			NU	4.0	1822	06/12/95
23 XGU006 D	32.3 ug/L	32.3 ug/L	4_	4.0	1825	06/12/95
24 ZZZZZZ			NU	1.0	1827	06/12/95
25 ZZZZZZ			NU	4.0	1830	06/12/95
26 ZZZZZZ			NU	4.0	1833	06/12/95
27 XHH002 T	35.4 ug/L	35.4 ug/L	4_	4.0	1836	06/12/95
28 ZZZZZZ			NU	1.0	1838	06/12/95
29 ZZZZZZ			NU	4.0	1841	06/12/95
30 ZZZZZZ			NU	4.0	1844	06/12/95
31 XHH005 D	35.7 ug/L	35.7 ug/L	4_	4.0	1847	06/12/95
32 CCV ?	48.1 ug/L	96.2 %	—	1.0	1850	06/12/95
33 CCB ?	.5 ug/L	Pass	—	1.0	1855	06/12/95
34 ZZZZZZ			NU	1.0	1900	06/12/95
35 ZZZZZZ			NU	4.0	1903	06/12/95
36 ZZZZZZ			NU	4.0	1906	06/12/95
37 XHH006 D	59.1 ug/L	59.1 ug/L	4_	4.0	1908	06/12/95
38 ZZZZZZ 15			NU	1.0	1912	06/12/95
39 ZZZZZZ 30			NU	4.0	1915	06/12/95
40 ZZZZZZ 45			NU	4.0	1917	06/12/95

Water IDL 2.0 ug/L
 Water CRDL 3.0 ug/L
 LCSW 60.0 ug/L 80 - 120 % recovery
 Post digest. spike 20.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 0.6 ug/g
 LCSW 101.0 ug/g 4% - 14% recovery

NU denotes run not used.

M denotes duplicate injection MKSD exceeds 20%.

V denotes post spike recovery is acceptable but requires flag.

* denotes recovery excursion (includes need for MSA).

ASS denotes blank is below IDL given.

H denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below IDL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

PAGE/NO

Metals Department Run Log for Instrument J for Pb

Data file: J0612A.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Date
41	XHH010 D	27.1 ug/L	27.1 ug/L	4_	4.0	1920	06/12/95
42	CCV8	47.6 ug/L	95.2 %	—	1.0	1923	06/12/95
43	CCB8	.96 ug/L	Pass	—	1.0	1927	06/12/95
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Water IDL 2.0 ug/l.
 Water CRDL 3.0 ug/l.
 LCSW 60.0 ug/l. 80 - 120 % recovery
 Post digest. spike 20.0 ug/l. 80 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 0.6 ug/g
 LCSW 101.0 ug/g 45 - 140 % recovery

NU denotes run not used.

• denotes duplicate injection XRS exceeds 20%.

• denotes post spike recovery is acceptable but requires flag.

• denotes recovery excursion (includes need for MSA).

PASS denotes blank is below IDL given.

K denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

080174

Data file: J0602B.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
1	S0 <i>Se</i>	0 ug/L	2.0 ug/L	U	1.0	1625	06/02/95
2	S5	0 ug/L	2.0 ug/L	U	1.0	1630	06/02/95
3	S25	23.4 ug/L	23.4 ug/L	—	1.0	1636	06/02/95
4	S30	55.0 ug/L	55.0 ug/L	—	1.0	1641	06/02/95
5	S100	119 ug/L	119 ug/L	—	1.0	1647	06/02/95
6	ICV	63.5 ug/L	106 %	—	1.0	1652	06/02/95
7	ICB	-.28 ug/L	Pass	—	1.0	1658	06/02/95
8	CRA	6.35 ug/L	127 %	—	1.0	1703	06/02/95
9	CCV	49.8 ug/L	99.6 %	—	1.0	1708	06/02/95
10	CCB	-.05 ug/L	Pass	—	1.0	1714	06/02/95
11	PBW13497 <i>KR 6/6/95</i>	5.24 ug/L	Fail	H	1.0	1719	06/02/95
12	PBW13497 <i>KR 6/6/95</i>	0	%	E	1.0	1724	06/02/95
13	PBW13497A	10.3 ug/L	Fail	—	1.0	1730	06/02/95
14	LCSW13497	52.9 ug/L	88.1 %	—	1.0	1735	06/02/95
15	LCSW13497A		92.9 %	—	1.0	1741	06/02/95
16	XGU001/MW0001	-.88 ug/L	2.0 ug/L	U	1.0	1746	06/02/95
17	XGU001A/MW0001A		81.1 %	W	1.0	1752	06/02/95
18	XGU002/MW0101	-.7 ug/L	2.0 ug/L	U	1.0	1757	06/02/95
19	XGU002A/MW0101A		76.1 %	W	1.0	1803	06/02/95
20	XGU003S/MW0001S	8.15 ug/L	8.15 ug/L	—	1.0	1808	06/02/95
21	~~XGU003SA/MW0001S~~ <i>22114</i>		91.5 %	—	1.0	1814	06/02/95
22	CCV <i>2</i>	51.0 ug/L	102 %	—	1.0	1819	06/02/95
23	CCB <i>2</i>	1.59 ug/L	Pass	—	1.0	1825	06/02/95
24	XGU004D/MW0001D	-.46 ug/L	2.0 ug/L	U	1.0	1830	06/02/95
25	XGU004DA/MW0001D		81.1 %	W	1.0	1836	06/02/95
26	XGU005/MW0001 <i>D</i>	-.7 ug/L	2.0 ug/L	U	1.0	1841	06/02/95
27	XGU005A/MW0001A <i>D</i>		77.0 %	W	1.0	1847	06/02/95
28	XGU006/MW0101 <i>D</i>	-1.75 ug/L	2.0 ug/L	U	1.0	1853	06/02/95
29	XGU006A/MW0101A <i>D</i>		77.2 %	W	1.0	1858	06/02/95
30	XGU007S/MW0001S <i>u/h</i>	9.67 ug/L	9.67 ug/L	—	1.0	1904	06/02/95
31	~~XGU007SA/MW0001S~~ <i>22114</i>		84.0 %	—	1.0	1909	06/02/95
32	XGU008D/MW0001D	-.79 ug/L	2.0 ug/L	U	1.0	1915	06/02/95
33	XGU008DA/MW0001D		76.3 %	W	1.0	1921	06/02/95
34	CCV <i>3</i>	51.4 ug/L	103 %	—	1.0	1926	06/02/95
35	CCB <i>3</i>	1.08 ug/L	Pass	—	1.0	1932	06/02/95
36	XHH001/RBGW00	1.1 ug/L	2.0 ug/L	U	1.0	1937	06/02/95
37	XHH001A/RBGW00A		88.7 %	—	1.0	1943	06/02/95
38	XHH002/MW0005	-1.98 ug/L	2.0 ug/L	U	1.0	1948	06/02/95
39	XHH002A/MW0005A		80.7 %	W	1.0	1954	06/02/95
40	XHH003/MW0004	-4.5 ug/L	-4.5 ug/L	E	1.0	2000	06/02/95

Water IDL 2.0 ug/L
 Water CRDL 5.0 ug/L
 LCSM (0.0 ug/L 80 - 120 % recovery)
 Post digest. spike 10.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 1.0 ug/g
 LCSS 73.5 ug/g 3/ - 118 % recovery

NU denotes run not used.

H denotes duplicate injection XRS exceeds 20%.

U denotes post spike recovery is acceptable but requires flag.

W denotes recovery excursion (includes need for HSA).

Pass denotes blank is below IDL given.

K denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

UK denotes blank is above IDL but below CRDL given.

Data file: J0602B.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Factor	Time	Date
41	XHH003A/MW0004A S		57.0 %	W	1.0	2005	06/02/95
42	XHH005/RBGW00 D	.7 ug/L	2.0 ug/L	U	1.0	2011	06/02/95
43	XHH005A/RBGW00A D		106 %		1.0	2016	06/02/95
44	XHH006/MW0005 D	-.54 ug/L	2.0 ug/L	U	1.0	2022	06/02/95
45	XHH006A/MW0005A D		72.5 %	W	1.0	2027	06/02/95
46	CCV	52.9 ug/L	106 %		1.0	2033	06/02/95
47	CCB	.4 ug/L	Pass		1.0	2038	06/02/95
48	XHH007/MW0004 D	-3.5 ug/L	-3.5 ug/L	E	1.0	2044	06/02/95
49	XHH007A/MW0004A D		56.3 %	M	1.0	2049	06/02/95
50	XHH007/MW0004 D	5.06 ug/L	5.06 ug/L		1.0	2055	06/02/95
51	XHH009/MW0003	-5.2 ug/L	-5.2 ug/L	E	1.0	2100	06/02/95
52	XHH009A/MW0003A		28.3 %	E	1.0	2106	06/02/95
53	XHH010/MW0003 D	-4.33 ug/L	-4.33 ug/L	E	1.0	2111	06/02/95
54	XHH010A/MW0003A D		42.4 %	W	1.0	2117	06/02/95
55	CCV	52.7 ug/L	105 %		1.0	2122	06/02/95
56	CCB	1.54 ug/L	Pass		1.0	2128	06/02/95
57	S0	0 ug/L	2.0 ug/L	U	1.0	2134	06/02/95
58	S10	0 ug/L	2.0 ug/L	U	1.0	2138	06/02/95
59	S25	21.8 ug/L	21.8 ug/L		1.0	2143	06/02/95
60	S50	61.2 ug/L	61.2 ug/L		1.0	2148	06/02/95
61	S100	108 ug/L	108 ug/L		1.0	2153	06/02/95
62	ICV	65.4 ug/L	109 %		1.0	2158	06/02/95
63	ICB	.67 ug/L	Pass		1.0	2202	06/02/95
64	RA	11.8 ug/L	236 %	*	1.0	2207	06/02/95
65	LCV	46.9 ug/L	93.8 %		1.0	2212	06/02/95
66	CCB	.21 ug/L	Pass		1.0	2217	06/02/95
67	PBW13497	.24 ug/L	Pass		1.0	2222	06/02/95
68	PBW13497A		133 %	W	1.0	2227	06/02/95
69	LCSW13497	57.1 ug/L	95.1 %		1.0	2232	06/02/95
70	LCSW13497A		160 %	*	1.0	2237	06/02/95
71	XGU001/MW0001	.41 ug/L	2.0 ug/L	U	1.0	2242	06/02/95
72	XGU001A/MW0001A		153 %	W	1.0	2247	06/02/95
73	XGU002/MW0101	.67 ug/L	2.0 ug/L	U	1.0	2252	06/02/95
74	XGU002A/MW0101A		148 %	W	1.0	2257	06/02/95
75	XGU003S/MW0001S	43.9 ug/L	43.9 ug/L		1.0	2302	06/02/95
76	XGU003SA/MW0001S		149 %	*	1.0	2307	06/02/95
77	CCV	47.3 ug/L	94.6 %		1.0	2312	06/02/95
78	CCB	-.37 ug/L	Pass		1.0	2317	06/02/95
79	XGU004D/MW0001D	.76 ug/L	2.0 ug/L	U	1.0	2322	06/02/95
80	XGU004DA/MW0001D		153 %	W	1.0	2327	06/02/95

Water IDL 2.0 ug/L
 Water CRDL 5.0 ug/L
 LCSW (0.0 ug/L 80 - 120 % recovery
 Post digest. spike 10.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 1.0 ug/g
 LCSS 73.5 ug/g 3/ - 118 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

tes recovery excursion (includes need for NSA).

tes blank is below IDL given.

K denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

(K) denotes blank is above IDL but below CRDL given.

Data file: H0612A.PRN

Run 41

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Injection Date
1	SO	1.58 ug/L	1.58 ug/L	B	1.0	1036	06/12/95
2	S5	4.36 ug/L	4.36 ug/L	B	1.0	1041	06/12/95
3	S25	26.1 ug/L	26.1 ug/L	---	1.0	1046	06/12/95
4	S50	47.0 ug/L	47.0 ug/L	---	1.0	1051	06/12/95
5	S100	96.0 ug/L	96.0 ug/L	---	1.0	1056	06/12/95
6	ICV 2	61.0 ug/L	102 %	---	1.0	1101	06/12/95
7	ICB 2	.35 ug/L	Pass	---	1.0	1106	06/12/95
8	CRA 2	3.8 ug/L	76.0 %	---	1.0	1111	06/12/95
9	CCV 6	48.8 ug/L	97.6 %	---	1.0	1116	06/12/95
10	CCB 6	-.87 ug/L	OK	---	1.0	1121	06/12/95
11	XHH009(1/10)	.15 ug/L	.8 ug/L	U	1.0	1126	06/12/95
12	XHH009(1A/10)A		93.4 %	---	1.0	1131	06/12/95
13	CCV 7	50.8 ug/L	102 %	---	1.0	1136	06/12/95
14	CCB 7	-.85 ug/L	OK	---	1.0	1141	06/12/95
15							
16							
17							
18							
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40							

Water IDL 0.8 ug/L
 Water CRDL 5.0 ug/L
 LCSW 60.0 ug/L 80 - 120 % recovery
 Post digest. spike 10.0 ug/L 85 - 115 % recovery

Soil IDL 0.2 ug/g
 Soil CRDL 1.0 ug/g
 LCSS 91.0 ug/g 49 - 150 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

H denotes post spike recovery is acceptable but requires flag.

R denotes recovery excursion (includes need for MSA).

PASS denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

Data file: J0605A.PRN

Cyc	Lab ID/Client ID	Digestate result	Sample result	Flag	Sample Factor	Injection Time	Date
1	S10	0 ug/L	2.0 ug/L	U	1.0	1057	06/05/95
2	S25	24.8 ug/L	24.8 ug/L	—	1.0	1102	06/05/95
3	S50	47.6 ug/L	47.6 ug/L	—	1.0	1107	06/05/95
4	S100	0 ug/L	2.0 ug/L	U	1.0	1112	06/05/95
5	ICV	61.1 ug/L	102 %	—	1.0	1117	06/05/95
6	ICB	-.27 ug/L	Pass	—	1.0	1121	06/05/95
7	CRA	8.94 ug/L	89.4 %	—	1.0	1126	06/05/95
8	CCV	49.2 ug/L	98.4 %	—	1.0	1131	06/05/95
9	CCB	-.48 ug/L	Pass	—	1.0	1136	06/05/95
10	PBW13497	1.41 ug/L	Pass	—	1.0	1141	06/05/95
11	PBW13497	17.5 ug/L	Fail	—	1.0	1146	06/05/95
12	LCSW13497	61.3 ug/L	102 %	—	1.0	1151	06/05/95
13	LCSW13497A		75.7 %	—	1.0	1156	06/05/95
14	XGU001/MW0001	1.25 ug/L	2.0 ug/L	U	1.0	1201	06/05/95
15	XGU001A/MW0001A		63.0 %	W	1.0	1206	06/05/95
16	XGU002/MW0101	.6 ug/L	2.0 ug/L	U	1.0	1211	06/05/95
17	XGU002A/MW0101A		69.6 %	M	1.0	1216	06/05/95
18	XGU002A/MW0101A	13.1 ug/L	13.1 ug/L	M	1.0	1222	06/05/95
19	XGU003S/MW0001S	40.2 ug/L	40.2 ug/L	—	1.0	1227	06/05/95
20	XGU003SA/MW0001S		62.3 %	*	1.0	1232	06/05/95
21	CCV	55.3 ug/L	111 %	*	1.0	1237	06/05/95
22	CCB	-.65 ug/L	Pass	—	1.0	1242	06/05/95
23	S0	-.17 ug/L	2.0 ug/L	U	1.0	1246	06/05/95
24	10	9.89 ug/L	9.89 ug/L	B	1.0	1251	06/05/95
25	S25	27.4 ug/L	27.4 ug/L	—	1.0	1256	06/05/95
26	S50	39.6 ug/L	39.6 ug/L	—	1.0	1301	06/05/95
27	S100	95.6 ug/L	95.6 ug/L	—	1.0	1306	06/05/95
28	ICV	62.5 ug/L	104 %	—	1.0	1310	06/05/95
29	ICB	-.03 ug/L	Pass	—	1.0	1315	06/05/95
30	CRA	7.89 ug/L	78.9 %	—	1.0	1320	06/05/95
31	CCV	54.9 ug/L	110 %	—	1.0	1325	06/05/95
32	CCB	-.54 ug/L	Pass	—	1.0	1330	06/05/95
33	PBW13497	-1.08 ug/L	Pass	—	1.0	1335	06/05/95
34	PBW13497A		87.5 %	—	1.0	1340	06/05/95
35	LCSW13497	61.9 ug/L	103 %	—	1.0	1345	06/05/95
36	LCSW13497A		89.5 %	—	1.0	1350	06/05/95
37	XGU001/MW0001	1.31 ug/L	2.0 ug/L	U	1.0	1355	06/05/95
38	XGU001A/MW0001A		63.1 %	W	1.0	1400	06/05/95
39	XGU002/MW0101	-.62 ug/L	2.0 ug/L	U	1.0	1405	06/05/95
40	XGU002A/MW0101A		73.6 %	W	1.0	1410	06/05/95

Water IDL 2.0 ug/L
 Water CRDL 10.0 ug/L
 LCSW 10.0 ug/L 80 - 120 % recovery
 Post digest. spike 20.0 ug/L 85 - 115 % recovery

Soil IDL 0.4 ug/g
 Soil CRDL 2.0 ug/g
 LCSS 77.1 ug/g 39 - 116 % recovery

NU denotes run not used.

M denotes duplicate injection XRS exceeds 20%.

W denotes post spike recovery is acceptable but requires flag.

* denotes recovery excursion (includes need for MIA).

* denotes blank is below IDL given.

B denotes value between IDL and CRDL.

U denotes not detected above IDL given.

E denotes interference. Value below - DL or post spike < 40%.

4 denotes automatic 1:4 dilution was run for the cycle.

OK denotes blank is above IDL but below CRDL given.

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compound Analysis

Case Number: 95053	Project Number: 29872 10.3
Site: Island Chemical Company - RI	
Contractor Lab: Pace Incorporated, New Orleans	
Validator: Kirsten Meier	Validation Date: July 10, 1995
QC Reviewer: <i>Michael P. Phillips</i>	Review Date: 7/17/95
Sample Matrix: Water	
Analytical Method: SW 846, Method 8270, Pyridine only	

Sample Designations:

RBGW00	MW0005	MW0004	MW0001
MW0101	MW0003		

Data for the above samples are:

- ☐ Acceptable for use
☐ Acceptable for use as qualified
☒ Unacceptable for use

Is action required by the Project Manager?

Yes No☒

Comments:

The investigative samples were validated for Pyridine only in accordance with the "USEPA CLP National Functional Guidelines for Organic Data Review", February 1994.

DATA COMPLETENESS CHECKLIST

- [x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

- ☒ Case Narrative
☒ Surrogate Recovery Summary
☒ MS/MSD Summary
☒ Reagent Blank Summary
☒ GC/MS Instrument Performance Summary

Sample Data

- ☒ Chain of Custody Forms
☒ Holding Times
☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☒ Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☒ NA TIC Mass Spectra Library Searches

Initial Calibration Data

- ☒ Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

- ☒ Calibration Summary
☒ Standards Quantitation Reports
☒ Standards Reconstructed Ion Chromatograms
☒ Internal Standards Summary

Instrument Performance Data

- ☒ DFTPP Mass Spectra
☒ Reconstructed Ion Chromatogram
☒ DFTPP Mass Listings

Reagent Blank Data

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☐ * Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☐ NA TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

☐ * Organic Analysis Data Sheets
☒ Quantitation Reports
☐ * Reconstructed Ion Chromatograms

Laboratory Control Sample

☒ Organic Analysis Data Sheets
☒ Quantitation Reports
☐ * Reconstructed Ion Chromatograms
☒ Mass Spectra Printouts
☐ NA TIC Mass Spectra Library Searches

Comments:

For the instrument B the Reconstructed Ion Chromatograms showed peak areas from the scan 380 and higher, while the compound of interest, Pyridine, appears at approximately scan 260. A visual comparison of data for Pyridine on that instrument was not possible.

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes[x] No

Were custody transfers correctly and completely documented?

Yes[x] No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No[x]

Were sample analyses performed within holding times?

Yes[x] No

Comments:

Due to low surrogate recoveries the investigative sample MW0003 was re-extracted on 5-22-95, 11 days since sampling. The results for this sample were reported from the original extract, therefore qualification of data was not necessary.

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes[x] No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes[x] No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes[x] No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes[x] No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes[x] No

Comments:

This review is only based on the evaluation of Pyridine. The initial calibration QC criteria were met for Pyridine.

As stated previously, the chromatograms for instrument B do not show the scans for Pyridine and N-Nitrosodimethylamine, a visual evaluation was not possible. The possibility that the injection peak or other factors might have interfered or affected the quantitation of the target analyte Pyridine, cannot be evaluated.

The concentrations of the initial and continuing standards are listed in the header as twice as high as the concentrations used in the quantitation section of the data. The injection volume is not clearly defined, but appears, that the same amount of 1.0 ul was used for standards and samples. Since no detections of Pyridine were reported, no qualification of data is necessary.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No[x]

Did the continuing calibration meet the minimum RRF criteria?

Yes[x] No

Comments:

This review is only based on the evaluation of Pyridine.

The continuing calibration on 5-24-95, Instrument H, shows a percent difference for Pyridine of 39.39%, exceeding the limit of 25%. However, this calibration check was not used for the reporting of sample data, therefore, qualification of data was not necessary.

As stated previously, the chromatograms for instrument B do not show the scans for Pyridine and N-Nitrosodimethylamine, a visual evaluation was not possible. The possibility that the injection peak or other factors might have interfered or affected the quantitation of the target analyte Pyridine cannot be evaluated.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No[x]

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes[x] No

Comments:

The investigative sample MW0003 has very low surrogate recoveries (2-7%) for the acid fraction. In the re-extract the acid surrogates are again low (2-3%). Pyridine is a basic compound, surrogate recoveries for the basic fraction were within QC limits, and qualification of data was not necessary.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes[x] No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes[x] No

Comments:

The matrix spikes were performed with a 8270 mixture, including Pyridine. The matrix spike and matrix spike duplicate showed no recoveries for Pyridine. The blank spike performed by the lab has acceptable recoveries. It appears, that the sample matrix has a strong affect on the detection of Pyridine, and it is questionable if any pyridine can be detected in the investigative samples using the 8270 method. Since none of the spike solution was recovered, the results for Pyridine in the investigative samples were qualified as unusable (R).

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes[x] No

If the internal standard requirements were not met, were the samples reanalyzed?

Yesx[x] No NA

Comments:

The internal standard area for Perylene-d12 in the standard STD50 of the initial calibration was 13593, below the requirement of 14802. Since the compound of interest, Pyridine, is not quantitated in that area, qualification of data was not necessary.

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes[x] No

Were analytes detected in the blanks?

Yes No[x]

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

Yes No NA[x]

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No[x]

Comments:

This review is only based on the evaluation of Pyridine. The target analyte was not detected in the associated prep blanks and qualification of data was not necessary.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes[x] No

Were the LCS recoveries within acceptable limits?

Yes[x] No

Comments:

The lab performed a blank spike for pyridine, which had an acceptable recovery of 56%. No qualification of data.

Sample Results

Were target analytes reported in the investigative samples?

Yes No[x]

Were mass spectra provided for the target analytes detected in the investigative samples?

Yes No NA[x]

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No NA[x]

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes[x] No

Comments:

As stated previously, the chromatograms for instrument B do not show the scans for Pyridine and N-Nitrosodimethylamine, a visual evaluation was not possible. The possibility that the injection peak or other factors might have interfered with or affected the quantitation of the target analyte, Pyridine, cannot be evaluated. Therefore, the reported results for Pyridine in the investigative samples were qualified as estimated (J).

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA[x]

Were non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments:

Not applicable.

Case Number: 95053
ProjectNumber: 29872 10.3
Site ID: Island Chemical Company - RI

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes[x]

No

NA

Were sample analyses properly documented and performed in accordance with method protocols?

Yes[x]

No

Comments:

None

Calculation Checks

Instrument Tuning m/z of 127, 2-2-95, 9:19, Instrument H

Relative Abundance:

Calculation not possible, only relative abundance was provided

Initial Calibration Instr. B, Std 50, 3-23-95, D5-Phenol

RRF:

$$\frac{14914 * 20}{8567 * 25} = 1.393$$

%RSD:

$$\frac{0.099 * 100\%}{1.474} = 6.729$$

Continuing Calibration Std 50, 5-19-95, 9:52, Pyridine

RRF:

$$\frac{9770 * 20}{7235 * 25} = 1.080$$

%D:

$$\frac{1.054 - 1.081}{1.054} * 100 = -2.562 \%$$

Surrogate Recovery MW0003, 2-Fluorophenol

$$\frac{505 * 20}{7572 * 1.127} = 1.184$$

$$\frac{1.184}{40} * 100 = 2.959 \% \text{ recovery}$$

Case Number: 95053
ProjectNumber: 29872 10.3
Site ID: Island Chemical Company - RI

Matrix Spike Recovery

No detections for Pyridine.

Sample Results

CRQL: Water sample

Detected Result: No detection

TIC Result

Not required

Case Number: 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier

Comments: None

303228

Case Number: 95053
Project Number: 29872 10.3
Site ID: Island Chemical Company - RI

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier

Comments:
None

303229

Case Number: 95053
ProjectNumber: 29872 10.3
Site ID: Island Chemical Company - R1

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier

Comments:
None

303230

Case Number: 95053
ProjectNumber: 29872 10.3
Site ID: Island Chemical Company - RI

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples

Comments:
None

303231

Summary and Conclusions

The analytical results for Pyridine are not acceptable for use and were qualified as rejected (R).

The reported results for Pyridine in the investigative samples were qualified as estimated (J) since a visual comparison of the peak acquisition was not possible.

The matrix spike and matrix spike duplicate showed no recoveries for Pyridine. It appears that the sample matrix has a strong affect on the detection of Pyridine, and it is questionable if any pyridine can be detected in the investigative samples using the 8270 method. Since none of the spike solution was recovered, the results for Pyridine in the investigative samples were qualified as unusable (R).

Validator's Signature:	<i>Linden Kue</i>	
Validator's Initials:	<i>LM</i>	Validation Date: <i>7-10-95</i>
QC Reviewer's Signature:	<i>Michael P. Whillson</i>	
QC Reviewer's Initials:	<i>MPP</i>	Review Date: <i>7/17/95</i>



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0001
Description: NA
Sample ID: XGU-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/09/95
Received: 05/12/95
Prepared: 05/15/95
Analyzed: 05/18/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection Limit
		Sample	Blank	
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By [Signature]

Date 7-10-95

303233



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0101
Description: NA
Sample ID: XGU-002
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/09/95
Received: 05/12/95
Prepared: 05/15/95
Analyzed: 05/18/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection Limit
		Sample	Blank	
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Date

Kristen Marie
7-10-95

303234



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0001
Description: MATRIX SPIKE
Sample ID: XGU-003
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/09/95
Received: 05/12/95
Prepared: 05/15/95
Analyzed: 05/19/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		
		MATRIX SPIKE Sample	Blank	Detection Limit
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Kristen Meier

Date

7-10-95

303235



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0001
Description: MATRIX SPIKE DUPLICATE
Sample ID: XGU-004
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/09/95
Received: 05/12/95
Prepared: 05/15/95
Analyzed: 05/19/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection Limit
		MATRIX SPIKE DUPLICATE Sample	Blank	
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Kristen Marie

Date

7-10-95

303236



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: RBGW00
Description: NA
Sample ID: XHH-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/10/95
Received: 05/12/95
Prepared: 05/15/95
Analyzed: 05/18/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		
		Sample	Blank	Detection Limit
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Kristen Meier

Date

7-10-95

303237



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0005
Description: NA
Sample ID: XHH-002
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/10/95
Received: 05/12/95
Prepared: 05/15/95
Analyzed: 05/18/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection Limit
		Sample	Blank	
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Date

Kristen Kier
7-10-95

303238



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0004
Description: NA
Sample ID: XHH-003
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/10/95
Received: 05/12/95
Prepared: 05/15/95
Analyzed: 05/18/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		
		Sample	Blank	Detection Limit
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.

VALIDATED

Reviewed By

Date

Kristen Kline
7-10-95

303239



REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: MW0003
Description: NA
Sample ID: XHH-009
Matrix: Water
Wet/Dry Basis: NA

Collected: 05/10/95
Received: 05/12/95
Prepared: 05/15,22/95
Analyzed: 05/19,24/95
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		
		(DL) Sample	Blank	Detection Limit
110-86-1	Pyridine	ND	ND	10.0 R

ND-Not Detected at or above the detection limit stated.
(DL) Sample required re-extraction (and/or re-analysis) due to surrogate recoveries outside the QC limits. Re-analysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.

VALIDATED

Reviewed By

Date

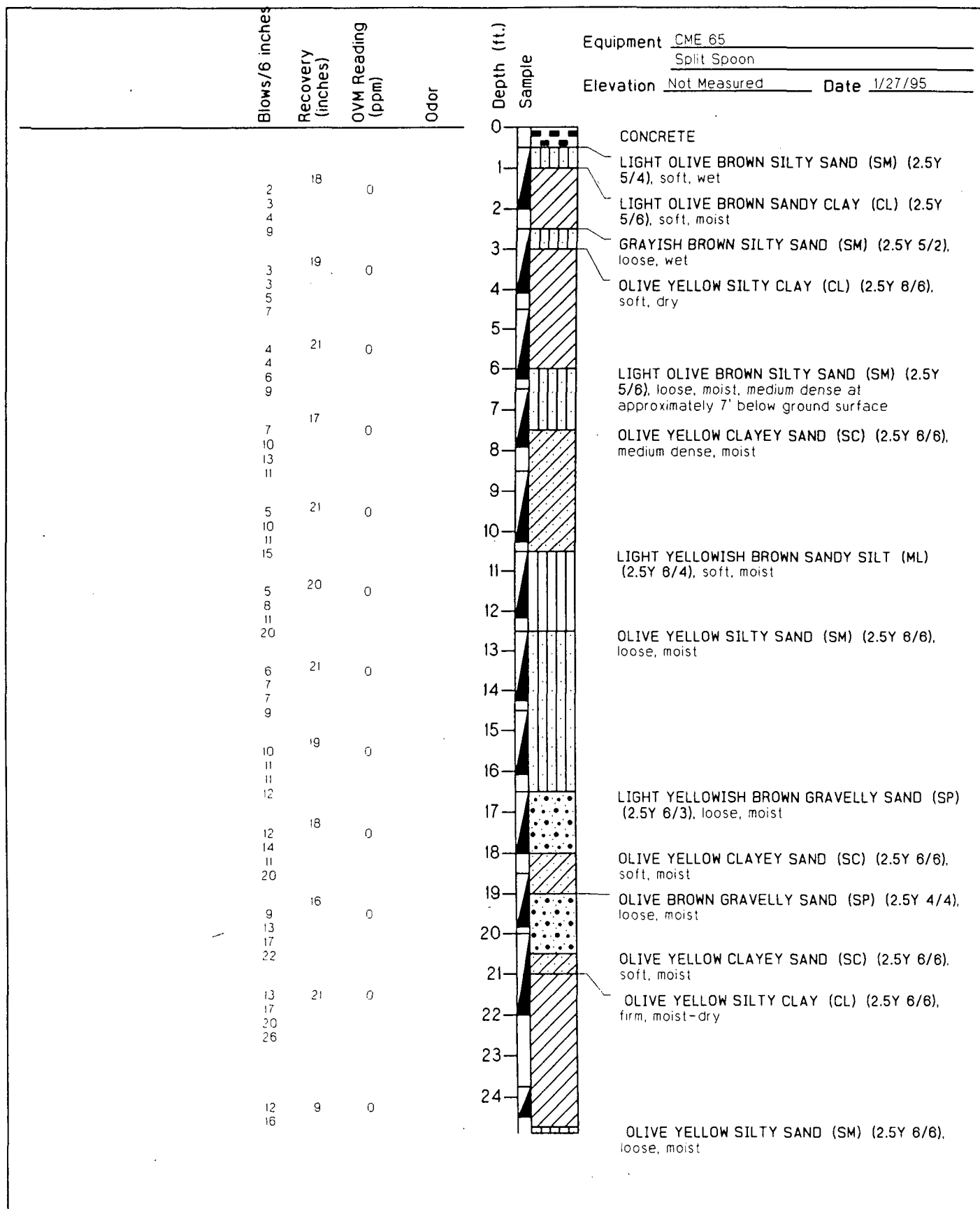
Kristen Meier
7-10-95

303240

303241

APPENDIX G

Drilling Logs



Harding Lawson Associates
Engineering and
Environmental Services
131 North Third Street
Philadelphia, PA 19106
215-627-4505

DRAWN JGY JOB NUMBER 29872.06.1

Log of Boring SB-C1
ICC
St. Croix, U.S. Virgin Islands

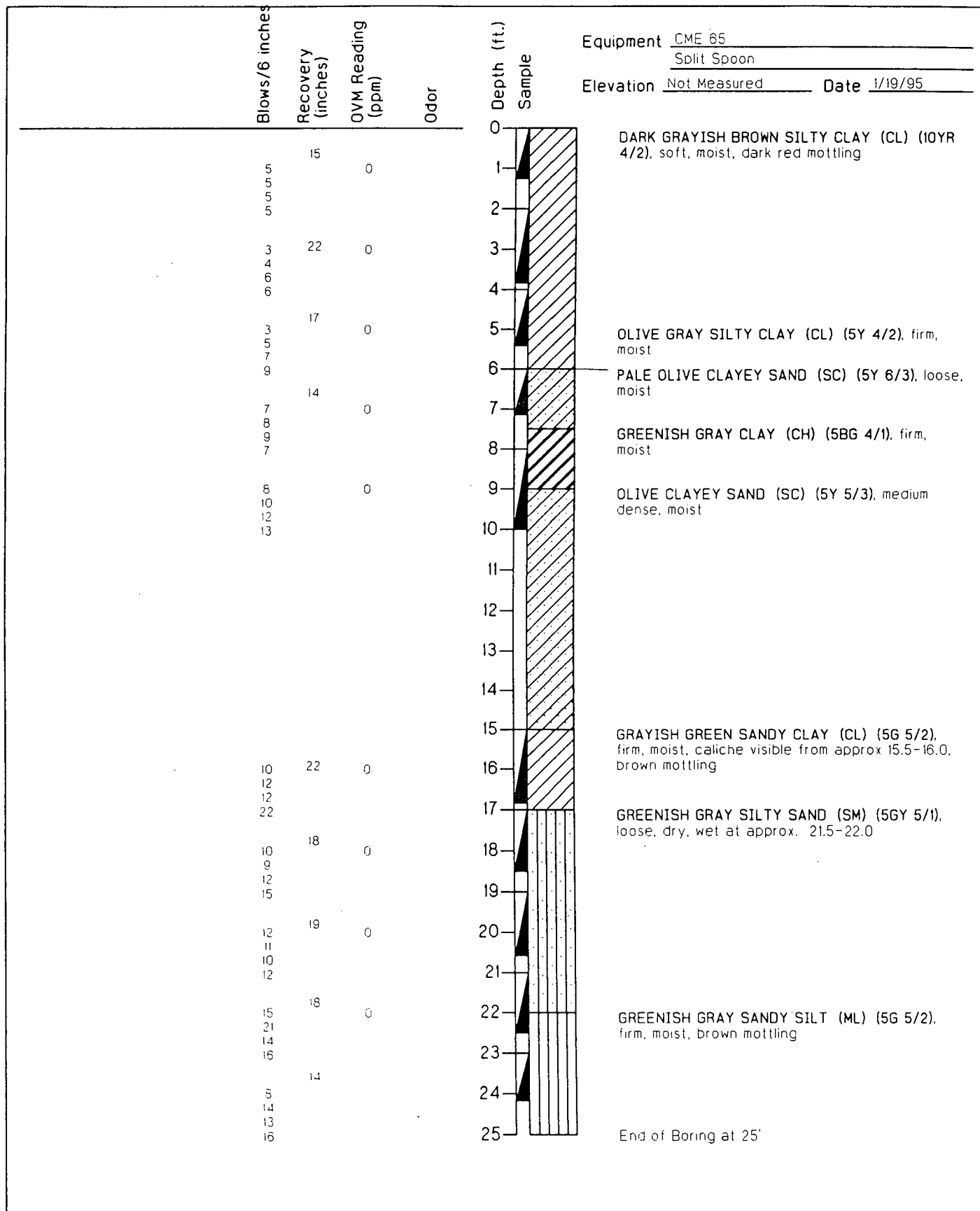
APPROVED

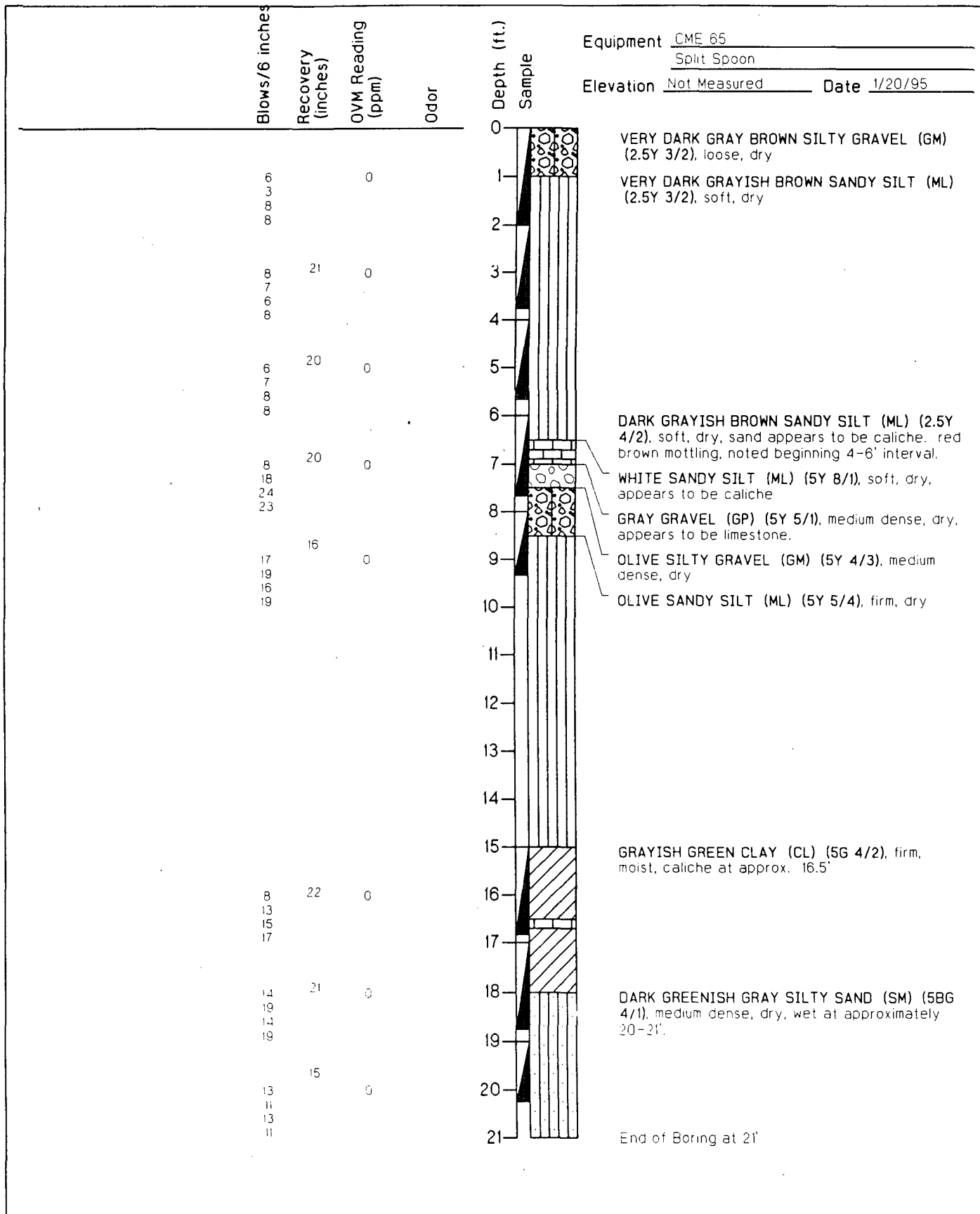
DATE 4/27/95

303243

REVISED DATE

FIGURE





Hardling Lawson Associates
 Engineering and
 Environmental Services
 131 North Third Street
 Philadelphia, PA 19108
 215-627-4505

DRAWN JGY JOB NUMBER 29872.06.1

Log of Boring SB-D3
 ICC
 St. Croix, U.S. Virgin Islands

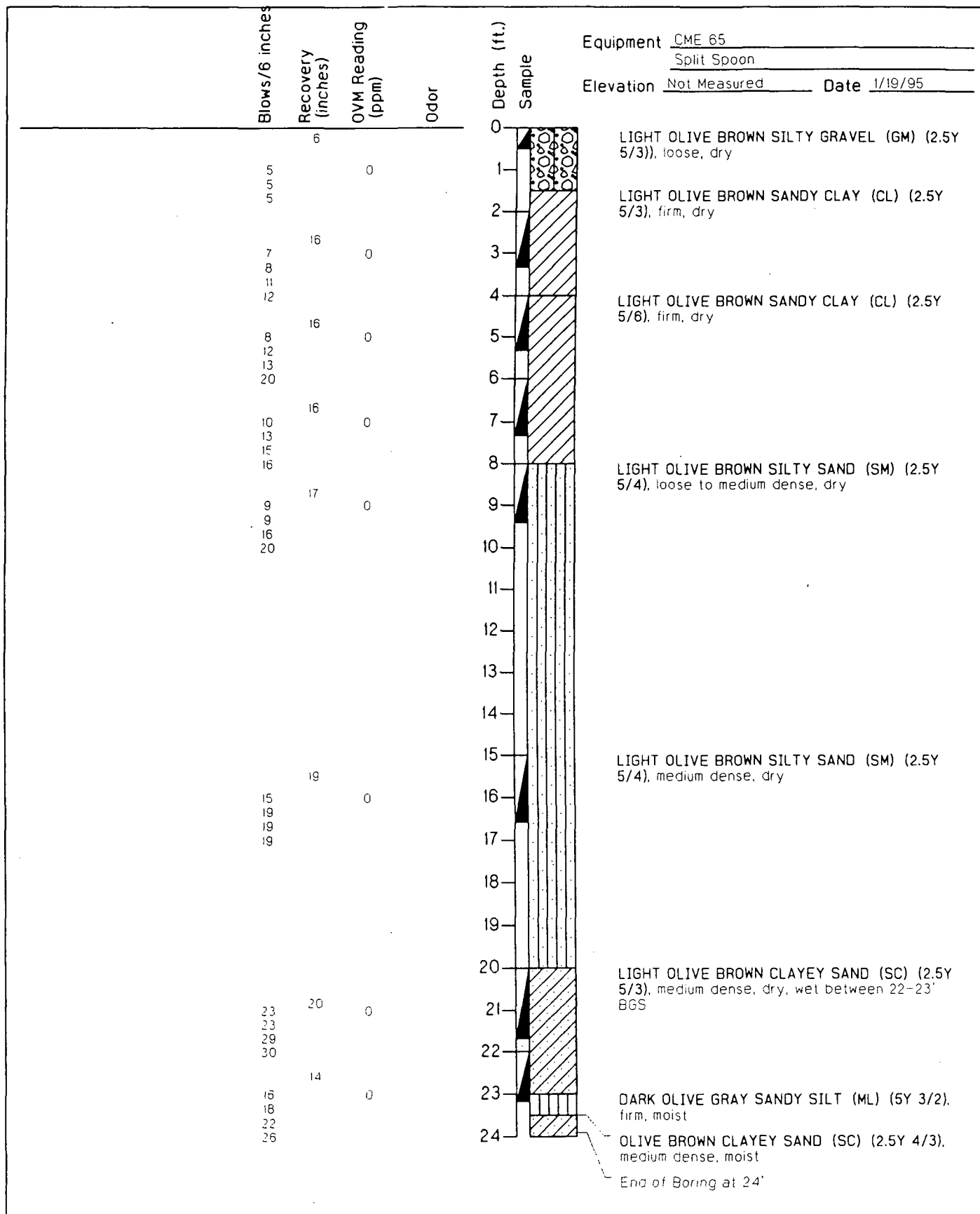
303245

APPROVED

DATE 4/28/95

REVISED DATE

FIGURE



Harding Lawson Associates
 Engineering and
 Environmental Services
 131 North Third Street
 Philadelphia, PA 19106
 215-627-4505

DRAWN JGY JOB NUMBER 29872.06.1

Log of Boring SB-E1

ICC
 St. Croix, U.S. Virgin Islands

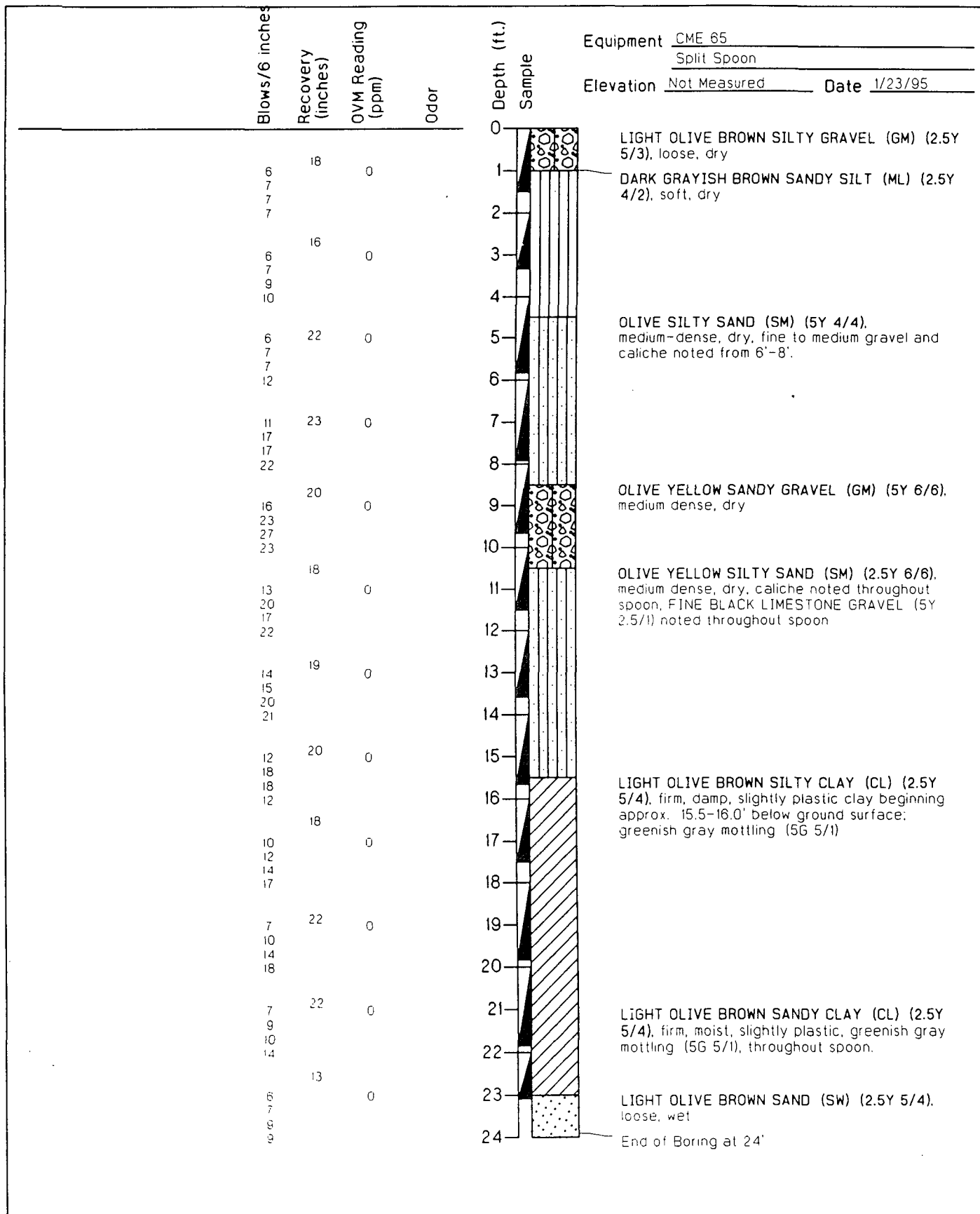
303246

APPROVED

DATE 4/28/95

REVISED DATE

FIGURE



Harding Lawson Associates
 Engineering and
 Environmental Services
 131 North Third Street
 Philadelphia, PA 19106
 215-627-4505

DRAWN JGY
 JOB NUMBER 29872.06.1

Log of Boring SB-F1
 ICC
 St. Croix, U.S. Virgin Islands

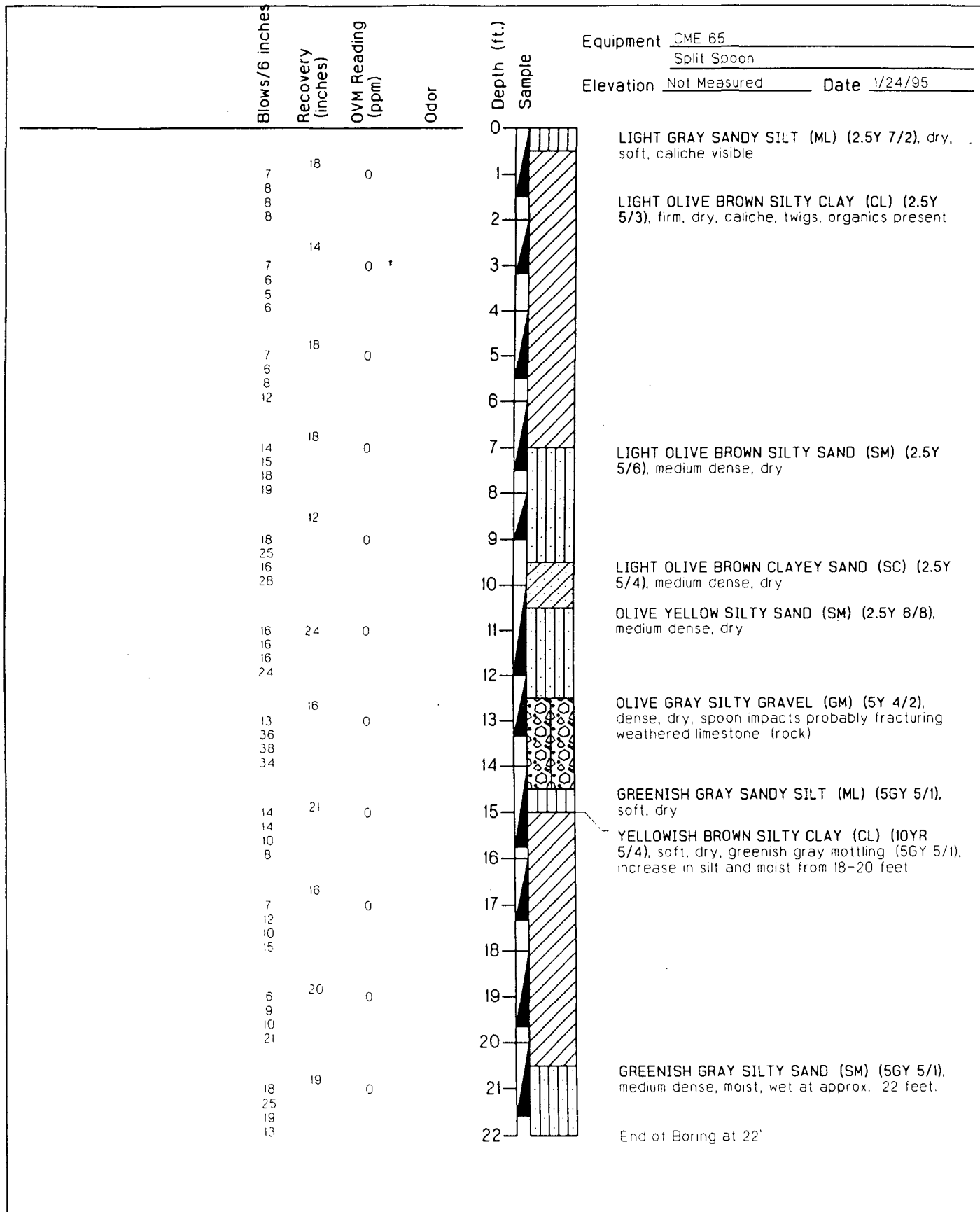
303247

APPROVED

DATE 4/28/95

REVISED DATE

FIGURE



Harding Lawson Associates
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 Environmental Services
 131 North Third Street
 Philadelphia, PA 19106
 215-627-4505

DRAWN
 JGY

JOB NUMBER
 29872.06.1

Log of Boring SB-F2
 ICC
 St. Croix, U.S. Virgin Islands

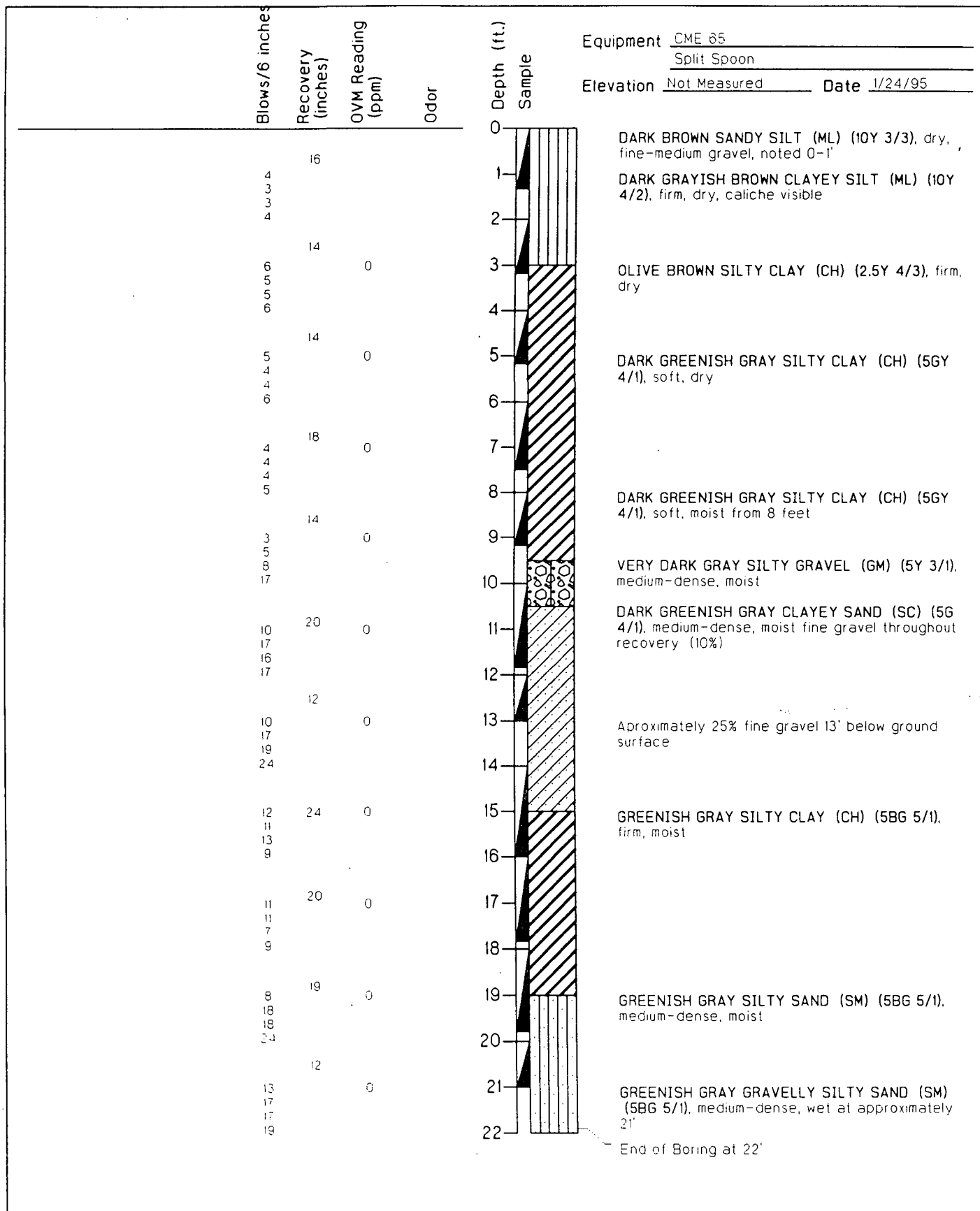
APPROVED

DATE
 4/28/95

303248

REVISED DATE

FIGURE



Harding Lawson Associates
Engineering and
Environmental Services
131 North Third Street
Philadelphia, PA 19106
215-627-4505

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JGY

JOB NUMBER
29872.06.1

Log of Boring SB-F3
ICC
St. Croix, U.S. Virgin Islands

APPROVED

DATE
4/28/95

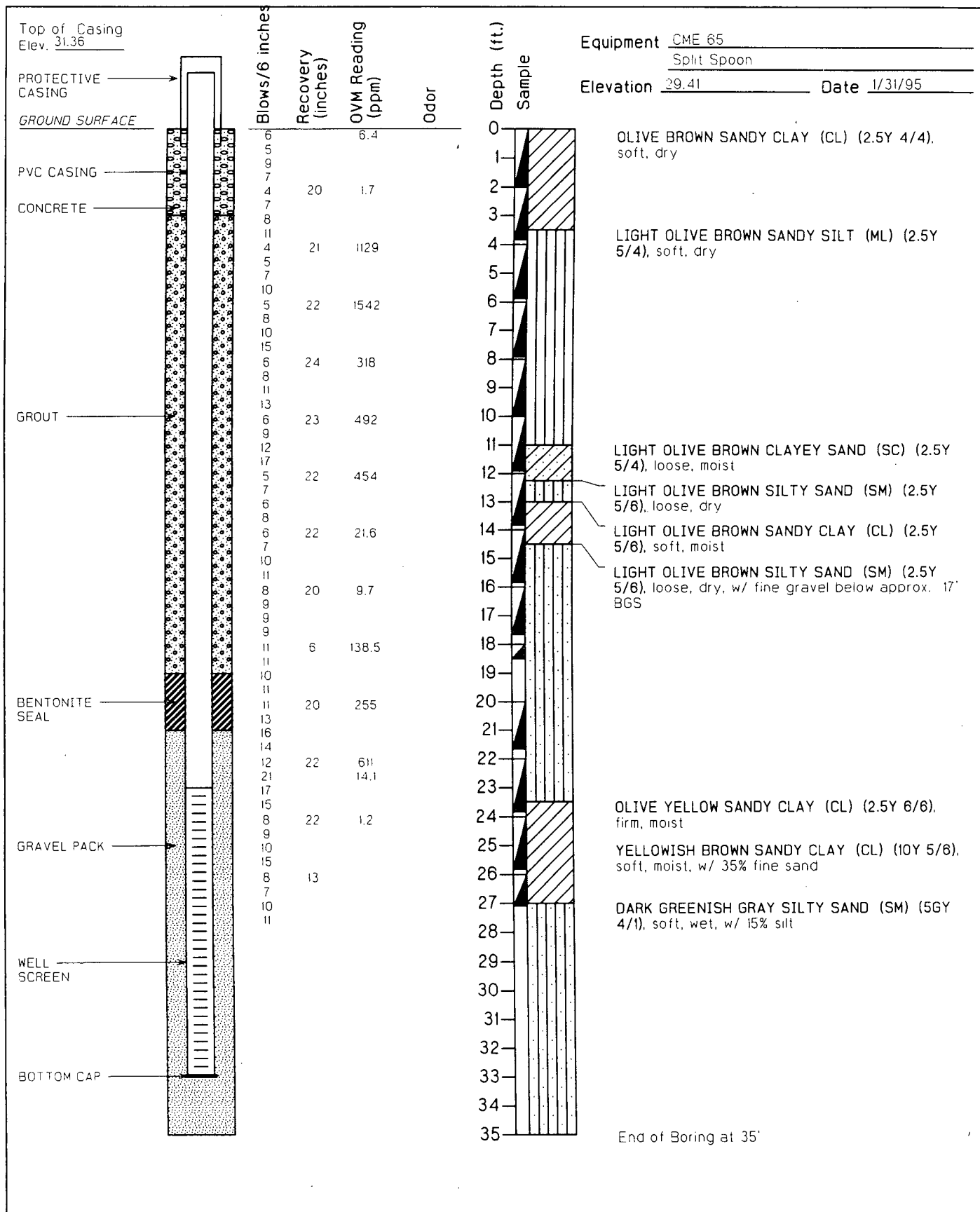
303249

REVISED DATE

FIGURE

303250

APPENDIX H
Well Completion Forms



FIGURE



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Philadelphia, PA 19108
215-627-4505

Log of Boring and Well Completion SB-B1 / MW-1
ICC
St. Croix, U.S. Virgin Islands

303252

DRAWN

JOB NUMBER

APPROVED

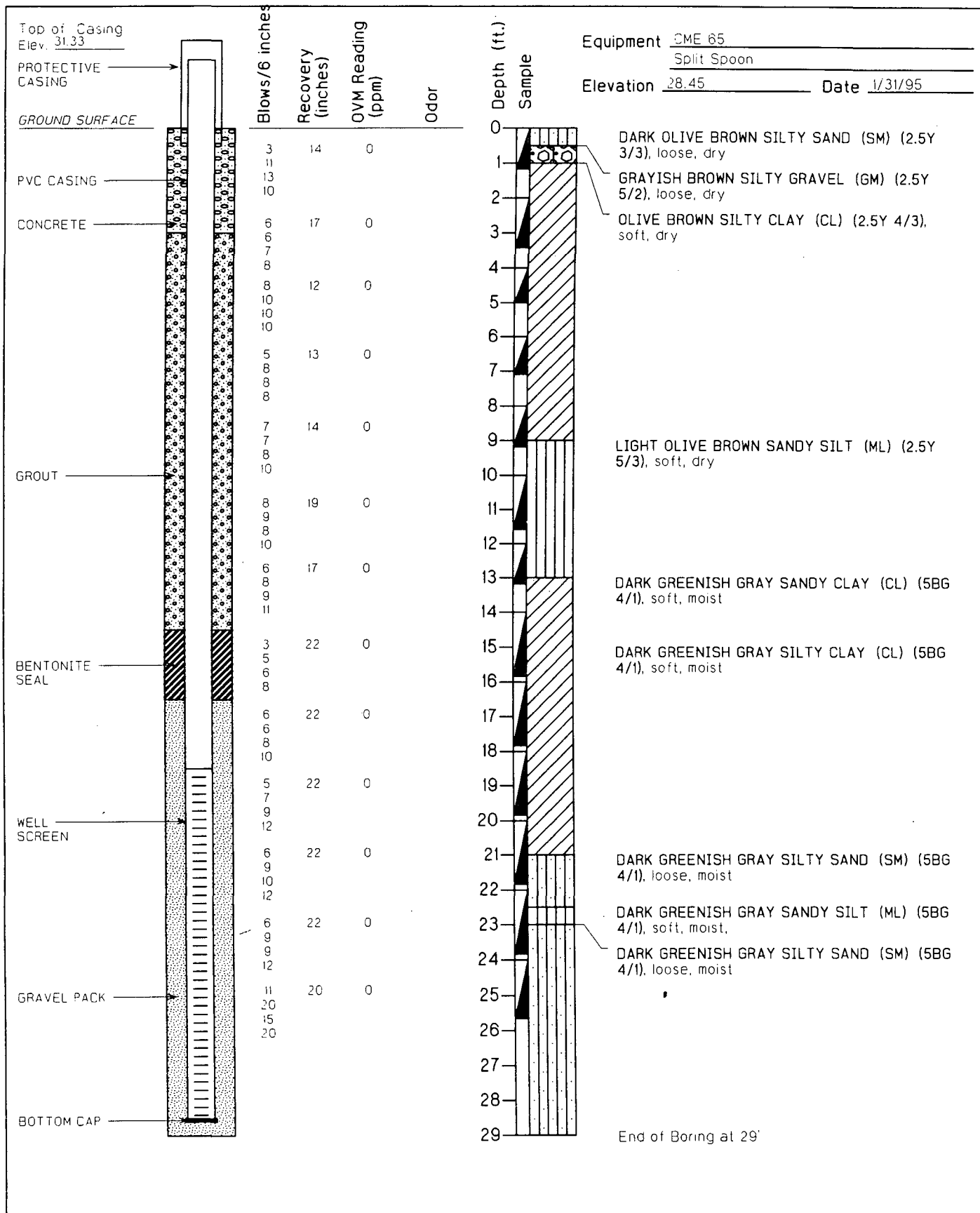
DATE

REVISED DATE

JGY

29872.06.1

7/26/95



FIGURE



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Environmental Services
131 North Third Street
Philadelphia, PA 19106
215-827-4505

Log of Boring and Well Completion SB-C2 / MW-3

ICC

St. Croix, U.S. Virgin Islands

303253

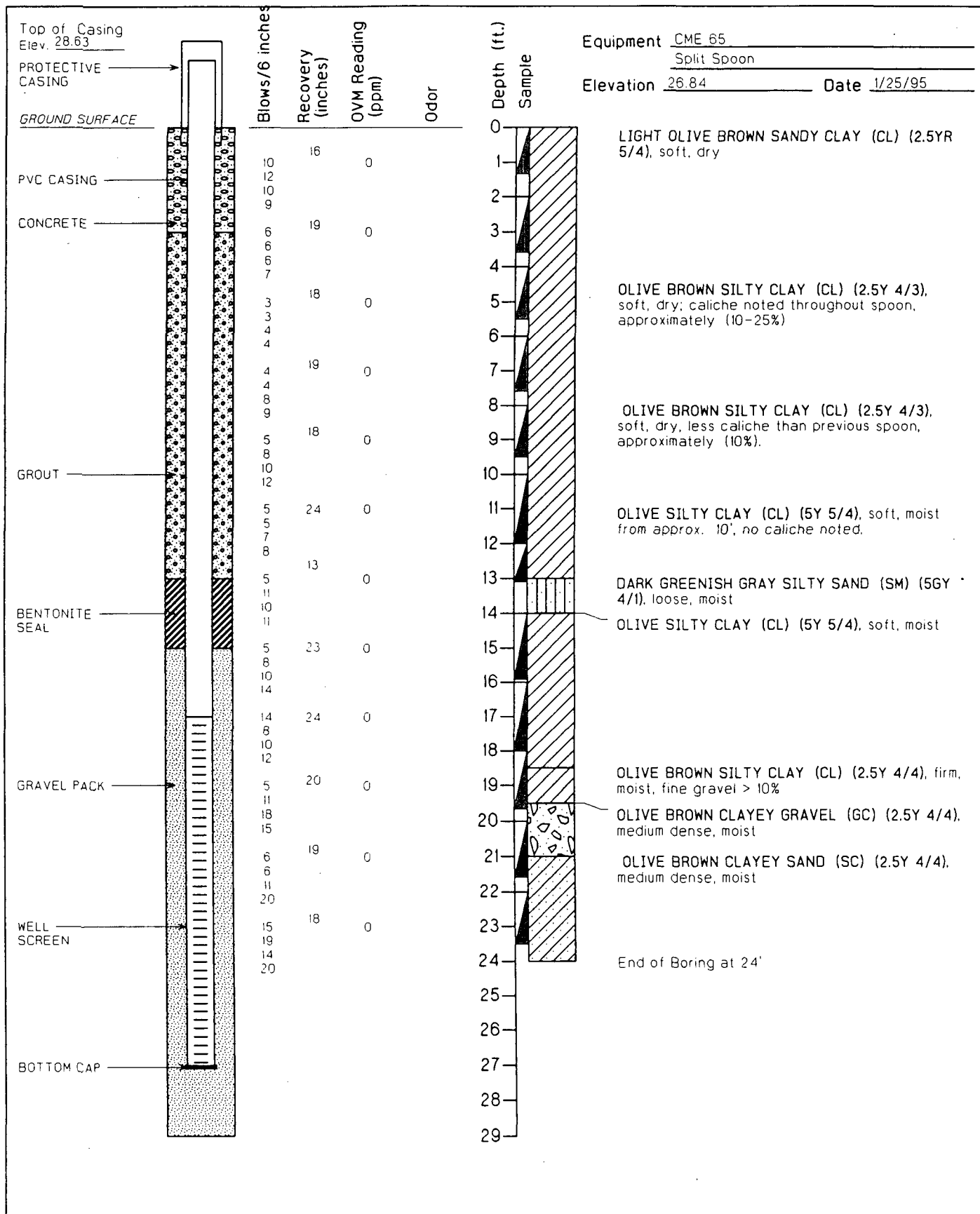
DRAWN
JGY

JOB NUMBER
29872.06.1

APPROVED

DATE
7/26/95

REVISED DATE



Harding Lawson Associates
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Environmental Services
131 North Third Street
Philadelphia, PA 19106
215-627-4505

DRAWN
JSW

JOB NUMBER
29872.06.1

Log of Boring and Well Completion SB-D1 / MW-4
ICC
St. Croix, U.S. Virgin Islands

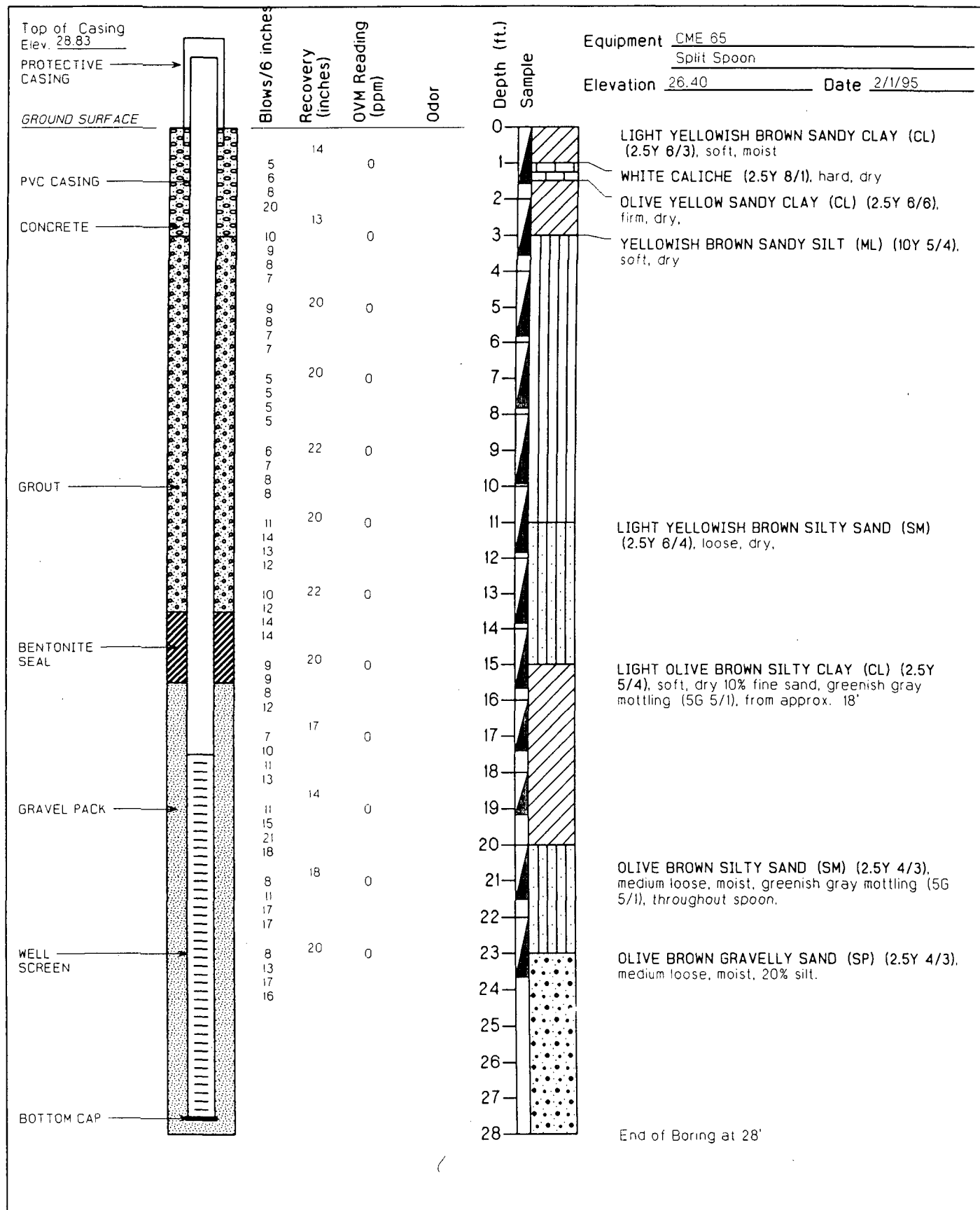
303254

APPROVED

DATE
4/28/95

REVISED DATE

FIGURE



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Environmental Services
131 North Third Street
Philadelphia, PA 19106
215-627-4505

DRAWN

JGY

JOB NUMBER

29872.06.1

APPROVED

Log of Boring and Well Completion SB-D4 / MW-5

ICC

St. Croix, U.S. Virgin Islands

303255

DATE

4/28/95

REVISED DATE

FIGURE

303256

APPENDIX I
Water Level Measurement Forms

PROJECT: ICC

52msl^x 2727

DATE: 05/08/95

JOB NUMBER: 29873.09.1

SHEET OF

303258

WATER LEVEL DATA SHEET

INSTRUMENT/MODEL #: CRS INTERFACE Probe 1065

NAME: Stephen Bolckner/Jim Collins

PROJECT: ICC

Serial #12727

DATE: 05/09/95

JOB NUMBER: 2872.64.1

SHEET 1 OF 1

WELL NUMBER	TIME	DEPTH TO WATER 1st READING From TIC	DEPTH TO WATER 2nd READING From TIC	DEPTH TO WATER 3rd READING	COMMENTS SECTION at upward TOE EVM#1	at TIC EVM#2	at TIC EVM#3
MW-1	09:27	27.09	27.09	NM	0ppm	0ppm	15ppm
MW-3	08:55	26.54	26.54	NM	0ppm	0ppm	0ppm
MW-4	09:18	24.44	24.44	NM	0ppm	0ppm	0ppm
MW-5	09:01	24.76	24.76	NM	0ppm	0ppm	0ppm
P-1	09:08	36.81*	36.81*	NM	0ppm	0ppm	0ppm
P-2	09:21	26.53*	26.53*	NM	0ppm	0ppm	0ppm

* WELLS P-1 and P-2 have NO INNER CASINGS.
DTW MEASUREMENTS ARE FROM TOP OF
CASING.

WATER LEVEL DATA SHEET

INSTRUMENT/MODEL # : ORS INTERFACE ProbeNAME: Stephen Beckner/Tim GaltPROJECT: ICC St. Croix, U.S.V.IDATE: 05/10/95JOB NUMBER: 29872.09.1SHEET 1 OF 1

WELL NUMBER	TIME	DEPTH TO	DEPTH TO	DEPTH TO	COMMENTS		
		WATER	WATER	WATER	SECTION		
		1st READING	2nd READING	3rd READING	UPWARD	TOL	TIC
		FROM TIC	FROM TIC		OWN #1	OWN #2	OWN #3
MW-1	09:20	26.68'	26.68'	NM	0 ppm	0 ppm	1.7 ppm
MW-3	09:55	24.47'	24.47'	NM	0 ppm	0 ppm	0 ppm
MW-4	09:10	23.95'	23.95'	NM	0 ppm	0 ppm	0 ppm
MW-5	08:50	20.58'	20.58'	NM	0 ppm	0 ppm	0 ppm
P-1	09:00	36.75'	36.75'	NM	0 ppm	0 ppm	0 ppm
P-2	09:05	26.35'	26.35'	NM	0 ppm	0 ppm	0 ppm

MONITORING WELLS P-1 AND P-2 DO NOT HAVE INNER CASINGS. WATER LEVELS ARE MEASURED FROM TOP OF OUTER CASING.

WATER LEVEL DATA SHEET

INSTRUMENT/MODEL # : ORS Interface ProbeNAME: JIM COLLINS/Stephen
BruecknerPROJECT: ICC. ST. CROIX, U.S.V.I.DATE: 05/11/95JOB NUMBER: 29872.09.1

SHEET / OF /

WELL NUMBER	TIME	DEPTH TO WATER 1st READING FROM TIC	DEPTH TO WATER 2nd READING FROM TIC	DEPTH TO WATER 3rd READING	COMMENTS SECTION UPWIND TOC OVM#1	TIC OVM#2	TIC OVM#3
MW-1	08:55	26.238'	26.238'	NM	0 ppm	0 ppm	0 ppm
MW-3	08:35	21.97'	21.97'	NM	0 ppm	0 ppm	0 ppm
MW-4	08:40	23.12'	23.12'	NM	0 ppm	0 ppm	0 ppm
MW-5	08:30	20.89'	20.89'	NM	0 ppm	0 ppm	0 ppm
P-1	08:20	36.71'	36.71'	NM	0 ppm	0 ppm	0 ppm
P-2	08:45	26.38'	26.38'	NM	0 ppm	0 ppm	0 ppm

Monitoring wells P-1 and P-2 do not have inner casings. Water levels are measured from top of outer casing.

APPENDIX J
Aerial Photographs



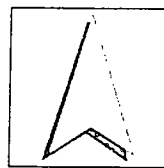
02/15/54

SITE

WM
SD

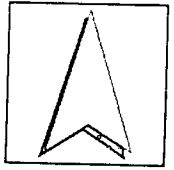
WM
SD

353



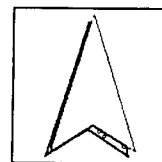
04/20/59

SITE



1962

SITE



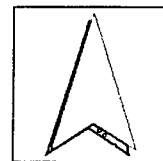
02/20/64

SITE

303267



303268



11/20/71

SITE

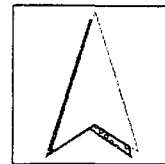
303269



01/17/74

SITE

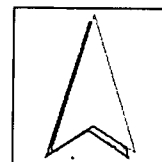
303270



11/14/77

SITE

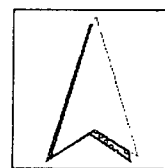
303271



11/24/88

SITE

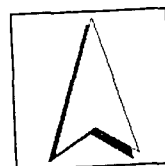
303272



10/09/89

SITE

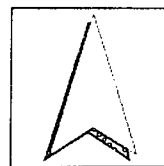
303273



01/24/90

SITE

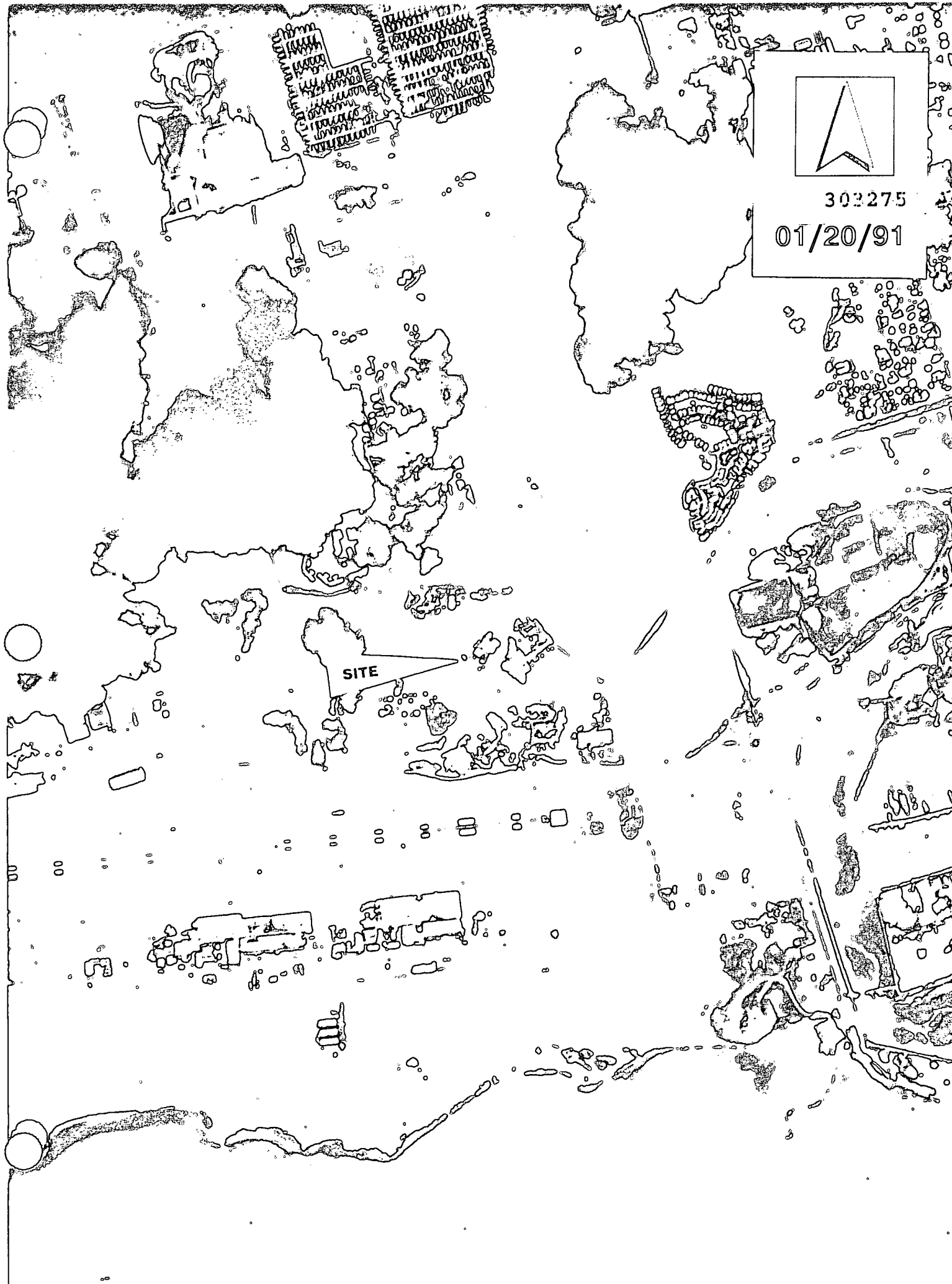
303274



303275

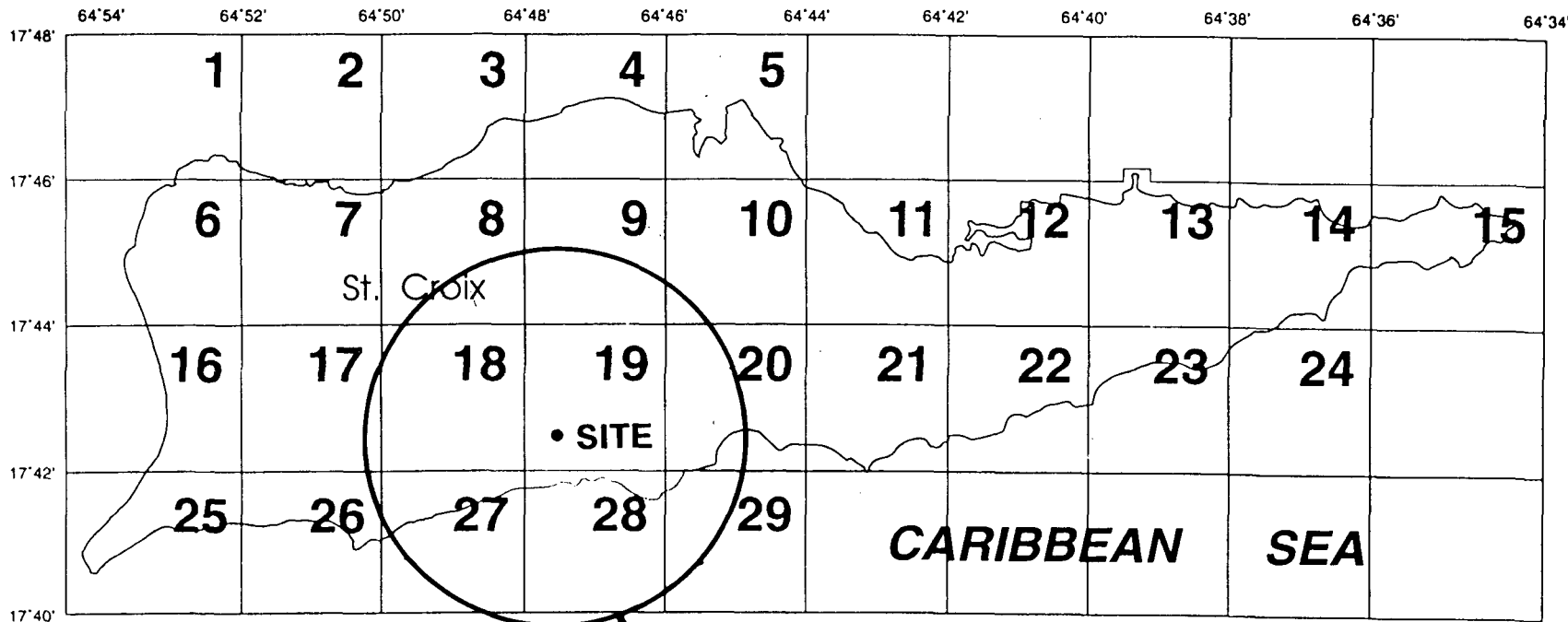
01/20/91

SITE



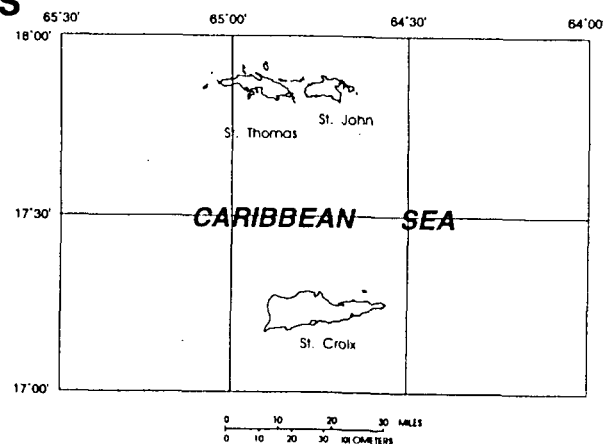
APPENDIX K

Well Records



3 MILE RADIUS

0 1 2 3 4 MILES
0 1 2 3 4 KILOMETERS



303278



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215-627-4505

DRAWN JSW
JOB NUMBER 29872.13.2

LOCATION OF ST. CROIX AREA GRIDS

ISLAND CHEMICAL COMPANY
ST. CROIX, U.S. VIRGIN ISLANDS

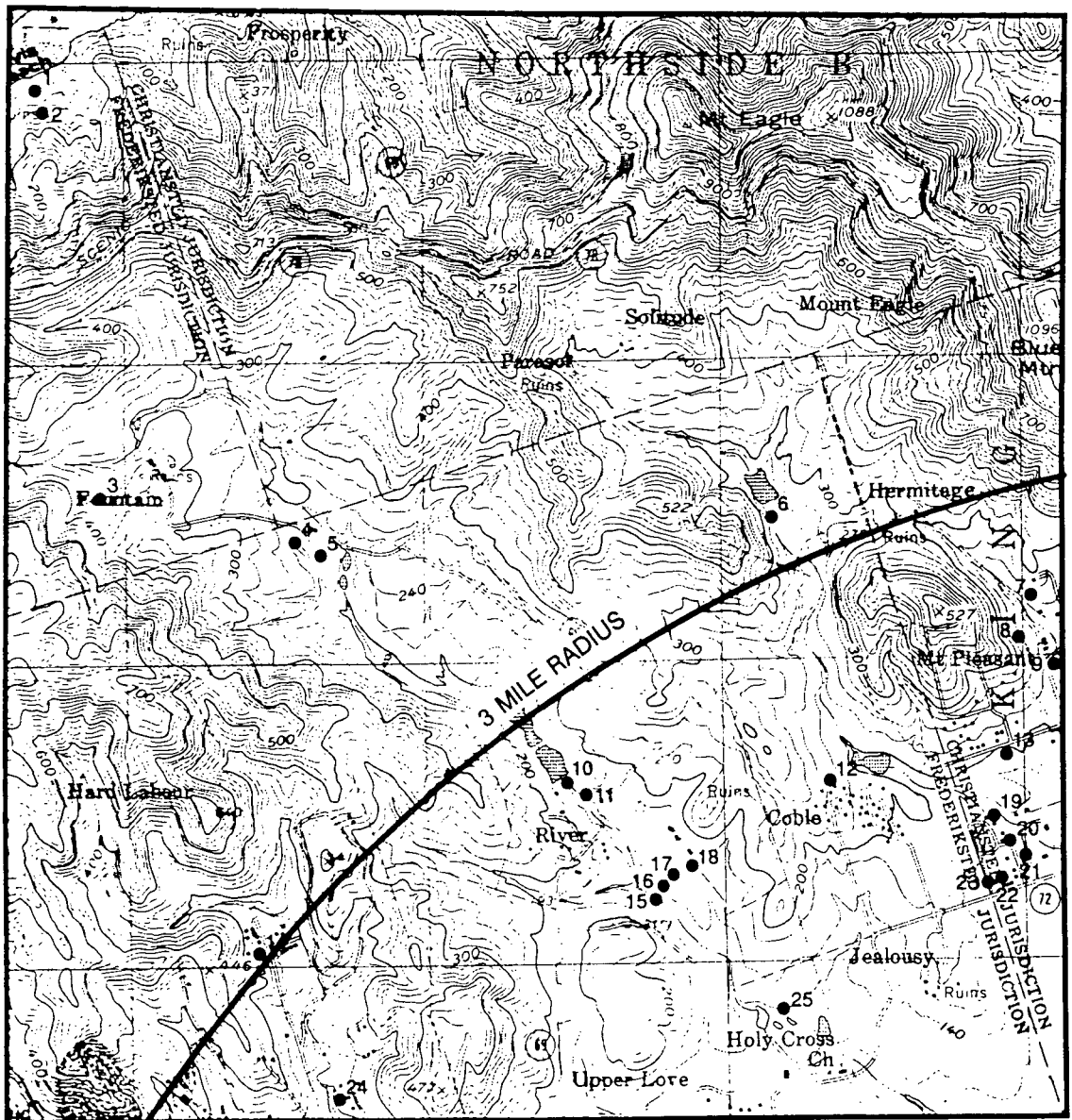
APPROVED S-BASE
FILE
DATE 6/7/95
REVISED DATE

FIGURE

64°50'

64°48'

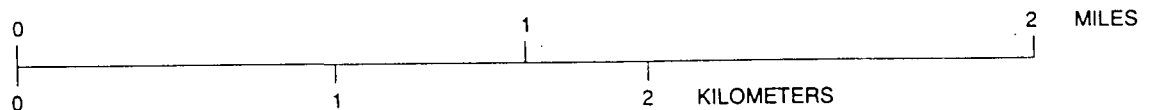
17°46'



17°44'

Base from U.S. Geological Survey
Frederiksted, V.I. 1:24,000, 1982

SCALE



Harding Lawson Associates
Engineering and
Environmental Services
131 North Third Street
Philadelphia, PA 19106
215-627-4505

**PRODUCTION WELLS WITHIN THREE
MILES OF SITE**

ISLAND CHEMICAL COMPANY
ST. CROIX, U.S. VIRGIN ISLANDS

FIGURE

GRID 8

DRAWN
JSW

JOB NUMBER
29872.13.2

APPROVED

FILE
S-BASE

DATE
7/18/95

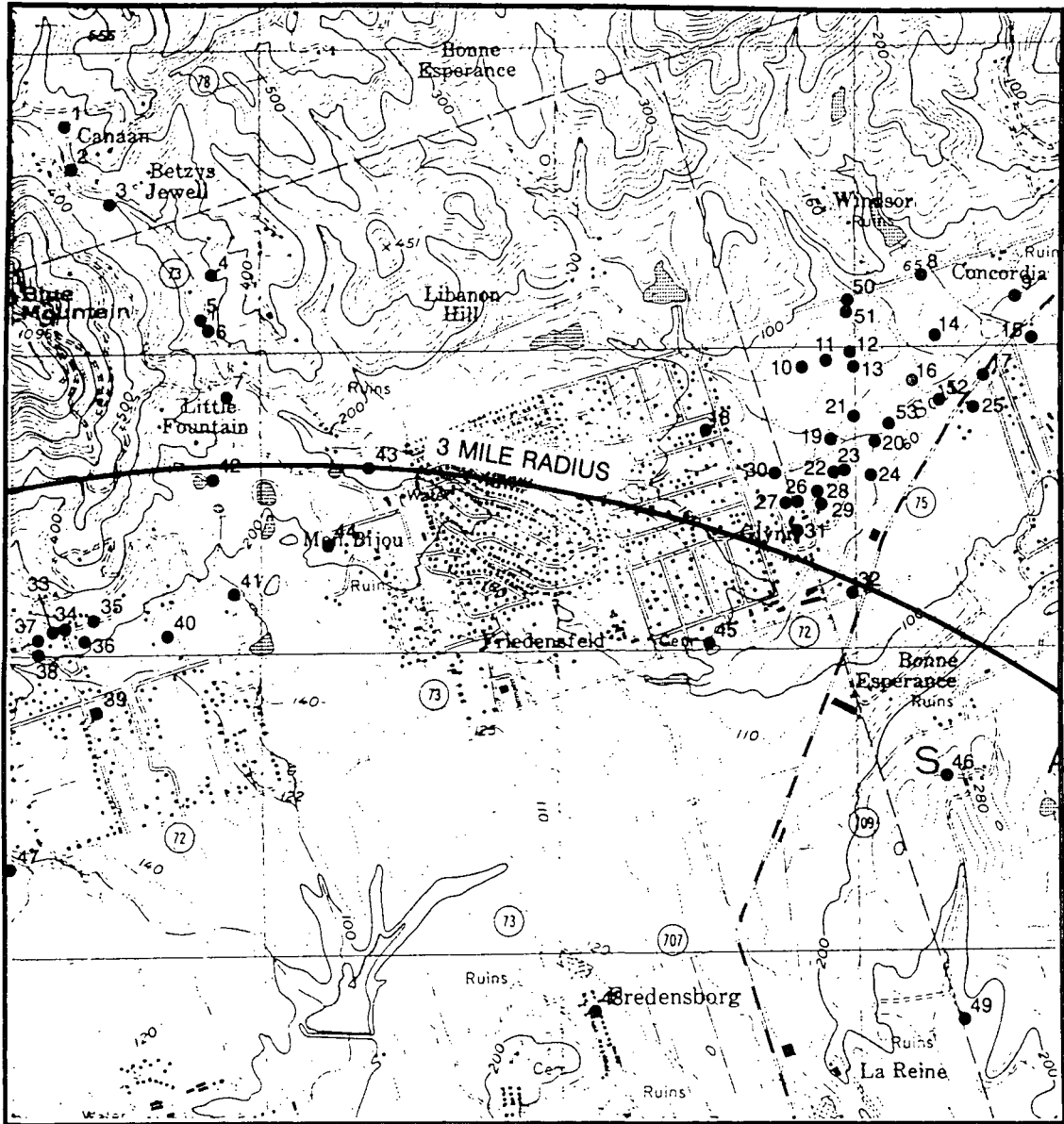
REVISED NO.

303279

64°48'

64°46'

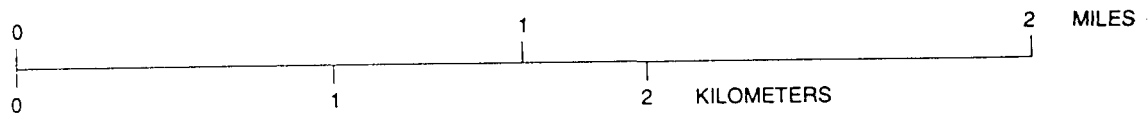
17°46'



17°44'

Base from U.S. Geological Survey
 Christiansted, V.I. 1:24,000, 1982

SCALE



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PRODUCTION WELLS WITHIN THREE
 MILES OF SITE

ISLAND CHEMICAL COMPANY
 ST. CROIX, U.S. VIRGIN ISLANDS

FIGURE

GRID 9

DRAWN
 JSW

JOB NUMBER
 29872.13.2

APPROVED

FILE
 S-BASE

DATE
 7/18/95

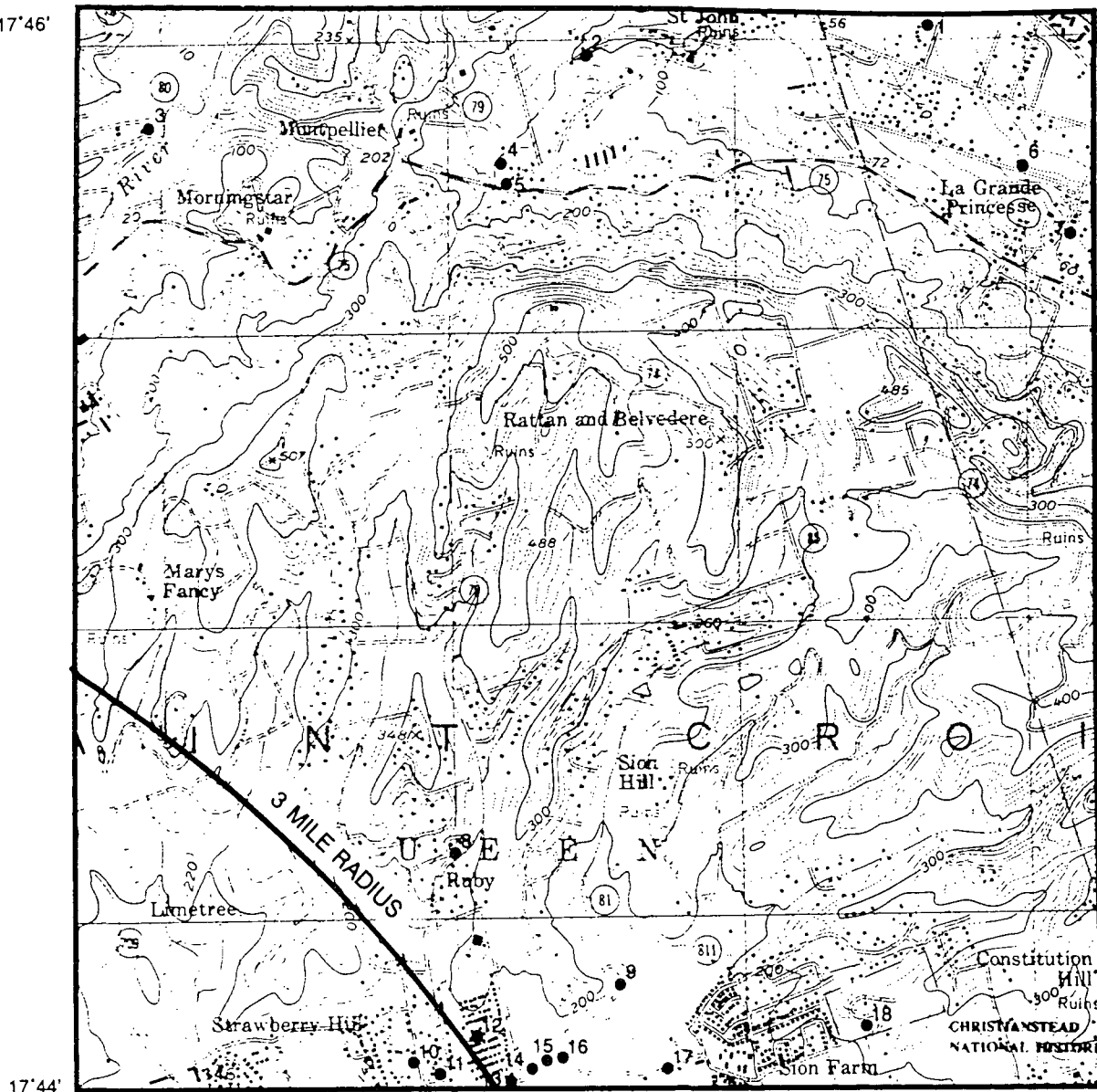
REVISED NO.

303280

64°46'

64°44'

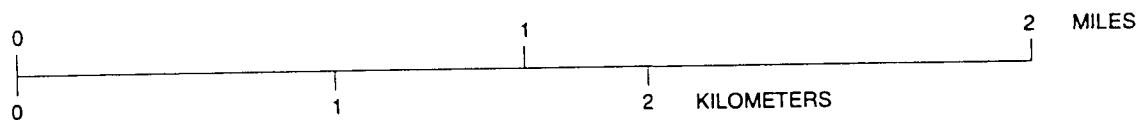
17°46'



17°44'

Base from U.S. Geological Survey
 Christiansted, V.I. 1:24,000, 1982

SCALE



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 131 North Third Street
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 JSW

JOB NUMBER
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PRODUCTION WELLS WITHIN THREE
 MILES OF SITE

ISLAND CHEMICAL COMPANY
 ST. CROIX, U.S. VIRGIN ISLANDS

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DATE
 7/18/95

REVISED NO.

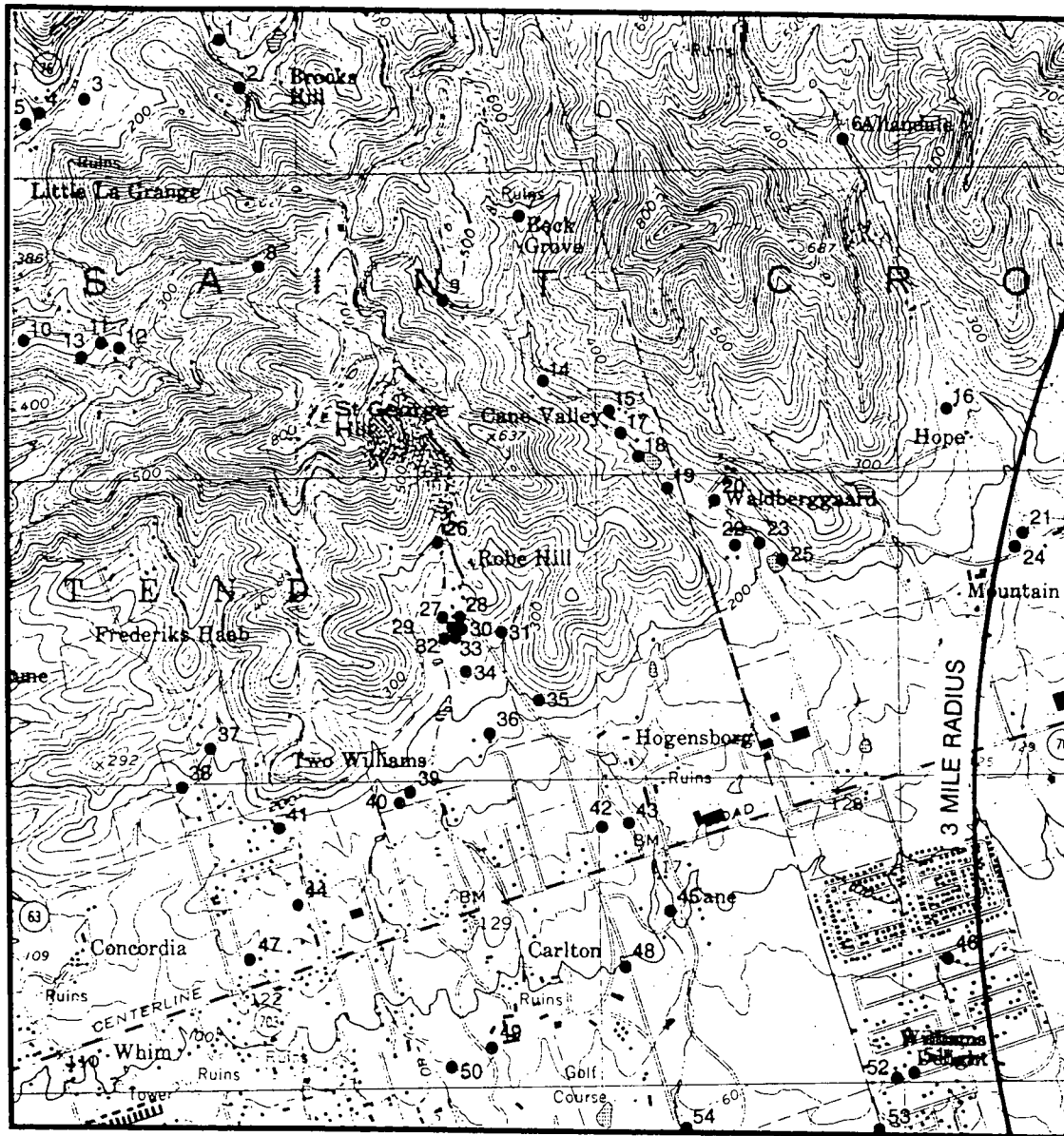
FIGURE

GIRD 10

303281

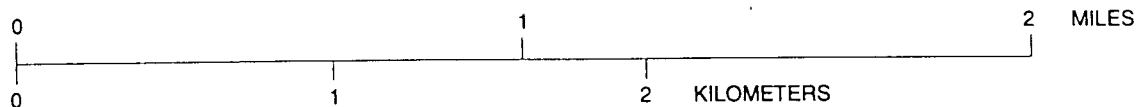
17'44'

64°50'



Base from U.S. Geological Survey
Frederiksted, V.I. 1:24,000, 1982

SCALE



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Environmental Services
31 North Third Street
Philadelphia, PA 19106
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DRAWN	JOB NUMBER
JSW	29872.13.2

ISLAND CHEMICAL COMPANY
ST.CROIX, U.S. VIRGIN ISLANDS

APPROVED FILE
S-BASE

GRID 17

FIGURE

REVISÉD NO.

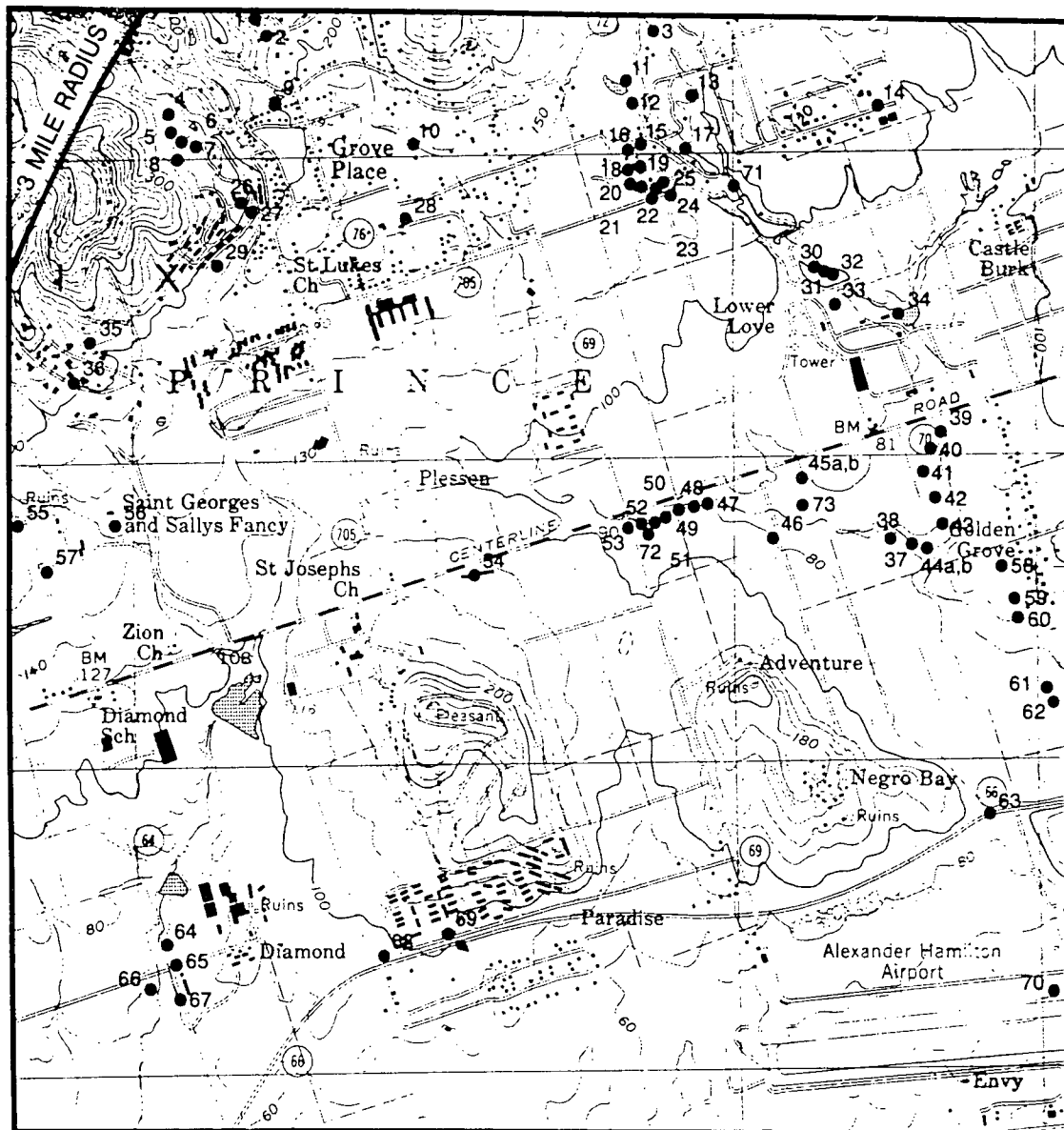
DATE
7/18/95

303282

64°50'

64°48'

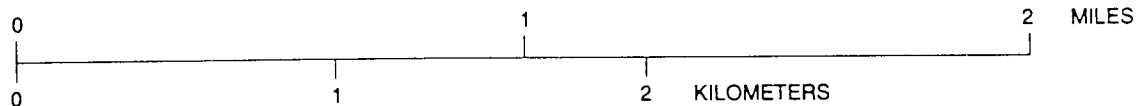
17°44'



17°42'

Base from U.S. Geological Survey
Frederiksted, V.I. 1:24,000, 1982

SCALE



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JSW

JOB NUMBER
29872.13.2

PRODUCTION WELLS WITHIN THREE
MILES OF SITE

ISLAND CHEMICAL COMPANY
ST. CROIX, U.S. VIRGIN ISLANDS

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FILE
S-BASE

DATE
7/18/95

REVISED NO.

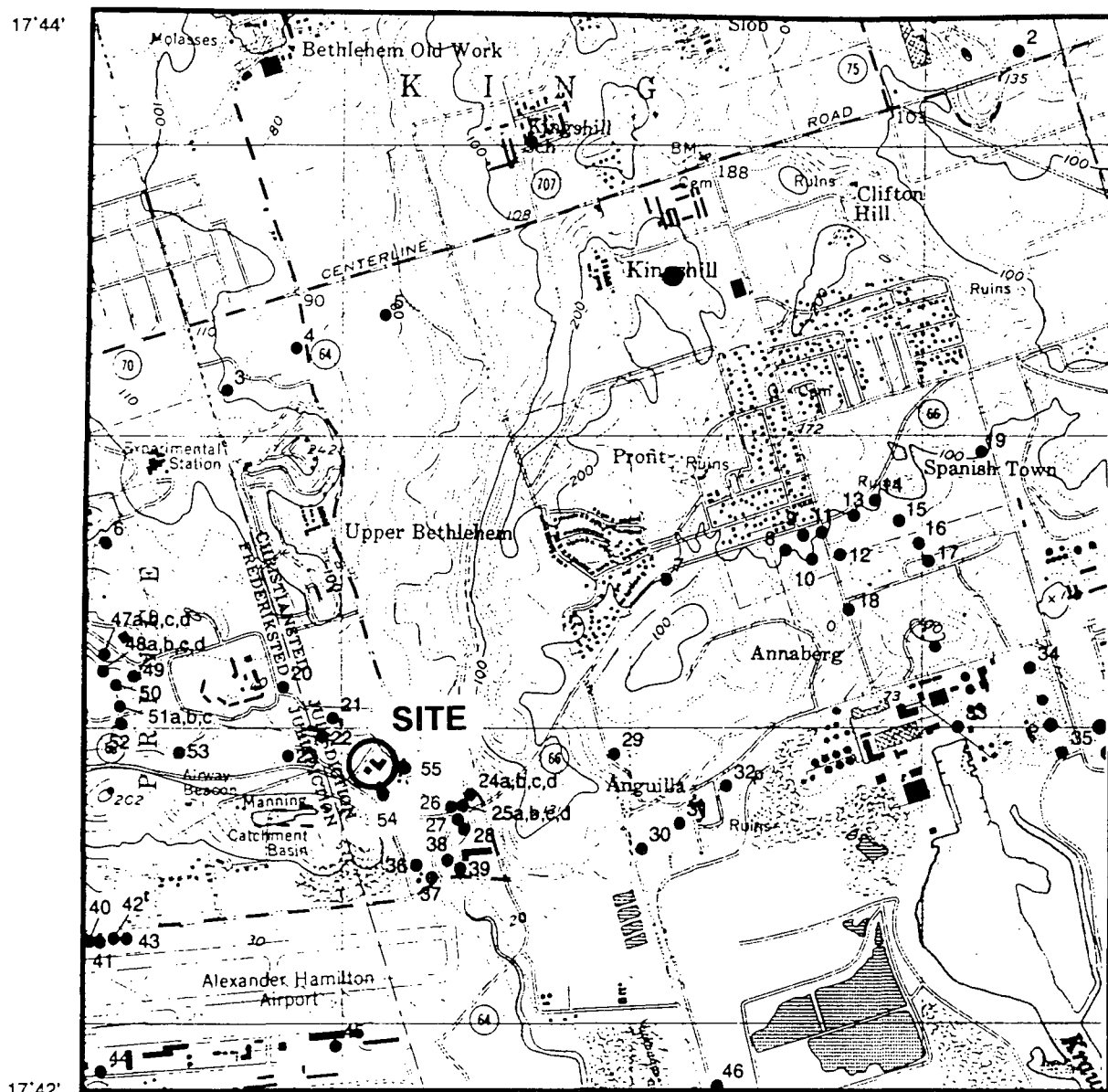
FIGURE

GRID 18

303283

64°48'
17°44'

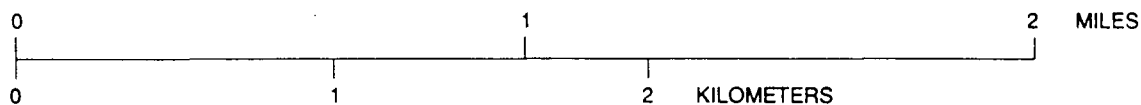
64°46'



17°42'

Base from U.S. Geological Survey
Christiansted, V.I. 1:24,000, 1982

SCALE



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Environmental Services
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JSW
JOB NUMBER
29872.13.2

**PRODUCTION WELLS WITHIN THREE
MILES OF SITE**

ISLAND CHEMICAL COMPANY
ST.CROIX, U.S. VIRGIN ISLANDS

APPROVED
FILE
S-BASE

DATE
7/18/95

FIGURE

GRID 19

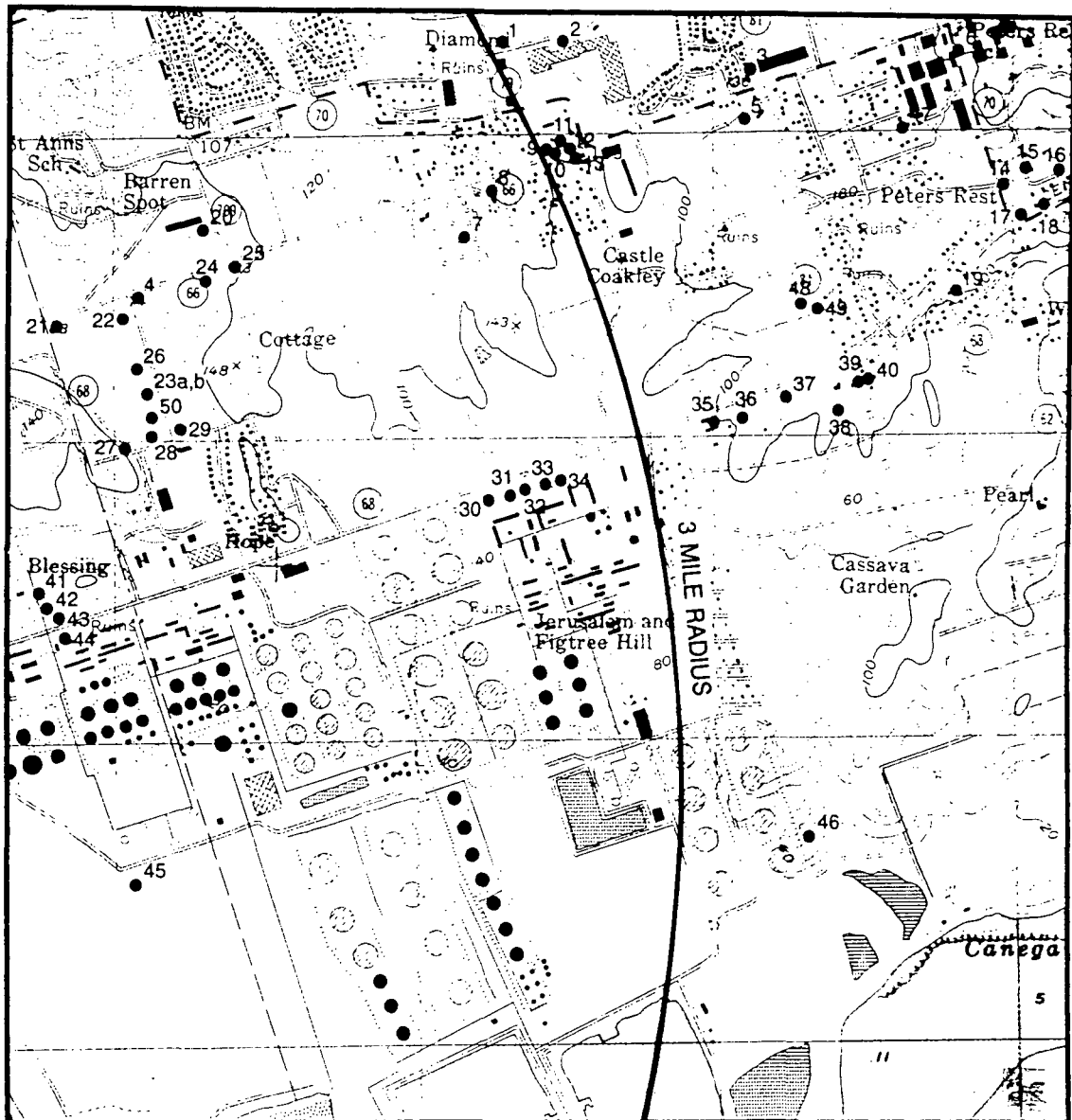
REVISED NO.

303284

64°46'

64°44'

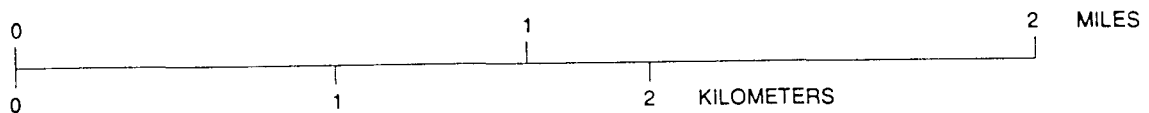
17°44'



17°42'

Base from U.S. Geological Survey
 Christiansted, V.I. 1:24,000, 1982

SCALE



303285

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PRODUCTION WELLS WITHIN THREE
 MILES OF SITE

ISLAND CHEMICAL COMPANY
 ST. CROIX, U.S. VIRGIN ISLANDS

FIGURE

GRID 20

DRAWN
 JSW

JOB NUMBER
 29872.13.2

APPROVED

FILE
 S-BASE

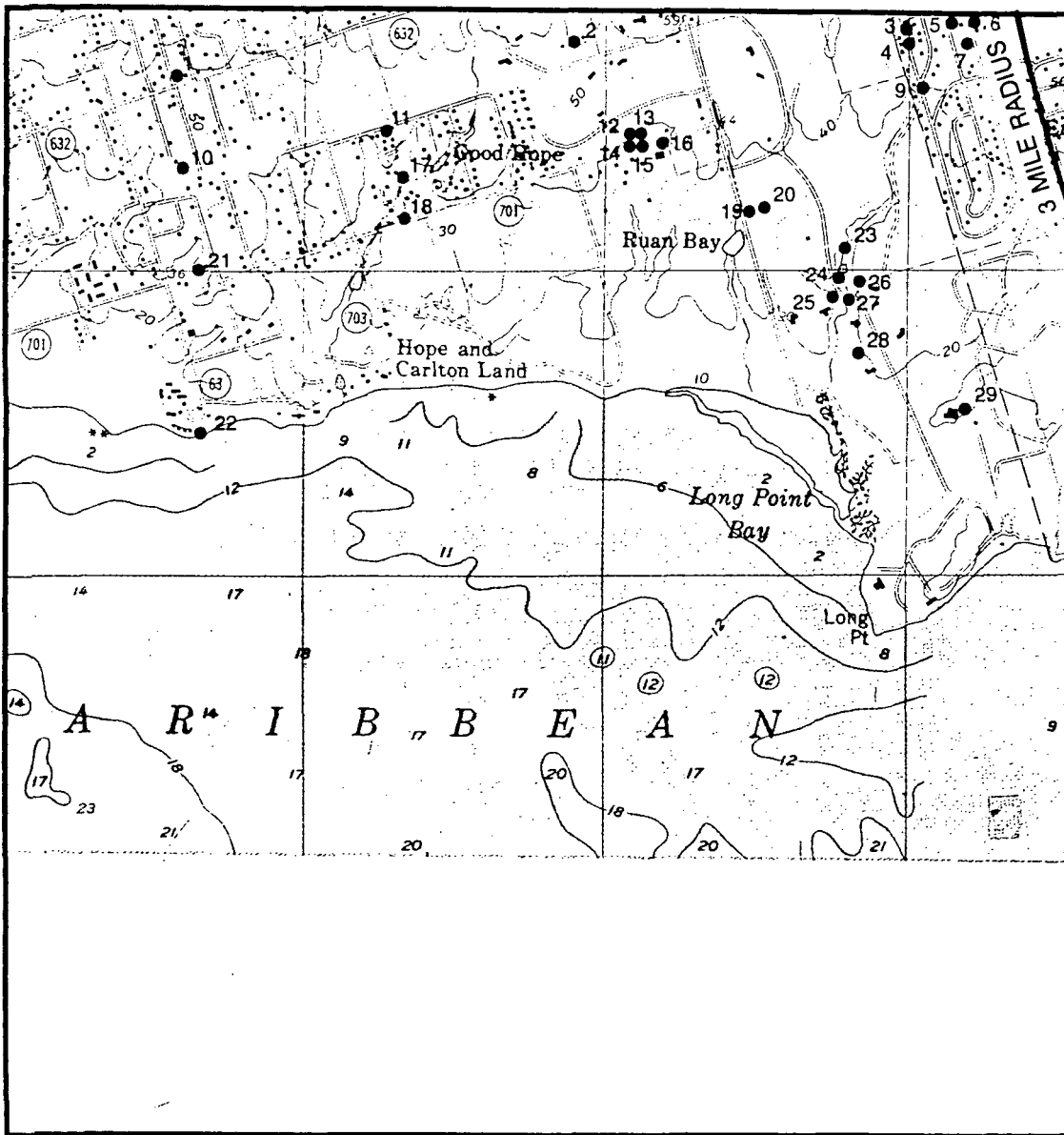
DATE
 7/18/95

REVISED NO.

64°52'

64°50'

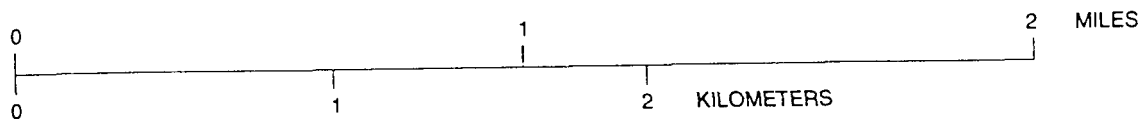
17°42'



17°40'

Base from U.S. Geological Survey
Frederiksted, V.I. 1:24,000, 1982

SCALE



303286



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Philadelphia, PA 19106
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**PRODUCTION WELLS WITHIN THREE
MILES OF SITE**

ISLAND CHEMICAL COMPANY
ST. CROIX, U.S. VIRGIN ISLANDS

FIGURE

GRID 26

DRAWN
JSW

JOB NUMBER
29872.13.2

APPROVED

FILE
S-BASE

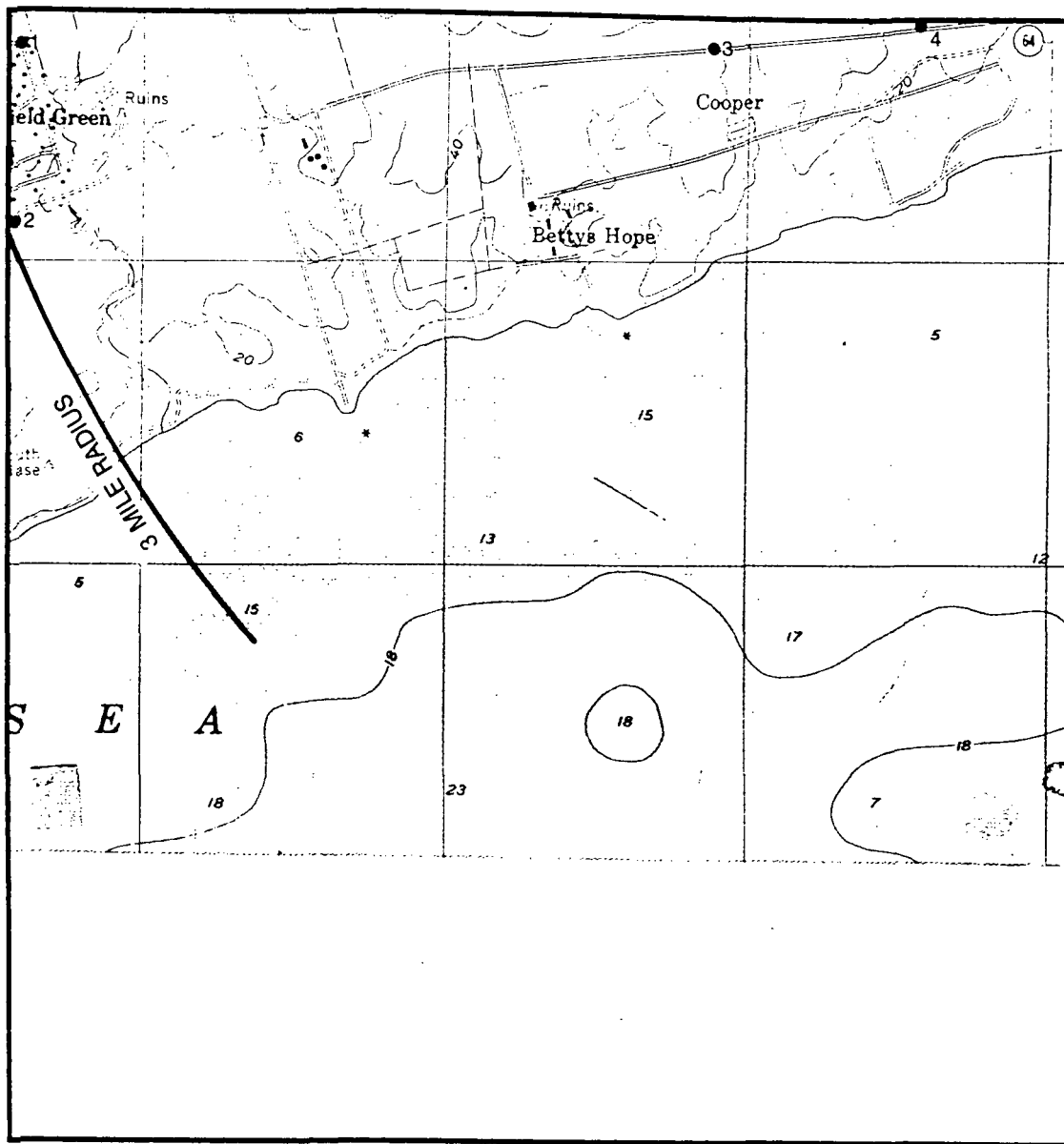
DATE
7/18/95

REVISED NO.

64°50'

64°48'

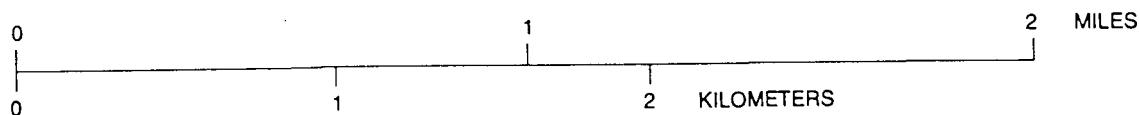
17°42'



17°40'

Base from U.S. Geological Survey
Frederiksted, V.I. 1:24,000, 1982

SCALE



303287



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31 North Third Street
Philadelphia, PA 19106
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DRAWN
JSW

JOB NUMBER
29872.13.2

**PRODUCTION WELLS WITHIN THREE
MILES OF SITE**

ISLAND CHEMICAL COMPANY
ST. CROIX, U.S. VIRGIN ISLANDS

APPROVED

FILE
S-BASE

DATE
7/18/95

REVISED NO.

FIGURE

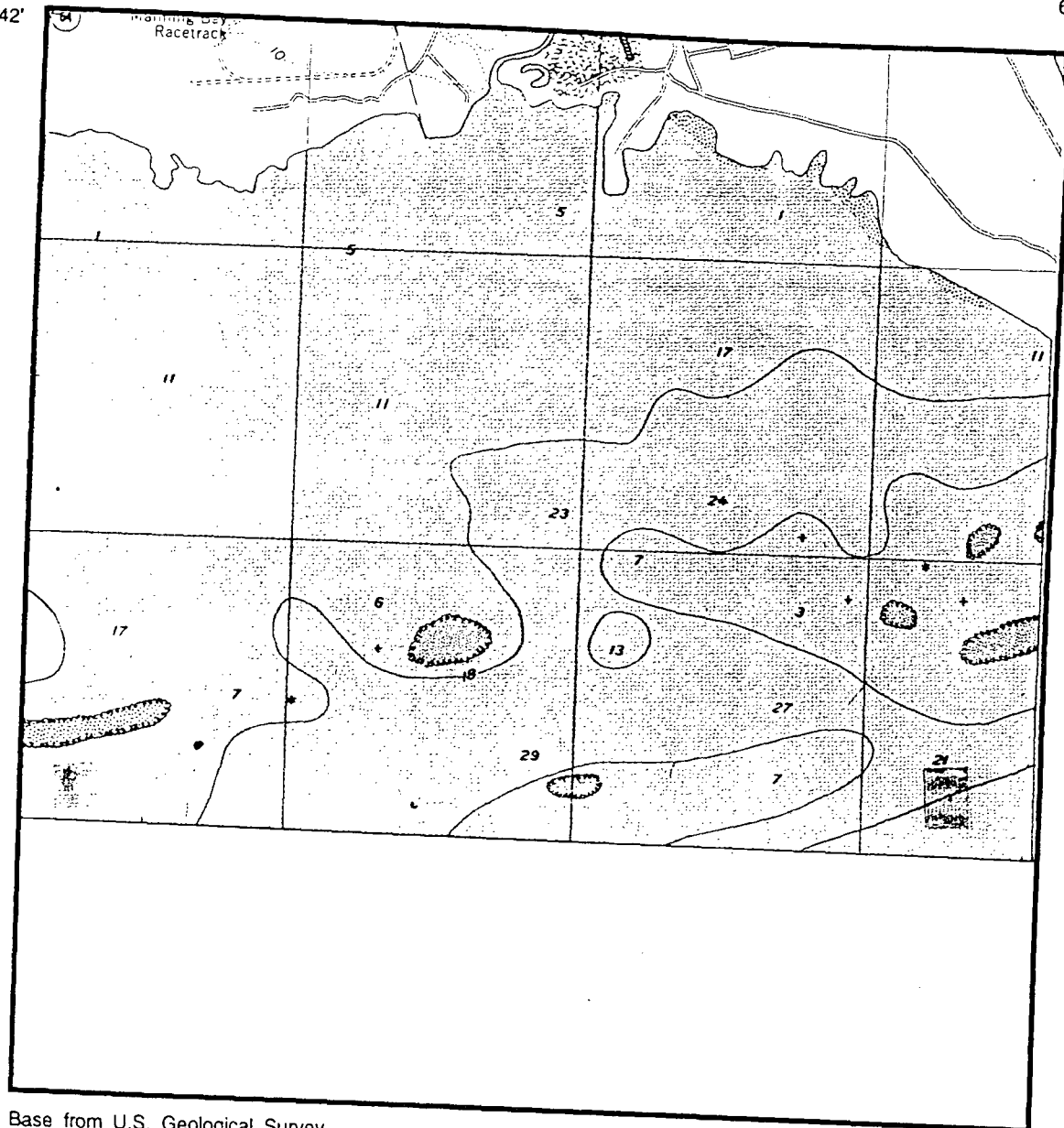
GRID 27

64°48'

17°42'

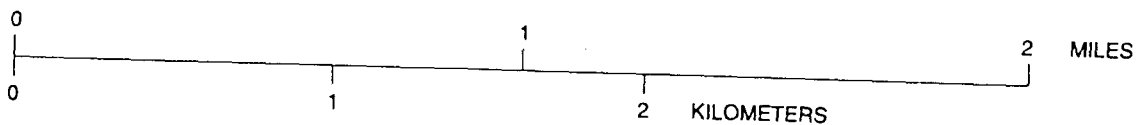
64°46'

17°40'



Base from U.S. Geological Survey
Christiansted, V.I. 1:24,000, 1982

SCALE



303288

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Philadelphia, PA 19106
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**PRODUCTION WELLS WITHIN THREE
MILES OF SITE**

ISLAND CHEMICAL COMPANY
ST.CROIX, U.S. VIRGIN ISLANDS

GRID 28

DRAWN
JSW

JOB NUMBER
29872.13.2

APPROVED

FILE
S-BASE

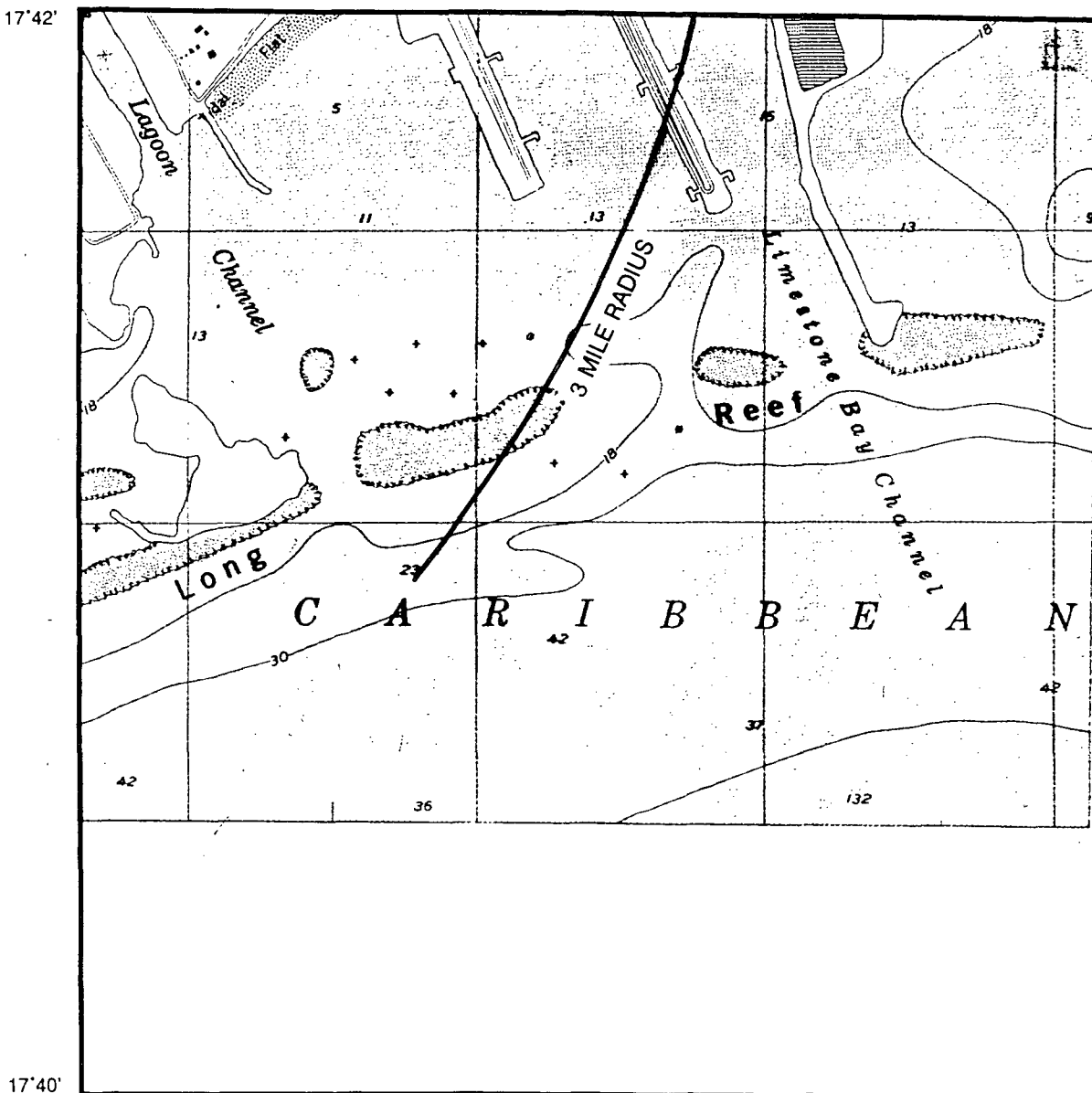
DATE
7/18/95

REVISED NO.

FIGURE 2

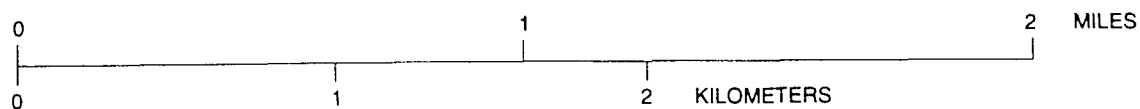
64°46'
17°42'

64°44'



Base from U.S. Geological Survey
Christiansted, V.I. 1:24,000, 1982

SCALE



303289



Harding Lawson Associates
Engineering and
Environmental Services
31 North Third Street
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DRAWN
JSW

JOB NUMBER
29872.13.2

**PRODUCTION WELLS WITHIN THREE
MILES OF SITE**

ISLAND CHEMICAL COMPANY
ST. CROIX, U.S. VIRGIN ISLANDS

APPROVED

FILE
S-BASE

DATE
7/18/95

FIGURE

GRID 29

REVISED NO.

303290

APPENDIX L

Phase I Baseline Ecological Assessment

**Draft Technical Memorandum
Pathways Analysis Report and
Phase I Baseline Risk Assessment Summary
Virgin Island Chemical Site
St. Croix, U.S. Virgin Islands**

Prepared for
Island Chemical Company, Inc.

29872 15.1

Andrew J. Chartrand
Staff Scientist

Alan J. Finio
Senior Scientist

August 14, 1995



Harding Lawson Associates
Engineering and Environmental Services
131 North Third Street
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ATTACHMENTS

- A Environmental Resources Inventory
- B Historical Aerial Photograph Review
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**VIRGIN ISLAND CHEMICAL SITE
PATHWAYS ANALYSIS REPORT AND
PHASE I BASELINE RISK ASSESSMENT SUMMARY**

1.0 INTRODUCTION

This Technical Memorandum presents the results of the Pathways Analysis and Phase I Baseline Risk Assessment for the Virgin Island Chemical (VICHEM) site in St. Croix, U.S. Virgin Islands. A site location map is presented in Figure 1. This Pathways Analysis Report and Phase I Baseline Risk Assessment was developed pursuant to the terms of the National Contingency Plan (NCP) and the *Remedial Investigation Work Plan, Island Chemical Company, Inc., U.S. Virgin Islands* (Work Plan), Harding Lawson Associates (HLA), dated August 5, 1994.

Purpose and Scope

The purpose of the Pathways Analysis Report and Phase I Baseline Risk Assessment Summary was to document current VICHEM site conditions and to identify potential ecological concerns on the VICHEM site. The scope of this investigation was limited to the area within the VICHEM site boundary as defined by the Work Plan and to areas outside of the VICHEM site buildings.

The Pathways Analysis Report and Phase I Baseline Risk Assessment Summary included the following tasks:

- Identify potential ecological stressor sources related to the VICHEM site.
- Identify potential pathways for identified stressors to be transported to the environment within the VICHEM site.
- Inventory environmental resources on the VICHEM site, including surface-water resources, habitats, species of concern, geology and hydrogeology, soils, topography, climate, and air quality.
- Identify potential ecological exposure points and receptors within the VICHEM site.

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2.0 VIRGIN ISLAND CHEMICAL SITE

This section presents an overview of the VICHEM site and historical operations that occurred at the VICHEM site. The historical information is based on a review of background data presented in the Work Plan and a review of a series of historical aerial photographs to identify changes in ecological conditions on the VICHEM site and adjacent areas. A detailed outline of the results of the historical aerial photograph review is presented in Attachment B. A summary of the VICHEM site history and ownership is presented in Table 1.

2.1 Location and Setting

The VICHEM site occupies approximately 3 acres in south-central St. Croix, U.S. Virgin Islands (Figure 1). The VICHEM site is located on Route 66, approximately 1,200 feet west of the intersection with Route 64. The property is located on Plot 13Q of Estate Bethlehem Middle Works at 17°42'35" north latitude, 64°47'26" west longitude. A map of the VICHEM site boundary for this investigation is presented in Figure 2.

The VICHEM site is bordered to the northeast and southeast by River Gut, a stream with intermittent flow; to the west by open, undeveloped land; and to the south and southwest by Route 66. A concrete batch plant, and two automobile repair shops are located to the east of the VICHEM site, across River Gut. An asphalt plant and an engineering business are located to the north of the VICHEM site.

2.2 VICHEM Site History

According to the Parcel Subdivision Map obtained from the Government of the Virgin Islands (GOVI), Charles H. Steffey became the owner of Parcel 13, of which the VICHEM site is a part, in Estate Bethlehem Middle Works on December 1, 1965. Sometime after that date, Charles H. Steffey subdivided Parcel 13 and the VICHEM site was designated as Plot 13Q. The VICHEM site is currently unoccupied and is owned by CHS Holding Corporation (CHS) with Charles H. Steffey as an officer of the company with signing authority. On May 1, 1969, CHS leased the VICHEM site to Houston Chemical Industries, Inc. (Houston). Caribe Chemical Co. Inc. (Caribe), a wholly owned subsidiary of Houston, operated the facility. In March 1972, Pierrel International S.A. acquired all of the shares of Caribe. Caribe's name was subsequently changed to Pierrel America, Inc. (Pierrel).

On June 30, 1978, Pierrel assigned the ground lease to Cooper Laboratories (Cooper). Island Chemical Company (ICC), a wholly owned subsidiary of Cooper, operated the facility. ICC was incorporated in Delaware on July 21, 1978. Enviro-Science, Inc. (ESI) (ESI, 1985) reported that prior to acquisition by Cooper, it is believed that the facility was used to manufacture phenacetin (a pharmaceutical component) and ethoxyquin (antioxidant, food additive, and antidegradation additive for rubber). Cooper used both toluene and pyridine in a process to perfect the conversion of quinine to quinidine (a cardiac depressant).

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In 1979, Cooper assigned the lease to its subsidiary, ICC. On November 1, 1979, Cooper sold its stock in VICHEM to Berlex Laboratories, Inc. (Berlex). For approximately one year during Berlex's ownership of ICC, ICC attempted was made to develop a quinidine processing operation at the facility. The process that ICC sought to develop during the period of Berlex's ownership used toluene, but did not use pyridine. This operation, however, never progressed beyond the developmental stage. Early in 1982, ICC abandoned plans to use the VICHEM site and the plant was permanently closed by the end of 1982.

On September 14, 1984, ICC sold its assets to Virgin Island Chemical Company (VICHEM).

The U.S. Environmental Protection Agency (EPA) conducted a Preliminary Assessment and Removal Evaluation in January 1989. At that time, the VICHEM site was occupied by St. Croix Security Kennels and VIAG Fuels, Inc. (VIAG). According to EPA report (1989), the operator of the kennel, Kate Wesp, was evidently living onsite. EPA reported that VIAG used some office space in the main building and stored ethanol in four of the facility's aboveground storage tanks (ASTs). Activities performed by EPA are discussed in the *Preliminary Assessment, Removal Evaluation and Funding Authorization Request for CERCLA Removal Action at the Virgin Island Chemical Company, Inc., Site, St. Croix, U.S. Virgin Islands - ACTION MEMORANDUM* (EPA, 1989). It is believed that by this time VICHEM had relinquished its lease and that St. Croix Kennels and VIAG leased the property directly from CHS.

A detailed history of the VICHEM site ownership is presented in the *Remedial Investigation Work Plan, Island Chemical Company, Inc., U.S. Virgin Islands* (Work Plan), Harding Lawson Associates (HLA), dated August 5, 1994.

2.3 Site Structures

The current facility layout is shown in Figure 2. Major onsite structures and their historical use include the following:

- Laboratory and Warehouse Building, which housed the analytical laboratories.
- Maintenance Building, which was reported to have housed two boilers, refrigeration units, air compressors, and a maintenance shop (ESI 1995).
- AST farm, which included a total of 20 tanks at one time. Ten tanks are still present on concrete pads and 10 additional vacant concrete pads have been identified.
- Loading Dock (former location of laboratory pit)
- Concrete Storage Pad
- A scale for weighing bulk materials
- Reactor Area
- Generator and Fire Pump Buildings
- One 250,000-gallon fire water AST
- Reduction/Oxidation Unit and Water Storage Building
- Process Tower

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3.0 PATHWAYS ANALYSIS REPORT AND PHASE I BASELINE RISK ASSESSMENT SUMMARY OF FINDINGS

The findings of the Pathways Analysis Report and Phase I Baseline Risk Assessment Summary, summarized below, are based on a review and analysis of the data presented in the Environmental Resources Inventory (ERI) (Attachment A), a visual field reconnaissance of the VICHEM site, and a limited review of previous environmental investigations related to the VICHEM site.

3.1 General Environmental Conditions

This section presents an overview of general environmental conditions identified at the VICHEM site.

- As described in Section 2.0, the VICHEM site consists of approximately 3 acres.
- Ecological resources identified on the VICHEM site by HLA are very limited:
 - Approximately 50 percent (1.5 acres) of the VICHEM site is covered with buildings, concrete, paving, or other structures.
 - Approximately 47 percent (1.4 acres) of the VICHEM site is dominated by barren land resulting from vegetation removal activities. Dense vegetation was identified in several locations offsite adjacent to the VICHEM site boundary. This dense offsite vegetation is apparent in.
 - The remaining 3 percent (0.1 acres) of the VICHEM site is dominated by opportunistic shrub and grass species common to disturbed upland habitats. The vegetation identified onsite by HLA field personnel is dominated by tan tan (*Leucaena glauca*), opportunistic herbaceous weed species, and planted ornamentals, including a mature domestic mango tree (*Mangifera indica*).
 - Wildlife species observed onsite include two species of lizards including anoles (*Anolis acutus*) and a gecko (*Sphaerodactylus* spp.), one mammal (mongoose (*Herpestes auropunctatus*)), tadpoles of one amphibian species believed to be marine toad (*Bufo marinus*), six bird species including cattle egrets (*Bubulcus ibis*), bananaquits (*Coereba flaveola*), pearly-eyed thrashers (*Margarops fuscatus*), gray kingbirds (*Tyrannus dominicensis*), a red-tailed hawk (*Buteo jamaicensis*), and doves (species unknown), two insect types which included termites and mosquito larvae (species unknown), and one type of arachnid, an orb-weaving spider (Order *Acarina*, species unknown). No special wildlife observation techniques were employed for this phase of the project.
 - No federal or Virgin Islands endangered plants or animals have been identified or reported in the vicinity of the VICHEM site and are not likely to maintain populations within or near the VICHEM site due to a lack of suitable habitat and the influences of local land uses (Attachment A, Section 4.0).

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- No wetland habitats were identified on the VICHEM site. Wetlands were identified by U.S. Fish and Wildlife Service (FWS), National Wetlands Inventory (NWI) mapping adjacent to the VICHEM site associated with the River Gut stream channel. NWI mapping identifies the length of River Gut adjacent to the VICHEM site as PFO3A wetlands (Palustrine Forested Broad-Leaved Evergreen Temporarily Flooded) (Attachment A, Section 2.4)(Figure A-2).
- River Gut is an intermittent stream located adjacent to the northeast and southeast of the VICHEM site. Intermittent flow in this stream channel is from the north and continues in a southerly direction to its terminus at the Caribbean Sea approximately 4,500 feet downstream from the VICHEM site (Attachment A, Section 2.2).
- Based on available data, the course of River Gut appears to have been altered significantly sometime between 1964 and 1971. The River Gut stream channel observed in a 1964 aerial photograph was approximately 300 feet further east towards Route 64 and had a more winding course than the existing channel does. The original course of River Gut traversed the properties now occupied by Charlie's Concrete, Fix-It-Right Transmission, King's Automotive, and Virgin Islands Paving. The River Gut channel, observed in a 1971 aerial photograph, had been moved to its existing pathway adjacent to the VICHEM site. The channel is straighter and appears to be wider than the channel observed in the 1964 photograph (Attachment B).
- The VICHEM site falls entirely within the 100-year floodplain of River Gut as mapped by the Federal Emergency Management Agency (Attachment A, Section 2.3)(Figure A-3).
 - The watershed associated with the River Gut floodplain within and upstream of the VICHEM site has a total area of approximately 6 square miles (Attachment A, Section 2.6)(Figure A-4).
- In general, surface runoff on the VICHEM site flows across the site from the south and southwest toward the northeast and southeast to River Gut (Attachment A, Section 2.1)(Figure A-1). Stormwater flow across the VICHEM site resulting from an intense 4-hour rainstorm was between 6 inches and 2 feet deep.
 - An earthen berm partially separates the runoff from the aboveground storage tank farm in the western part of the VICHEM site from the remainder of the site. On the western side of the berm, runoff drains from southwest to northeast and is captured by two storm drain systems (Attachment A, Section 2.1)(Figure A-1).
 - In general, surface drainage on the eastern portion of the VICHEM site is controlled by buildings, concrete paved areas, and two storm-water drainage systems that channel collected runoff to River Gut (Attachment A, Section 2.1)(Figure A-1).
- The VICHEM site does not have a secure site fence. Much of the fence depicted on site base maps from earlier investigations is missing or is in poor condition.

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3.2 Potential Sources of Site-Related Compounds

- It was reported that wastewater, spills (ESI 1987), and cooling water (EPA 1986) related to operations in the process area were channeled to an underground storage tank referred to as the "process pit" (Figure 2). The process pit is described in the Work Plan. A system of drains channeled materials to the process pit. The process pit was connected to the central storm drain system which discharges to River Gut. According to ESI, the process pit was filled with concrete in 1985.
 - Samples collected from the portion of the central drainage system associated with the process pit by ESI in 1985 identified material that may be related to the process pit discharge. Table 2 presents a summary of environmental sampling in the process pit and central storm drain area. The open drainage channels associated with the process pit area were observed to contain sediments. These channels were also observed to fill with water during storm events and in some places were observed to pond water for more than a week after the last reported rainfall. The observed area of ponded water was approximately 8 feet long by 2 feet wide by 2 feet deep. Amphibian larvae (approximately 100 dark-colored tadpoles all less than three centimeters in length) and mosquito larvae were observed by HLA field personnel in the pooled water in March 1995 and again in May 1995.
- During the April 1995 reconnaissance of the VICHEM site, HLA field personnel observed drops of a petroleum-like substance leaking from the drain valve on the AST labeled "Tank 5." Approximately 1 square foot of stained soil was observed below the leak. HLA field personnel adjusted the valve and the dripping stopped.
- 1995 HLA sampling results identified VOCs in near surface soils in the area of the AST farm (Section 4.0 of the Data Summary Report) that may be related to petroleum storage in the ASTs.
- During field activities, HLA personnel identified a concrete pit located approximately 15 feet from the southeastern side of the laboratory and warehouse (Figure 2). Based on the design of this pit, it appears to be a settling tank similar to those used for septic systems. There is no evidence that VICHEM site-related substances may be associated with this concrete pit.

3.3 Pathway For Potential Sources

Three pathways were identified for potential VICHEM site-related compounds to become available to the onsite ecological receptors identified in Section 3.4. These pathways are:

- 1) Direct contact by a receptor with the source.
- 2) Possible distribution of compounds associated with sediments or soils to other locations on the VICHEM site by stormwater (Section 3.1).
- 3) A possible pathway through ingestion of prey may exist on the VICHEM site. Evidence of termites burrowing in the soil was observed by HLA field personnel in various locations on the VICHEM site (Attachment A, Section 3.0). Termites are near the beginning of the food chain and may serve as a pathway to higher trophic level species.

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Based on a review of the analytical data for soil samples collected by HLA in 1995, it appears that the distribution of substances by storm water is not extensive across the VICHEM site. There was no indication in the 1995 sampling results that substances which may be present in storm drain sediments have been transported to other locations on the VICHEM site.

Based on a review of the analytical data for soil samples collected by HLA in 1995, the limited area of potential site-related substances identified indicates that the pathway through ingestion of prey is not likely to be a route for transport of site-related substances at concentrations of ecological concern.

3.4 Potential Ecological Receptors

The following potential ecological receptors of Site-related substances were identified:

- Areas of vegetation in the AST area and growing in the sediments in the open storm drains in the Process Pit area may come into contact with VICHEM site-related substances from the soil, sediments and/or groundwater. Because vegetation removal activities occasionally take place to clear the site, this represents a minimal ecological risk.
- Contaminated soils, if present, may be ingested or inhaled by wildlife on the VICHEM site.
- Tadpoles and insect larve, observed in the water ponded in the open drains in the process pit area and transient wildlife, such as birds, which may drink from this ponded water, may come into contact with site-related substances. In some locations the open drain channels near the process area have collected sediment which support herbaceous plant species which may be exposed to site-related substances if present in these sediments.

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4.0 EVALUATION OF FINDINGS

Based on the findings of the Phase I Ecological Assessment the risk to potential ecological receptors on the VICHEM site is anticipated to be limited. Based upon the findings presented in Section 3.0, the following assumptions can be made about the ecological implications of the potential sources, potential pathways, and potential receptors:

- As described in Section 3.3, three pathways were identified for potential ecological resources on the VICHEM site to be exposed to potential site-related substances. These pathways are:
 - 1) Direct contact by a receptor with a source.
 - 2) Sediments or soils could possibly be distributed to other locations on the VICHEM site by stormwater runoff.
 - 3) Ingestion of prey species which may have direct contact with site-related substances in soils or sediments.
- Under the conditions identified at the VICHEM site, three of the four potential sources identified in Section 3.2 have possible exposure routes to ecological resources identified within the VICHEM site boundary. These potential sources are:
 - 1) The open drainage channels of the process pit area.
 - 2) Soils in the area of the ASTs with elevated VOC concentrations.
 - 3) Stained soils associated with a discharge from the AST labeled "Tank 5".
 - There is no evidence that VICHEM site-related substances are associated with the concrete pit identified in Figure 2.
- Potential ecological receptors of possible site-related substances identified by HLA include:
 - 1) If present, VICHEM site-related compounds from soil and/or groundwater may be received by vegetation on the VICHEM site.

Because vegetation removal activities occasionally take place to clear the site, this represents a minimal ecological risk.

- 2) Contaminated soils, if present, may be ingested by animals such as termites and may pass through the food chain.

Based on a review of the analytical data for soil samples collected by HLA in 1995, the limited area of potential site-related substances identified indicates that the pathway through ingestion of prey is not likely to be a route for transport of site-related substances at concentrations of ecological concern.

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- 3) Open drainage channels around the process area sometimes fill with water and may pass VICHEM site-related compounds to animals, such as the tadpoles, observed in the water or transient species such as birds which may drink the ponded water. In some locations the open drain channels near the process area have collected sediment which support herbaceous plant species which may be exposed to site-related substances if present in these sediments.

Based on a review of environmental conditions on the VICHEM site it is assumed that the storm drain system has been flushed several times since the samples collected by ESI in 1985. It is assumed that sediments, if any, present in the stormdrain system are deposits from the surrounding soil. Based on a review of the analytical data for soil samples collected by HLA in 1995, the ecological risk associated with potential residual VICHEM site-related substances in open storm drains is assumed to be minimal.

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5.0 PHASE II RECOMMENDATIONS

Based on the findings of the Pathways Analysis Report and Phase I Baseline Risk Assessment Summary presented in Section 3.0, the potential ecological risks within the Vichem site boundaries is assumed to be minimal. It is recommended that no further action related to ecological risk assessment is necessary on the VICHEM site.

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TABLES

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Table 1. Summary of Site HistoryVirgin Island Chemical Site
St. Croix, U.S. Virgin Islands

Date	Events
May 1, 1969	Steffey leased site to Houston Chemicals
March 20, 1972	Houston assigned the lease to Caribe Chemicals, subsequently known as Pierrel
June 30, 1978	Pierrel assigned the lease to Cooper Laboratories. ICC was incorporated July 21, 1978 and the lease was assigned to ICC by Cooper in 1979
November 1, 1979	Cooper sold its stock in ICC to Berlex
1980 through 1982	Berlex uses the facility in attempt to perfect a quinidine process. By the end of 1982 the plant was permanently closed.
November 27, 1982 through February 1, 1983	ICC removes 26,748 gallons of toluene and 6,946 gallons of xylenes for disposal at Inland Chemical, Puerto Rico. Approximately 15,000 gallons of a water solution was removed from the cistern and disposed locally.
May 17, 1983	GOVI inspection indicated no hazardous waste on site
September 14, 1984	ICC sold its assets to Virgin Island Chemical Co. (VICHEM)
09/17/84 through 10/28/84	ESI investigates soil conditions in the Loading Dock Area and AST Farm
June 5, through August 7, 1985	ESI investigates soil conditions in Drain Lines and Lab Pit area. Toluene affected soils are excavated and placed on trays in the dryer building for thermal treatment. Results of treatment are documented through periodic sampling.
June 14, through July 19, 1985	ESI collects sludge and liquid samples from Lab Pit and Process Pit. Samples submitted to ICMI for various analyses
September 9, 1985	USEPA collects samples from Dryer and Lab Pit for PPL analysis
December 5, 1985	ICC disposes of 192 drums of waste at Chemical Waste Management in Emelle, Alabama
February 19, 1986	ESI collects samples from River Gut. Analyzed for metals, cyanide, phenols and VOCs. A few metals were detected
March 12, 1986	ESI collects liquid samples from nine ASTs for characterization by ICMI
March 13, 1986	USEPA collects three additional samples from Gut, two from lab pit and one from northern onsite well. ESI obtains splits.
June 2, 1986 through March 10, 1987	ESI prepares waste profiles for 67 drums.
January 31, 1989	USEPA performs a Preliminary Assessment. At this time, the site was occupied by St. Croix Security Kennels and VIAG fuels, Inc.
March 30, 1989 through April 30, 1991	USEPA plans and performs waste removal activities. Final disposal of hazardous materials reportedly completed by 10/24/91
September 17, through 19, 1989	Hurricane Hugo strikes
February 28, 1991	NUS collects groundwater, soil and sediment samples as part of the Preliminary Assessment/Site Investigation
December 11, 1991	Draft PA/SI report issued by NUS

Table 2. Summary of Environmental Sampling

Former Process Pit
Virgin Island Chemical Site
St. Croix, U.S. Virgin Islands

Sample Name	Sample Date	Matrix	Collect by/ Analyzed by	Laboratory Sample No.	Parameters Analyzed	Substances Detected ¹
Pit-Duplicate	06/14/85	Liquid	ESI/ICMI	42885	Not analyzed	Insufficient sample volume to analyze
Pit Sludge	06/14/85	Sludge	ESI/ICMI	42886 & 42887- Composite	VOCs; Pest; PCBs; AECs; B/Ns; metals; CN; phenol	As(40); Cd(22.8); chloroform(220); Cr(592); Cu(327); CN(1.44); Pb(688); Hg(2.73); methylene chloride(125); Ni(134); phenol(9.01); toluene(1,560); Zn(3,594); benzene methanol ^T (15,000 ^l); benzyl acetate ^T (170,000 ^l); chloromethylbenzene ^T (4,400 ^l); 1-chloro-2-methylbenzene ^T (40 ^l); diphenyl methanone ^T (30,000 ^l); 9H-fluorene-9-one ^T (3,000 ^l); 1,1'-(oxybis (methylene)bis) benzene ^T (4,000 ^l)
Pit Sludge	06/14/85	"White Lump"	ESI/ICMI	42888	Unknown	No laboratory report provided
St. Croix	07/19/85	Water	ESI/ICMI	44418	VOCs; Pest; PCBs; B/Ns; AECs; metals; CN; phenol	Benzene(0.04); Cd(0.003); Cr(0.027); Cu(0.153); CN(0.053); Pb(0.011); Hg(0.001); Ni(0.08); phenol(0.161); Ag(0.008); Th(0.029); toluene(0.38); Zn(4.85); benzaldehyde ^T (3.0 ^l); chloromethyl benzene ^T (0.3 ^l); benzene methanol ^T (24 ^l); phenyl acetate ^T (26 ^l); diphenyl methane ^T (0.4 ^l); 1-1'-(oxybis (methylene)bis benzene ^T (0.4 ^l);
VI25-SED5	02/28/91	Soil	NUS/Compu -Chem	BGL	VOCs; AECs; B/Ns; Pest; PCBs; metals	2-Butanone(0.085 ^l); xylenes(0.086 ^l); 2-methylnaphthalene(0.63 ^l); acenaphthene ^l); fluorene ^l); phenanthrene ^l); DNBP ^l); fluoranthene ^l); pyrene ^l); BBP ^l); B2EHP(2.2 ^l); γ-BHIC ^l); aldrin(0.012 ^l); heptachlor epoxide(0.0048 ^l); endosulfan I(0.004 ^l); dieldrin(0.0041 ^l); 4,4'-DDT ^l); methoxychlor ^l); -chlordan(0.0035 ^l); γ-chlordane(0.0061 ^l); Al(9,400); Sb(26.6 ^l); As(8 ^l); Ba(48.6); Ca(51,200); Cr(57.6 ^l); Co(13.8); Cu(367); Fe(183,000); Pb(466); Mg(4,740); Mn(925); Ni(47.8 ^l); K ^l); Na ^l); V ^l); Zn(1,500 ^l)

Notes:

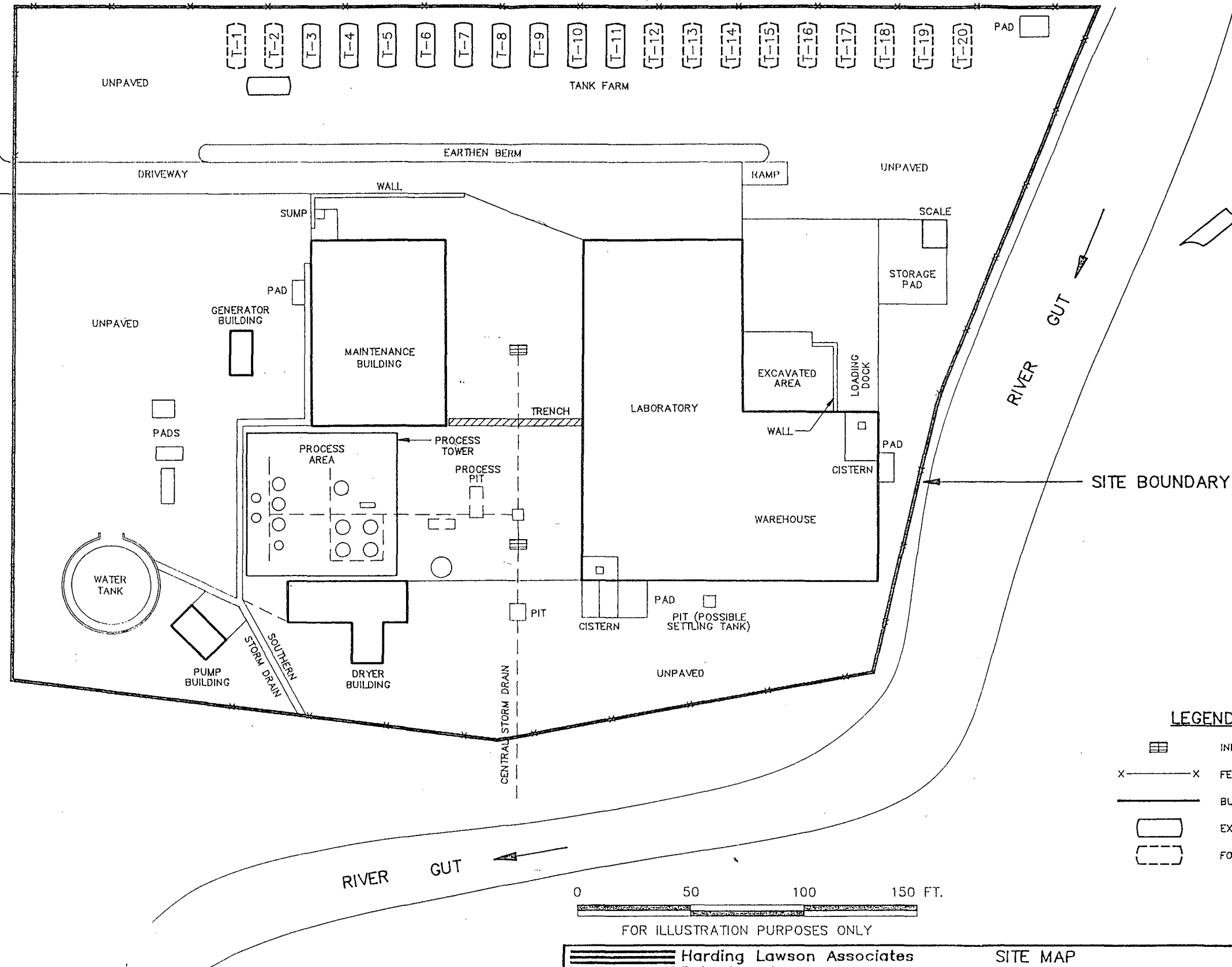
- ¹ Reported concentrations in parentheses, presented in parts per million (ppm).
^l Estimated concentration
^T Tentatively identified compound
B/N Base/neutral extractable compound
AEC Acid extractable compound
BTEX: Benzene, toluene, ethylbenzene and xylenes
PCB Polychlorinated biphenyls
Pest Pesticides
VOC Volatile organic compound

\\WORK\29872\ECOMPS\PROCSS.TAB

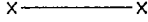
HARDING LAWSON ASSOCIATES

303308

ROUTE 66
MELVIN EVANS HIGHWAY



LEGEND

-  INLET
-  FENCE
-  BUILDING
-  EXISTING AST
-  FORMER AST

0 50 100 150 FT.

FOR ILLUSTRATION PURPOSES ONLY



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SITE MAP

VIRGIN ISLAND CHEMICAL SITE
ST. CROIX, U.S. VIRGIN ISLANDS

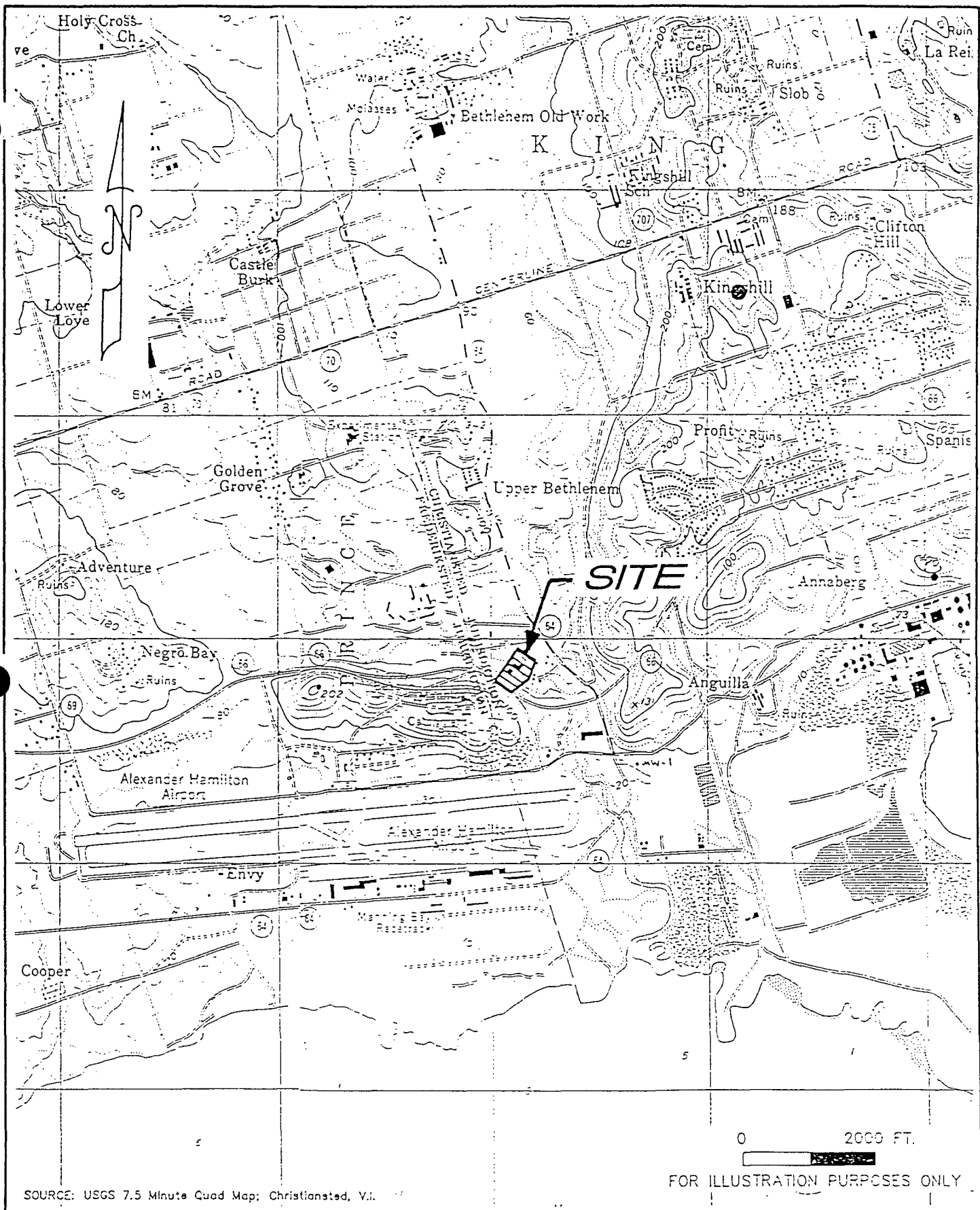
FIGURE

2

SOURCE:
PROPOSED ICC SOIL SAMPLING LOCATIONS BY ENVIRO-SCIENCES, INC. DATED: 6/19/86 AND
SITE MAP, VI CHEMICAL, ST. CROIX, U.S.V.I. BY NUS CORPORATION DOCUMENT 02-9101-04-SI, UNDATED

DRAWN JSW	JOB NUMBER 29872.15.1	APPROVED	FILE ICCBSITE	DATE 8/11/95	REVISED NO.

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DRAWN
 JSW

JOB NUMBER
 29872.13.2

SITE LOCATION MAP

VIRGIN ISLAND CHEMICAL SITE
 ST. CROIX, U.S. VIRGIN ISLANDS

APPROVED

FILE
 S-BASE

303311

DATE
 6/6/95

FIGURE

1

REVISED NO.

ATTACHMENT A

303312

ATTACHMENT A
ENVIRONMENTAL RESOURCES INVENTORY

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A-4	Regional Watershed Map
A-5	Habitat Map
A-6	Soils Map
A-7	Topographic Map
A-8	Land Use Zoning Map
A-9	Coastal Zone Boundary Map

ATTACHMENT A
VIRGIN ISLAND CHEMICAL SITE
PHASE I ENVIRONMENTAL RESOURCES INVENTORY

1.0 INTRODUCTION

The inventory of environmental resources on the Virgin Island Chemical (VICHEM) site was developed to support and provide data for the Pathways Analysis and Phase I Baseline Risk Assessment Summary. The Environmental Resources Inventory (ERI) of the VICHEM site documented the following environmental resources:

- Surface-Water Resources (surface-water drainage, streams, floodplains, and watershed)
- Habitat
- Species of Concern
- Geology and Hydrogeology
- Soils
- Topography
- Land Use
- Climate and Air Quality

The ERI presented in the following sections of this attachment utilized existing materials such as aerial photography, wetlands mapping, soils mapping, floodplain mapping, existing water resources data, topographic quadrangles, territorial and federal lists of species of potential concern, municipal zoning and tax maps, and municipal records. In addition to the literature review, HLA conducted a limited visual field reconnaissance of the VICHEM site in March 1995 to confirm and supplement the findings of the literature review.

2.0 SURFACE-WATER RESOURCES

2.1 Surface-Water Drainage

The general surface-water flow direction across the VICHEM site is from southwest to northeast. Runoff which does not evaporate, percolate into the soil, or evapotranspire from the vegetation, discharges to the River Gut stream channel (Section 2.3). As discussed in Section 2.2, a majority of the storm-water on the VICHEM site is captured by the storm-water drainage system and is channeled off-site to the southeast.

An earthen berm approximately 2 feet high partially separates the aboveground storage tanks in the western part of the facility from the remainder of the VICHEM site (Photograph 3). On the western side of the berm, runoff drains from southwest to northeast. Two surface drainage erosion gullies were identified along the northeastern side of the VICHEM site. These erosion gullies drain storm water from the VICHEM site beneath the fence to the northeast. Surface drainage on the eastern portion of the VICHEM site is controlled by the buildings, concrete paved areas, and two storm drains that channel runoff to the River Gut along the southeastern VICHEM site boundary. River Gut drains to the Caribbean Sea, approximately 4,500 feet to the south. Figure A-1 presents general surface water flow directions across the VICHEM site.

2.2 Storm-Water Drainage

As shown in Figure A-1, two storm drains are located on the VICHEM site: the central and southern storm drains. The central storm drain collects water from the concrete surface between the laboratory and maintenance buildings and from the process area between the maintenance and dryer buildings. Two storm-water inlets collect runoff from the concrete surface and the water then flows southeast towards the VICHEM site fence. In addition to the two inlets, water is believed to enter from the open drainage conduits around the process area, from the process pit area, and from a pit located in the central storm drain pathway, immediately to the southeast of the concrete surface.

The southern storm drain is an open concrete-lined channel that runs along the southern wall of the Maintenance Building and the edge of the Reactor Area. Runoff from the water tank area enters this storm drain at the southern corner of the process area. Both storm drains discharge off-site to the southeast.

Along the northern side of the VICHEM site fence, two surface erosion gullies were identified which carry water from the VICHEM site to the northeast. One is located near the northern corner of the VICHEM site and the other is at or near the location of the former lab drain.

2.3 Streams

River Gut is an intermittent stream that is adjacent to the northeastern, eastern and southeastern boundaries of the VICHEM site. The River Gut channel adjacent to the VICHEM site varies in width from approximately 35 feet to 60 feet. River Gut merges with Bethlehem Gut approximately 800 feet southeast of the VICHEM site, before draining into the Caribbean Sea, approximately 4,500 feet to the south.

2.4 Wetlands

No wetlands were identified on the VICHEM site. The area of the River Gut stream channel that borders the VICHEM site is designated by U.S. Fish and Wildlife (FWS) National Wetlands Inventory (NWI) mapping as PFO3A (Palustrine Forested Broad-Leaved Evergreen Temporarily Flooded). PFO3A wetlands are described as freshwater wetlands less than 20 acres and less than 2 meters deep at low water; forested with woody vegetation 20 feet or taller; broad-leaved evergreen vegetation; and with floods most years for less than 2 weeks during the growing season, and usually dry by mid-growing season (Cowardin, 1979). The NWI classifications of River Gut adjacent to the VICHEM site are shown on Figure A-2.

2.5 Floodplains

The entire VICHEM site lies within the 100-year floodplain of River Gut as mapped by the Federal Emergency Management Agency (FEMA) (1992). FEMA has not established base flood elevations or flood hazard factors for this area. The 100-year floodplain in the area of the VICHEM site, as mapped by FEMA, is presented in Figure A-3. During a heavy rain storm on May 9, 1995, that lasted approximately 4 hours, HLA field personnel documented runoff 0.5 to 2 feet deep flowing over a majority of the VICHEM site (Photographs 3 and 4).

2.6 Regional Watershed

The River Gut watershed upstream of the VICHEM site drains an area of approximately 5.89 square miles. The regional watershed boundaries for River Gut are presented in Figure A-4.

3.0 HABITAT

The entire VICHEM site is characterized as upland habitat. Based on observations made during the ecological field reconnaissance in March, 1995, approximately 50 percent of the VICHEM site is developed and is covered by buildings, concrete, and process structures. The other 50 percent of the VICHEM site is a mix of barren land (approximately 47 percent) and vegetated areas (approximately 3 percent). Figure A-5 shows the habitats on the VICHEM site.

Prior to HLA's investigation, undeveloped areas within the VICHEM site fence were overgrown with vegetation dominated by *Leucaena glauca* (tan tan). Most of the vegetation within the site area was removed with excavation equipment in January 1995 to facilitate VICHEM site investigation activities. Dense vegetation was identified adjacent to the VICHEM site to the north and east. This dense offsite vegetation is apparent in Photographs 2, 3, 4, and 7.

Rudy G. O'Reilly, Jr., an extension agent with the University of the Virgin Islands Cooperative Extension Service located on St. Croix, assisted HLA with the identification of the flora and fauna present on the VICHEM site.

Flora

The inventory of environmental resources was performed in April 1995, after vegetation removal activities had taken place. During the Phase I site reconnaissance the majority of the VICHEM site was clear. Some vegetation had begun to grow back and some had not been cleared originally because it was either too large or too close to VICHEM site structures to be taken out.

Much of the VICHEM site not covered by bare ground, structures, or paved concrete was found to be dominated by *Panicum maximum* (guinea grass) and various other common grasses. Along the sides of buildings and sprouting up in many of the open areas of the VICHEM site was *Leucaena glauca* (tan tan). This species apparently dominated the VICHEM site before vegetation clearing activities were performed. *Celaena petandra* (monkey-no-climb), cattle tongue (scientific name unknown), and *Andira inermis* (common name unknown) were identified adjacent to the northwestern side of the laboratory building. A single mature *Mangifera indica* (mango) tree was identified near the scale in the northern corner of the VICHEM site. Along the southwestern side of the laboratory building, vegetation is growing in the remnants of a planted garden. Identified in this area were *Setcreasea purpurea* (purple queen), *Kalanchoe blossfeldiana* (kalanchoe), *Capparis flexuosa* (limber caper), and *Pedilanthus tithymaloides* (Christmas candle), all of which are planted ornamentals.

Fauna

Animal life identified on the VICHEM site during HLA's April 1995 site reconnaissance consisted of six species of birds, one mammalian species, one amphibian species, two reptiles, one species of spider, and two species of insect. *Coereba flaveola* (bananaquit) and *Margarops fuscatus* (pearly-eyed thrasher) were the two most prevalent bird species observed onsite. *Tyrannus dominicensis* (gray kingbird) was observed occasionally on the edge of the VICHEM site property. An individual *Buteo jamaicensis* (red-tailed hawk) was observed flying over the VICHEM site. *Bubulcus ibis* (cattle egret) were occasionally seen on the VICHEM site, usually in association with a herd of free roaming domestic goats. A species of dove was also observed perching on VICHEM site buildings.

A herd of free roaming domestic goats was observed regularly grazing on the VICHEM site and drinking water from the open drainage channels around the process area. An individual *Herpestes auropunctatus* (mongoose) was observed under the tanks in the tank farm. What were believed to be *Bufo marinus* (marine toad) tadpoles were observed living in the ponded water in the surface drains around the process pit. *Anolis acutus* (tree lizard) were prevalent on the VICHEM site, often clinging to buildings, equipment, and vegetation. An individual *Sphaerodactylus* spp. (gecko species) was observed on the VICHEM site. One type of Arachnid (Orb-weaver spider, species unknown) was observed in areas of tall grass on the VICHEM site. The two types of insect observed on the VICHEM site were termites and mosquito larvae. Termite nests were observed in trees adjacent to the VICHEM site and termite trails were observed on the VICHEM site in the near surface soils and on the sides of VICHEM site buildings. Mosquito larvae were observed living in the ponded water in drainage ditches around the process pit area.

4.0 SPECIES OF CONCERN

To identify plant and animal species of potential concern on the VICHEM site, HLA used a combination of the Government of the Virgin Islands list and the U.S. Fish and Wildlife Service (FWS) lists of rare, threatened, or endangered plants and animals and a limited field reconnaissance of the VICHEM site. A formal field survey of threatened and endangered species was not conducted as part of these activities.

The Virgin Islands and federal lists of endangered plants and animals are provided in Attachment C. The lists cover species of concern for the three United States Virgin Islands, with the specific island distribution of many species noted. The species listed are for the entire island. The lists, however, are not applicable to a specific location and do not indicate habitat type utilized by the species of concern. The lists presented in Attachment C are for reference and do not indicate the presence of the species of concern on the VICHEM site.

The field reconnaissance conducted in April 1995 did not identify any habitat on the VICHEM site considered to be suited to support rare, threatened, or endangered species populations. The probability that species listed as being threatened or endangered are present within or utilize the VICHEM site as an important part of their habitat is believed to be low. Development on the VICHEM site, the channelization of River Gut, and the intense development and activity on properties adjacent to the VICHEM site would likely have eliminated any native populations of species of concern from the area. In addition, the industrial nature of the VICHEM site and activities on adjacent sites do not create favorable conditions for sensitive species to reestablish themselves.

5.0 GEOLOGY AND HYDROGEOLOGY

5.1 Regional Geology and Hydrogeology

The Island of St. Croix is composed primarily of limestone and volcaniclastic sediments. It is located at the juncture of the Greater Antilles and Lesser Antilles Geologic Provinces in the northeastern corner of the Caribbean Sea. The island lies upon a submarine platform that is separated from Puerto Rico and the Virgin Islands Platform by the Virgin Islands Basin and the Anegada Passage (Gill, 1989).

The VICHEM site is located in the central basin of St. Croix. The central basin is a graben structure containing primarily late Cretaceous Age and younger calcareous sediments. The four major geologic formations of the central basin are the Mt. Eagle Group, the Jealousy Formation, Kingshill Limestone, and alluvium.

According to D.G. Jordan (1975), groundwater discharges to River Gut from the thin alluvium between Holy Cross Church and Centerline Road (approximately 3,000 feet upstream of the VICHEM site), but frequent replenishment of the aquifer is necessary to maintain base flow. In the drought of 1964, studies revealed that this alluvial aquifer, without replenishment, contributed approximately 10 million gallons to the base flow of River Gut in smaller quantities over a 6-month period.

Jordan (1975) also reports that flow in the River Gut stream channel is recharged to the alluvium aquifer almost continuously between Centerline Road and the tidal estuary of River Gut, which includes the area of River Gut adjacent to the VICHEM site. The alluvium is predominantly low permeability, montmorillinitic clay with relatively higher permeability layers of sand and gravel, ranging from 1 to 8 feet in thickness. The interconnection between the higher permeability layers is unknown. Geraghty and Miller (1983) reported that the alluvial aquifer appears to be under semi-confined conditions.

5.2 VICHEM Site Geology and Hydrogeology

The stratigraphy beneath the VICHEM site appears to be consistent with the alluvial deposits described previously by USGS and others. HLA boring logs indicate that the VICHEM site is underlain by at least 25 feet of sandy clay, silty clay with lenses of gravelly sand, and silty sand. Generally, the layers appear to be discontinuous. The lowermost layer encountered is a silty sand which appears to be continuous across the VICHEM site. The top of this layer was encountered at depths ranging from 24 to 33 feet below grade.

Robinson 1972, reported two municipal supply well fields located near the VICHEM site: the Fairplain well field approximately 900 feet downgradient of the VICHEM site and the Adventure fields approximately 3,000 feet upgradient of the VICHEM site. Both of these well fields were reported to pump from alluvial deposits and the underlying Kingshill formation. Both of these well fields had declining well yields as of 1972.

Groundwater was encountered in the borings that were drilled in the laboratory expansion area (ESI, 1984). Groundwater was reported at approximately 20 feet below grade (approximately 10 to 20 feet above mean sea level (MSL). Groundwater encountered during HLA's 1995 VICHEM site investigation was between 20 and 27 feet below grade.

6.0 SOILS

Soil type was determined from a soil map prepared by the Natural Resources Conservation Service (NRCS). John Davis of NRCS stated that the soils map and descriptions have come from 4 years of recent field work and that the NRCS map has replaced the older 1970 United States Department of Agriculture (USDA) Soil Conservation Service (SCS) map. The NRCS soil survey is still in its preliminary stage and has not been published yet (NRCS, 1995). The soil types in the area of the VICHEM site are presented in Figure A-6.

The northern and central portions of the VICHEM site lie on Glynn gravelly loam, 5 to 12 percent slopes. The Glynn series consists of deep, gently sloping, well-drained soils that formed in clay loam and clayey sediments over stratified sandy loam, clay loam, and clay. These soils occur on alluvial fans.

A typical profile has an approximately 12-inch thick surface layer of dark-brown clay loam. The upper part of the subsoil is a dark yellowish-brown, firm clay while the lower part is a dark yellowish-brown and yellowish-brown, friable clay loam. The substratum begins at a depth of approximately 4 feet and consists of a yellowish-brown and strong-brown, stratified sandy loam, clay loam, and clay.

The southern portion of the VICHEM site lies on Arawak gravelly loam with 5 to 12 percent slopes. This soil type is very stony. Additional information about this soil series and soil type was not available at the time of report.

7.0 TOPOGRAPHY

The VICHEM site is located in a valley. Surface elevations at the VICHEM site range from approximately 30 to 40 feet above MSL. Land to the southwest (approximately 200 feet) and to the east (approximately 1,000 feet) of the VICHEM site slopes steeply upward to roughly 150 to 200 feet above MSL. The surface slopes gently across the VICHEM site from southwest to northeast. Ground surface just beyond the northeastern and eastern fence lines slopes steeply downward approximately 12 to 15 feet into the gut. A berm partially separates the aboveground storage tanks in the western part of the facility from the remainder of the VICHEM site. The topography of the area of the VICHEM site is presented in Figure A-7.

8.0 LAND USE

8.1 VICHEM Site

The VICHEM site is an abandoned industrial site that manufactured chemicals and pharmaceuticals in the late 1970s and early 1980s. The United States Environmental Protection Agency reported in 1989 (EPA, 1989) that after the VICHEM site was closed as a chemical manufacturing facility, it was leased for use as a kennel and for the storage of chemicals and fuel. At present the VICHEM site has no ongoing operations. Based on discussion with EPA, HLA understands that planned future use of the site is as a recycling center.

8.2 Zoning

The VICHEM site property is currently zoned for light industrial use (I-1) (Public Works, 1995). Local zoning boundaries are presented in Figure A-8.

8.2.1 Coastal Zone Management

The government of the U.S. Virgin Islands has established a two-tiered approach to the management and protection of coastal zones. Tier 1 areas are those in close proximity to and with a direct impact upon coastal zones. Tier 1 areas are subject to Coastal Zone Management Regulations, such as requirements for performing environmental assessments prior to construction activities. Tier 2 is made up of inland areas that do not have a direct impact upon the coastal zones and thus have fewer regulations than Tier 1 areas. According to Stevie Henry of the Coastal Zone Management office on St. Croix, the VICHEM site lies within Tier 2. A map showing the Coastal Zone Management boundary is presented in Figure A-9.

8.3 Surrounding Land Use

The land use surrounding the VICHEM site is a mix of open space, light industrial and heavy industrial uses. Bordering the site to the southwest is an undeveloped lot, reportedly owned by CHS Holding Company. A wooded lot with a well installed by the Virgin Islands Water and Power Authority (WAPA) that is currently not in use is located to the southeast of the site. Located approximately 800 feet to the southwest of the site is a concrete water catchment pad constructed by the U.S. Military that formerly collected rainfall runoff. The Old Golden Grove Well Field is located approximately 1,200 feet to the west of the site. Additional surrounding land uses are discussed in Section 8.4 below.

8.4 Surrounding Sites of Potential Environmental Concern

HLA identified 8 surrounding sites of potential environmental concern within approximately one quarter mile (1,320 feet) of the VICHEM property. The nearby sites of potential environmental concern include:

- Charlie's Concrete Service
- Virgin Islands Paving Company
- Fix-It-Right Transmission
- King's Automotive

- Meridian Engineering
- Virgin Islands Asphalt Products Company
- Golden Grove Adult Correctional Facility
- Zenon Construction Company

Charlie's Concrete Service

Charlie's Concrete Service (Charlie's) is located approximately 100 feet east of the site, across River Gut. Charlie's manufactures Redi-Mix concrete.

Virgin Islands Paving Company

Virgin Islands Paving Company (VIPCO) is located approximately 300 feet north of the site across River Gut. VIPCO manufactures asphalt.

Fix-It-Right Transmission

Fix-It-Right Transmission, an automobile repair facility, is located approximately 400 feet northeast of the site across River Gut. The property appears to have been a former service station and may contain underground storage tanks.

King's Automotive

King's Automotive (King's) is located approximately 400 feet east of the site across River Gut. King's currently operates as an automobile repair and body shop.

Meridian Engineering

Meridian Engineering is located approximately 600 feet northwest of the site. This site is listed as a Facility Index Site (Finds), which indicates that the site may appear on other regulatory lists.

Virgin Islands Asphalt Products Company

Virgin Islands Asphalt Products Company (VIAPCO) is located approximately 700 feet northwest of the site across River Gut. VIAPCO specializes in the installation of asphalt roads, driveways, and parking areas.

Golden Grove Adult Correctional Facility

The Golden Grove Adult Correctional Facility is located approximately 1,100 feet northwest of the VICHEM site.

Zenon Construction Company

Zenon Construction Company (Zenon) is located approximately 1,300 feet southeast of the site. Zenon provides construction materials and equipment for building and repair projects.

9.0 CLIMATE AND AIR QUALITY

The climate of St. Croix is dry and tropical, with average monthly temperatures between 75° and 85°F. Throughout much of the year, the trade winds blow steadily out of the northeast at 10 to 20 miles per hour (Multer, 1974).

Data on precipitation and temperature were obtained from the Alexander Hamilton Airport, approximately 1/2 mile southwest of the site. Average total annual precipitation is 44.57 inches. Greatest rainfall occurs between August and November. According to Forman (1974), long-term average rainfall has not changed significantly over the past 112 years.

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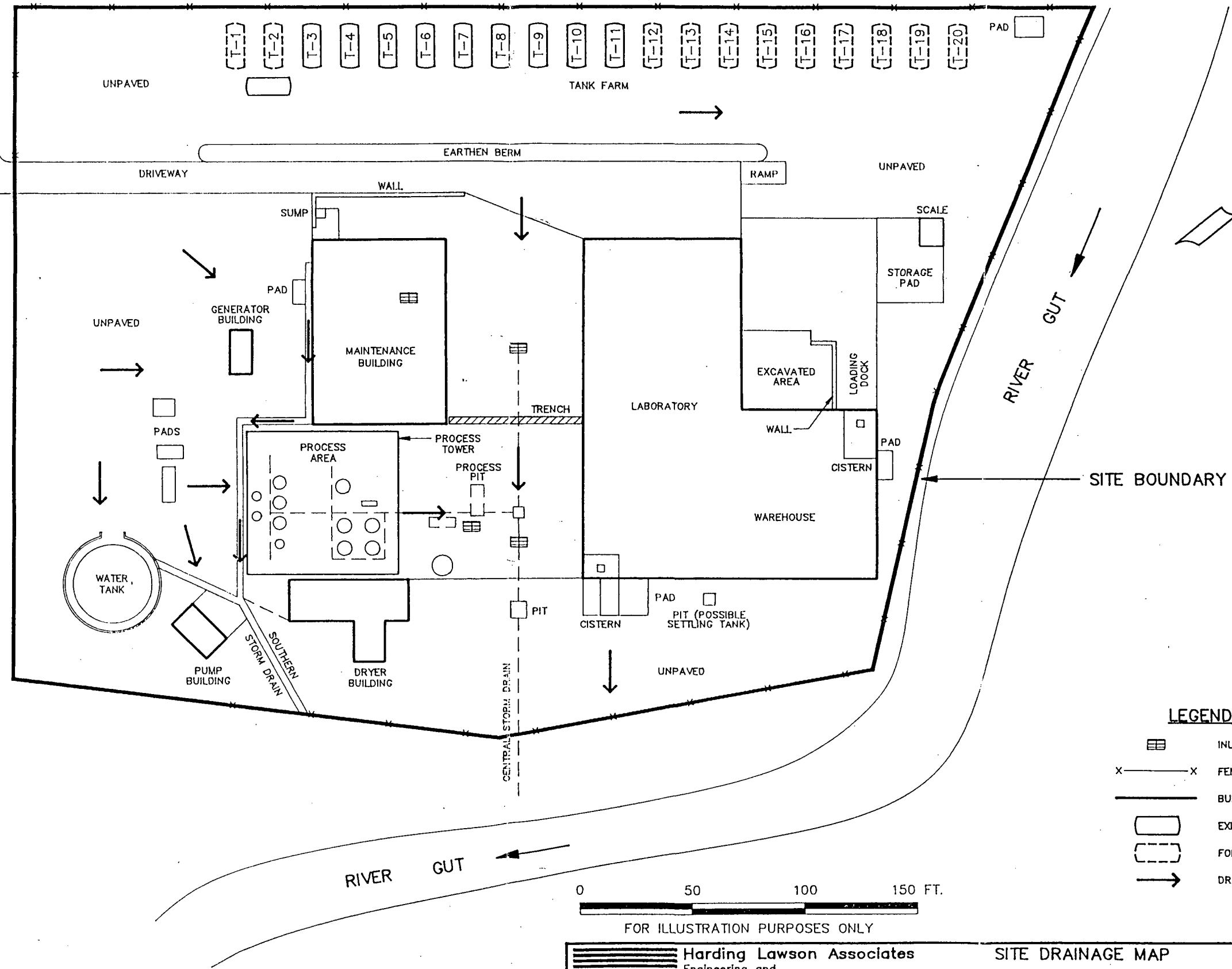
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FIGURES
ATTACHMENT A

303329

ROUTE 66
MELVIN EVANS HIGHWAY



LEGEND

-  INLET
-  FENCE
-  BUILDING
-  EXISTING AST
-  FORMER AST
-  DRAINAGE FLOW

0 50 100 150 FT.

FOR ILLUSTRATION PURPOSES ONLY



Harding Lawson Associates
Engineering and
Environmental Services
131 North Third Street
Philadelphia, PA 19106
215-627-4505
DRAWN JSW
JOB NUMBER 29872.15.1
APPROVED
FILE ICCBDRN
DATE 8/11/95
REVISED NO.

SITE DRAINAGE MAP

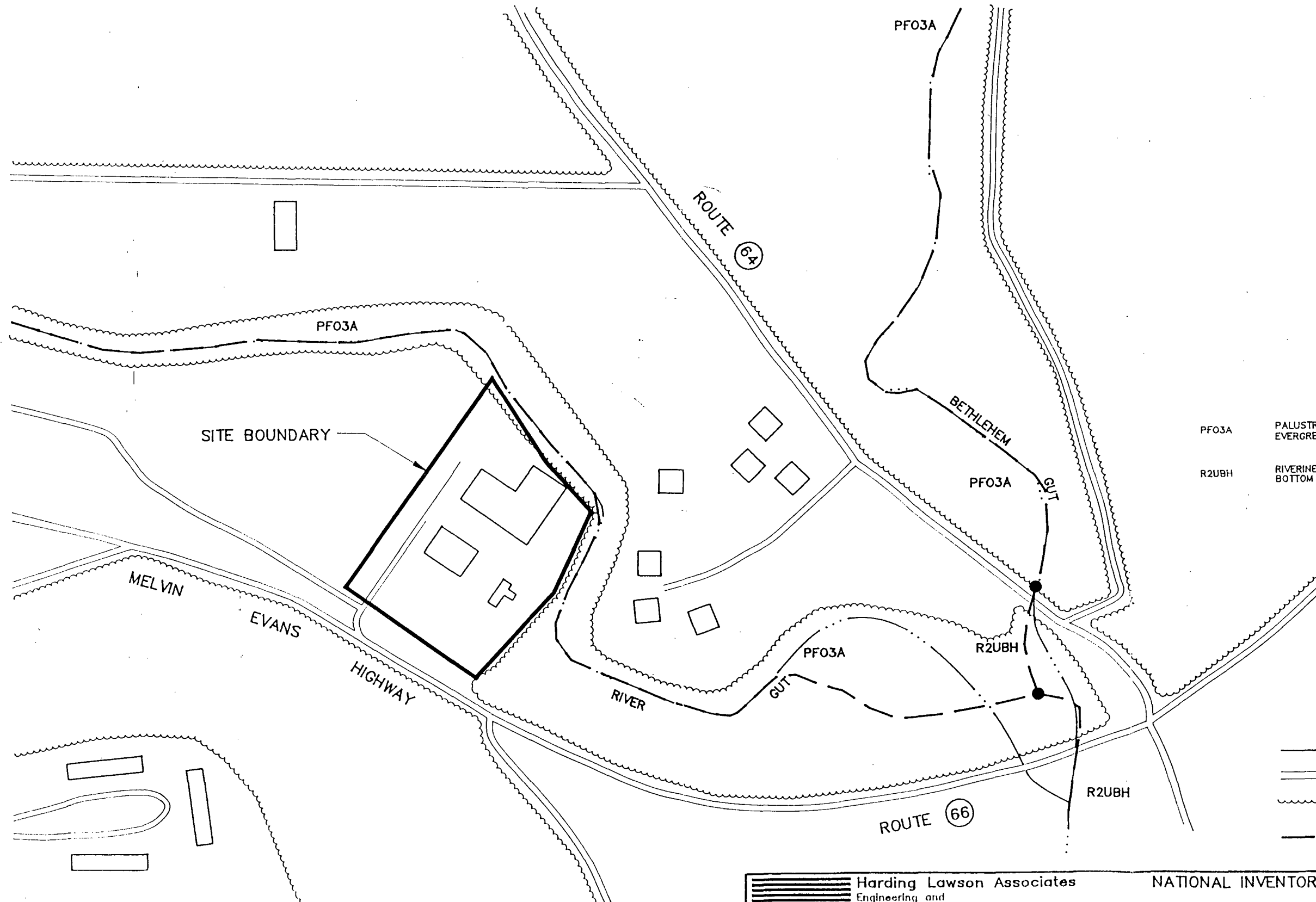
FIGURE

A-1

VIRGIN ISLAND CHEMICAL SITE
ST. CROIX, U.S. VIRGIN ISLANDS

SOURCE:
PROPOSED ICC SOIL SAMPLING LOCATIONS BY ENVIRO-SCIENCES, INC. DATED: 6/19/86 AND
SITE MAP, VI CHEMICAL, ST. CROIX, U.S.V.I. BY NUS CORPORATION DOCUMENT 02-9101-04-51, UNDATED

303330



LEGEND

PF03A PALUSTRINE FORESTED BROAD-LEAVED EVERGREEN TEMPORARILY FLOODED

R2UBH RIVERINE LOWER PERENNIAL UNCONSOLIDATED BOTTOM PERMANENTLY FLOODED

LEGEND

BUILDING

STREAM

ROAD

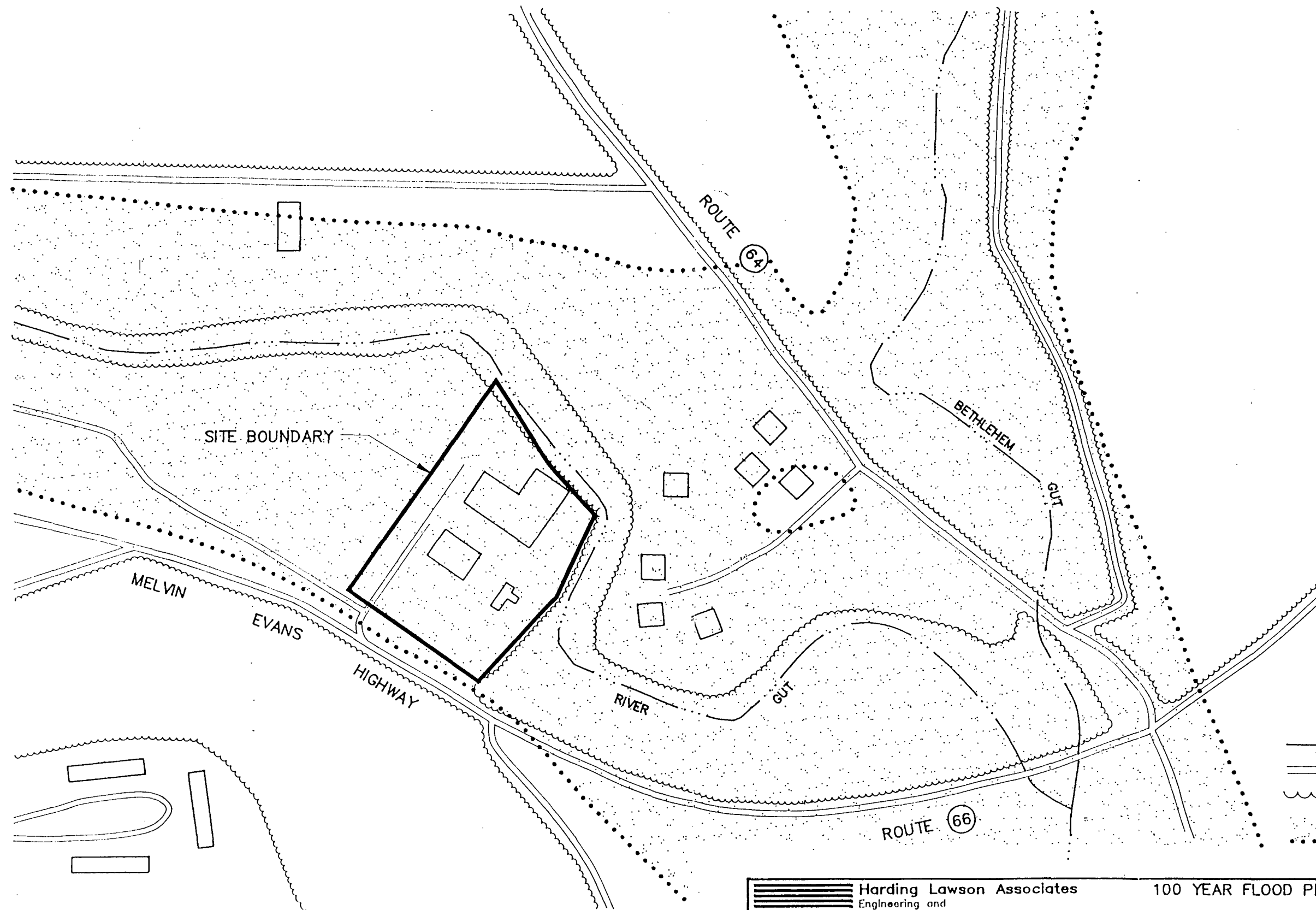
TREE LINE

PF03A WETLAND DIVIDE AND DESIGNATION

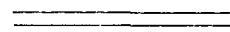
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FOR ILLUSTRATION PURPOSES ONLY

Harding Lawson Associates Engineering and Environmental Services 131 North Third Street Philadelphia, PA 19106 215-642-1570	NATIONAL INVENTORY WETLAND MAP		FIGURE	
	VIRGIN ISLAND CHEMICAL SITE		A-2	
	ST. CROIX, U.S. VIRGIN ISLANDS			
	DRAWN JSW	JOB NUMBER 29872.15.1	APPROVED	FILE ICCBNWI
		REVISED DATE		



LEGEND

-  BUILDING
-  STREAM
-  ROAD
-  TREE LINE
-  100 YR FLOOD PLAIN DIVIDE AND DESIGNATION

0 200 400 600 FT.

FOR ILLUSTRATION PURPOSES ONLY



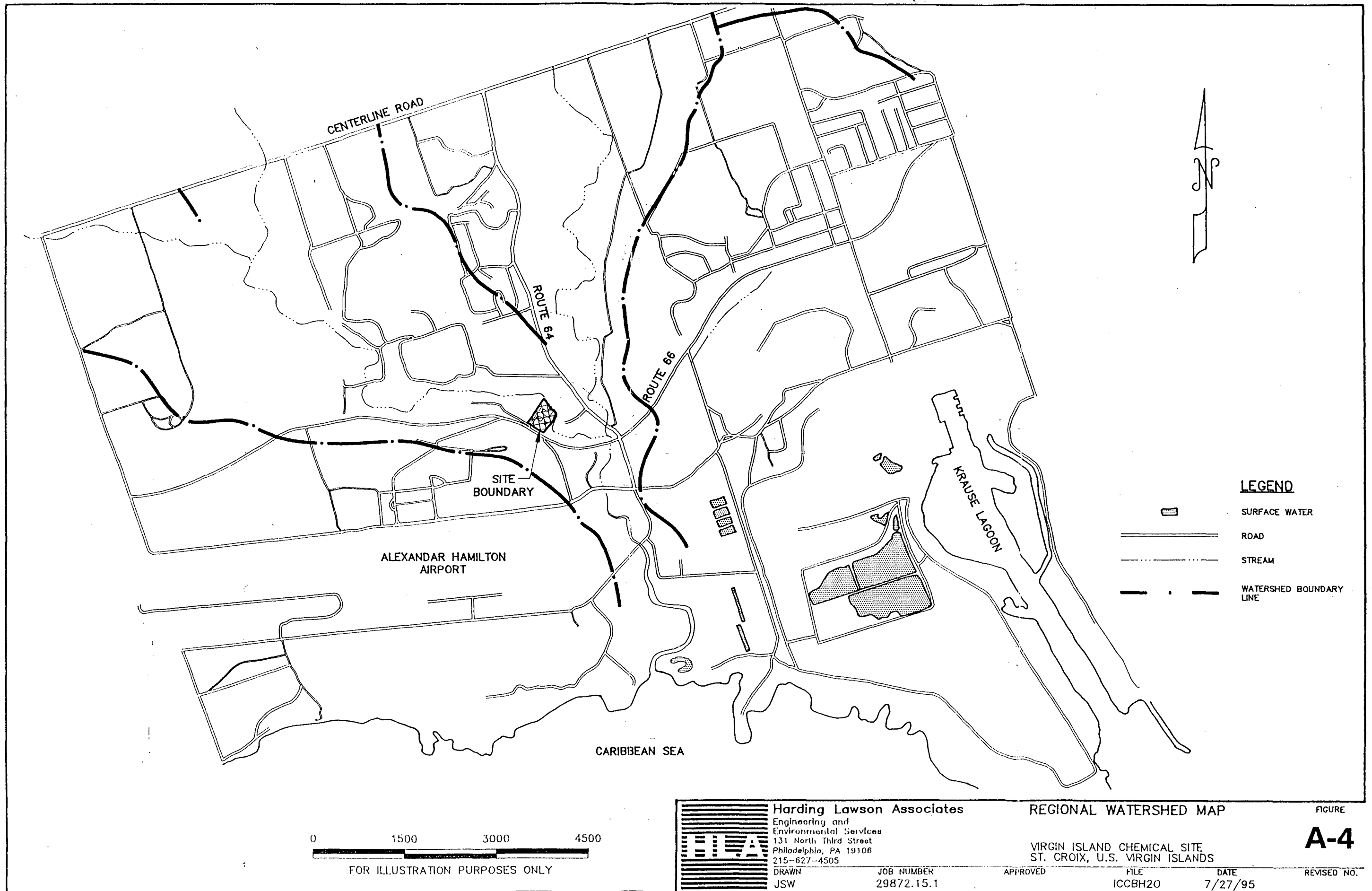
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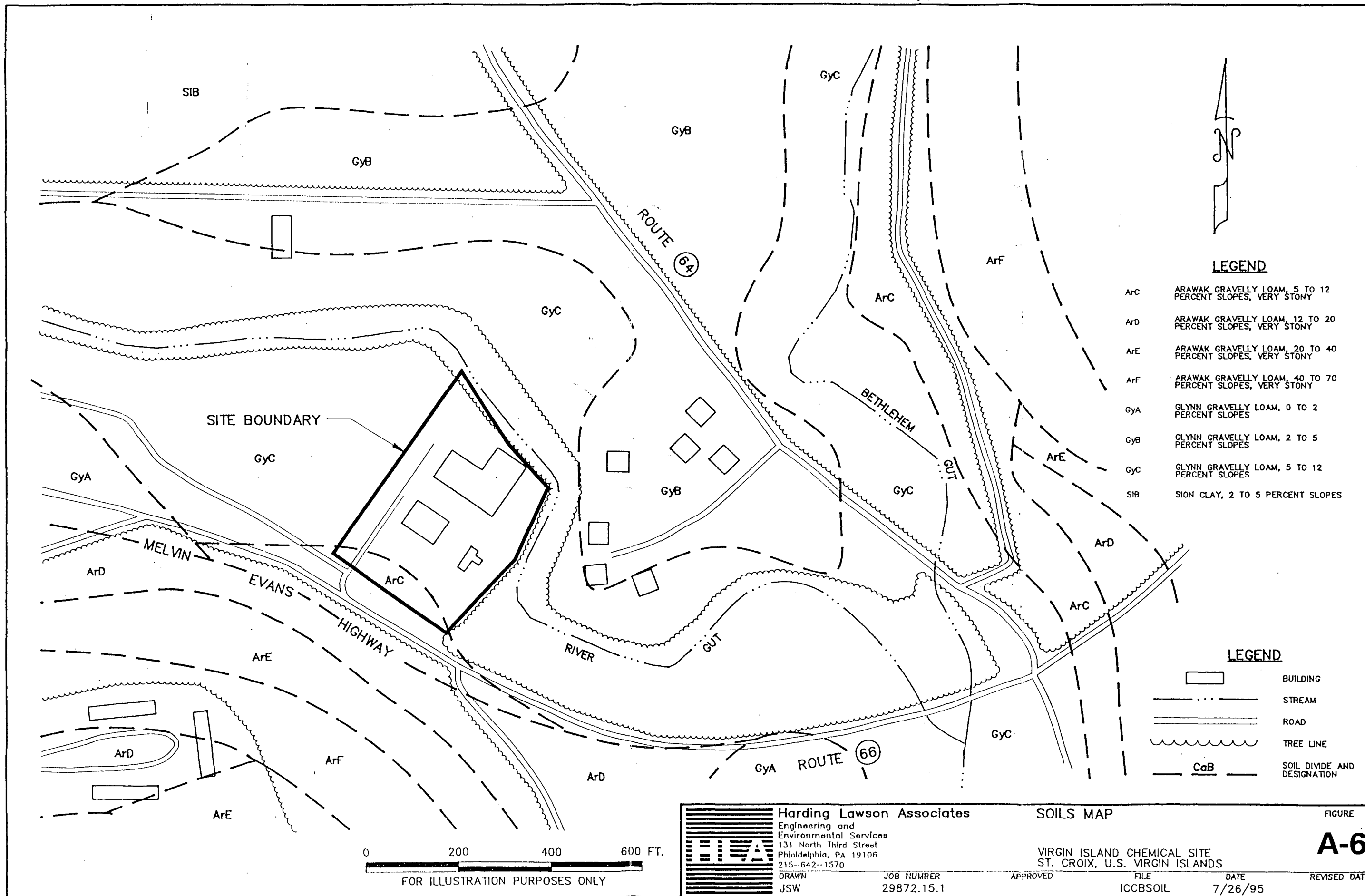
100 YEAR FLOOD PLAIN MAP

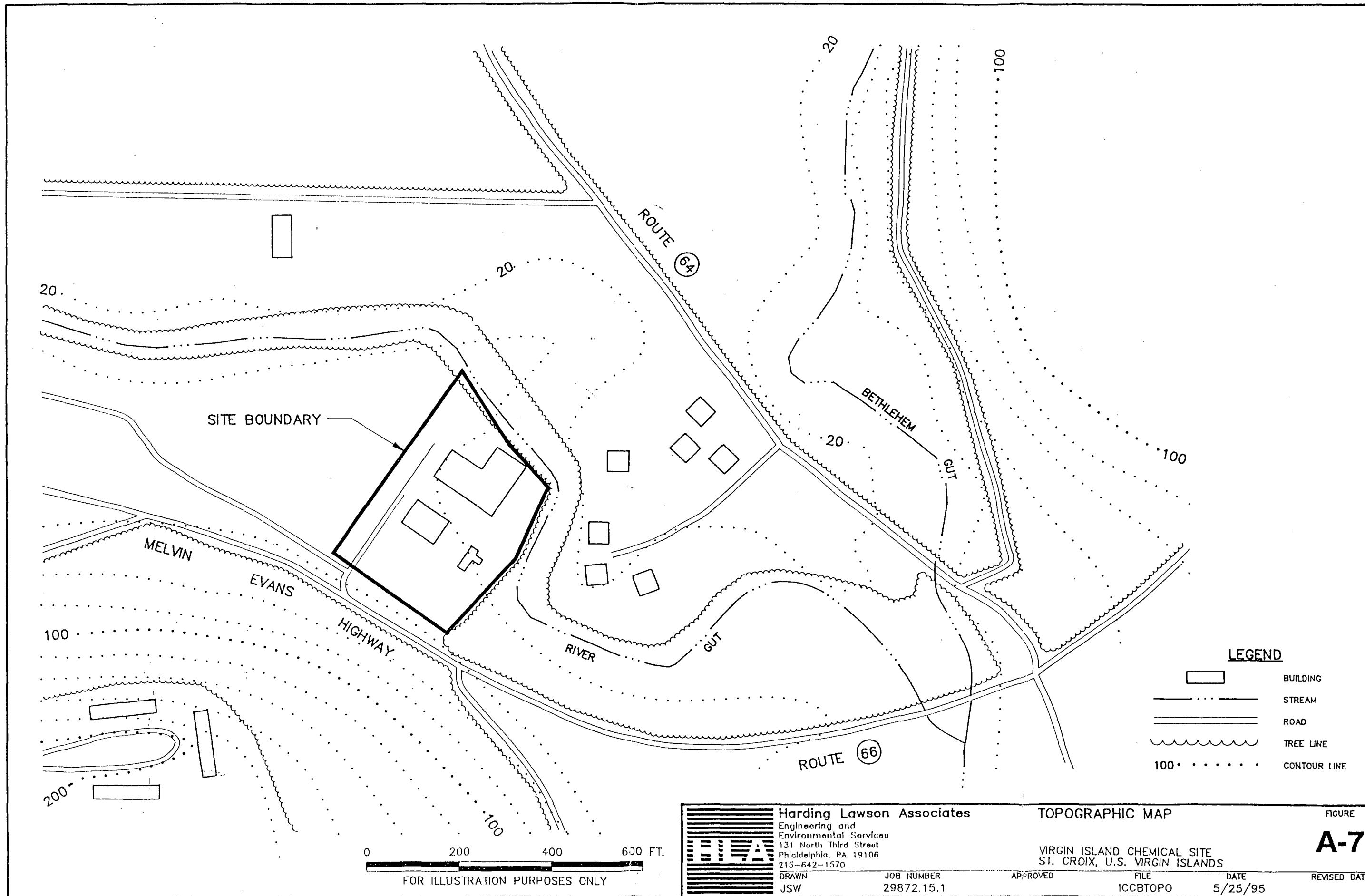
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 ST. CROIX, U.S. VIRGIN ISLANDS

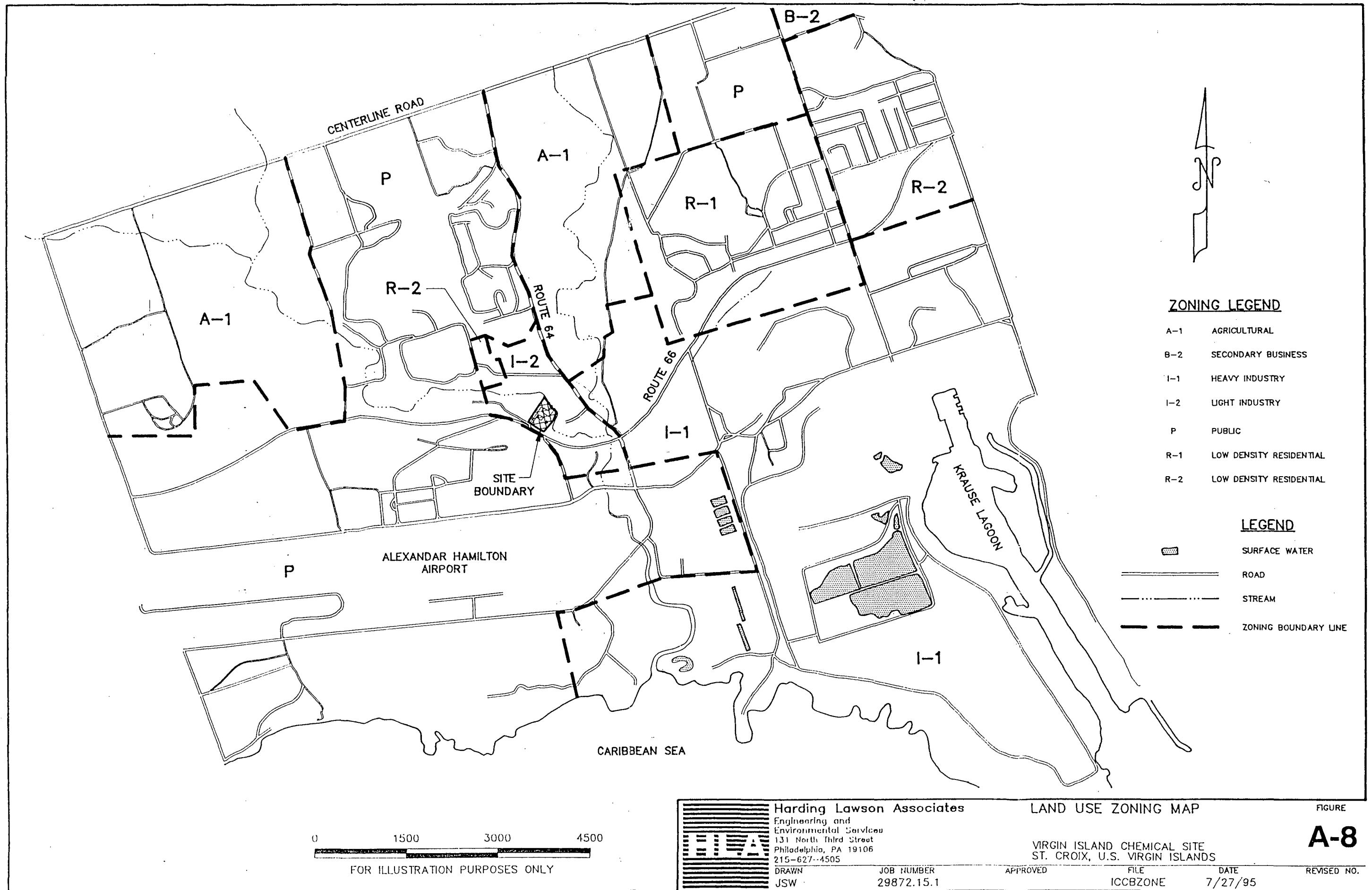
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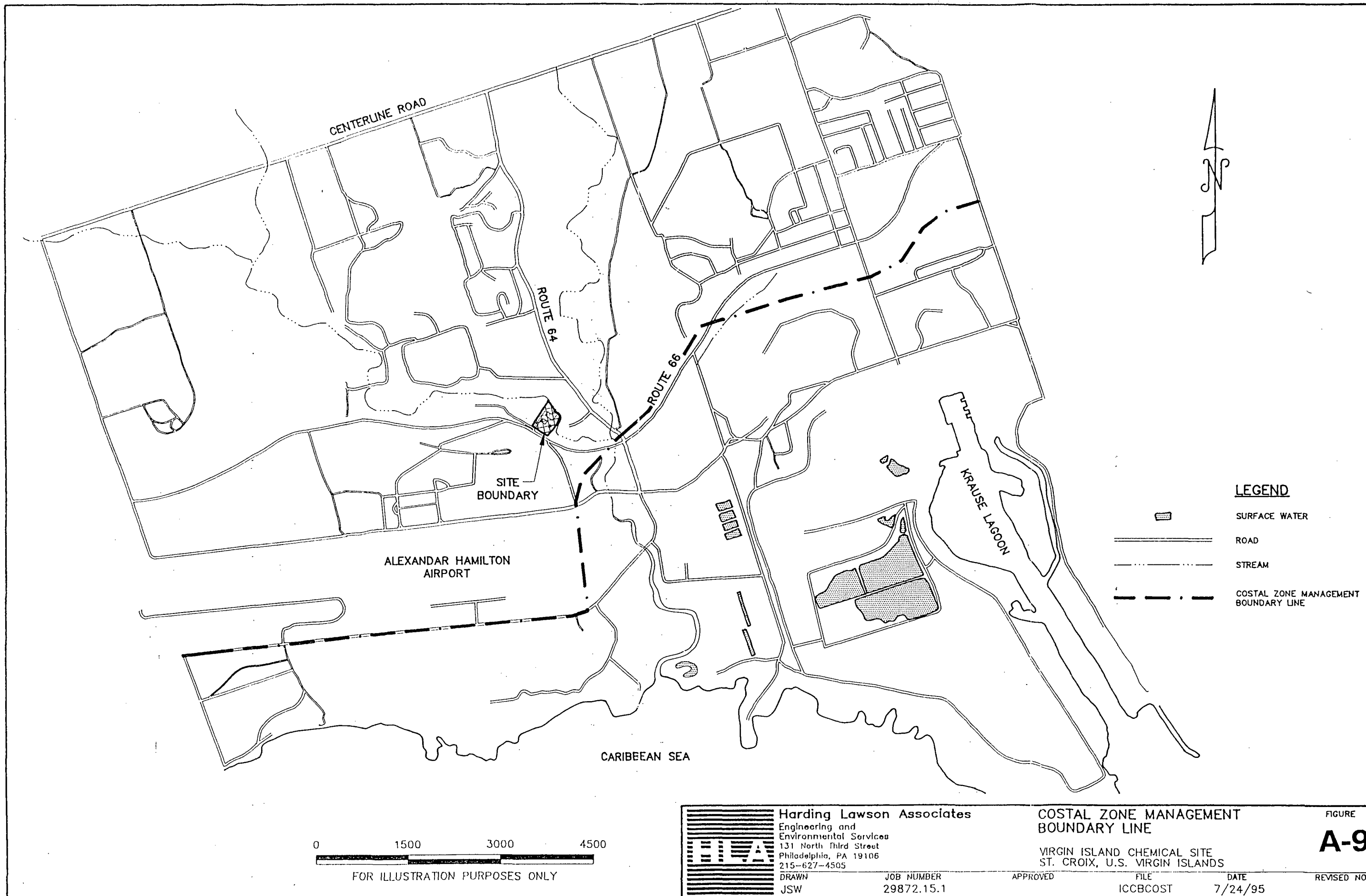
FIGURE
A-3











ATTACHMENT B

303339

ATTACHMENT B
HISTORICAL AERIAL PHOTOGRAPH REVIEW

ATTACHMENT B
VIRGIN ISLAND CHEMICAL SITE
ECOLOGICAL ASSESSMENT
HISTORICAL AERIAL PHOTOGRAPH REVIEW

Eight aerial photographs, dated from 1959 to 1989, were reviewed in order to determine more information about the VICHEM site ecological history. Descriptions of the area where the site currently exists and of the surrounding region are given for each of the aerial photographs reviewed.

February 15, 1954

At this time the site was undeveloped and the landowner and land use was unknown. Scrubby, sparse vegetation existed over much of the area where the site currently exists, with trees located along the gut adjacent to the east and south of the site. The only trees existing in the area appeared to be those in and around the streambed. The trees blocked the view of the gut channel, making it impossible to determine if water was present in the channel adjacent to the site. The gut channel flowed past the area where the site currently exists to Route 64 before flowing south along the highway. This course ran to the west of the current gut channel.

Land to the north and east of where the site currently exists was heavily agriculturized and scrubby, sparse vegetation existed adjacent to the south and west of the current VICHEM property. A large concrete pad was present atop the ridge between the current VICHEM property and the airport. The beginnings of an air force base could be seen to the southwest of the current VICHEM property. The airport and racetrack existed in much more primitive states than at present. Virtually all of the roads in the area were unpaved, dirt roads. A small housing development existed about one-half mile to the north and another existed about one-half mile to the northwest of the site. A sufficient amount of water could be seen in the gut from the location where River Gut and Bethlehem Gut meet (downstream of the site) to the ocean. A series of approximately six dyked/dammed ponds upstream of the site contained sufficient water and appeared to be the source of the river gut water.

April 20, 1959

No changes on the site property and surrounding properties were noted since the 1954 photograph.

1962

The exact date of this photograph is not known. At the time that this photograph was taken, the area where the site currently exists had been at least partially cleared and it appeared as if agricultural operations were underway on the site property. A multiple-acre rectangular plot had been cleared in the vegetation adjacent to the gut. Some crop lines could be seen on site and also across the gut, where there is currently other industry in existence. The majority of the cleared land appears to have been planted with trees.

February 20, 1964

The area where the VICHEM site currently exists was undeveloped as of this date. In addition, the vegetation in the adjacent River Gut was more dense than in previous photographs.

The nearby airport and racetrack were vastly expanded and modernized during the 5-year period from 1959 to 1964 and surface drainage channels appear to have been dredged from the airport to the ocean. These drainage channels entered the ocean in close proximity to mangroves. Water could be seen in the River Gut about one-quarter mile upstream of the ocean. Five buildings, which appear to be barracks, were built on the ridge southwest of the site, immediately adjacent to the large concrete pad which had already been constructed by 1959. The Vialco aluminum facility was constructed approximately one mile to the east of where the current site exists and operations began between 1959 and 1964. Between the aluminum plant and the ocean, citrus groves appear to have been planted. Krause lagoon, adjacent to the Vialco facility, had been dyked and partially dredged by this date. This lagoon was virtually undisturbed in 1959.

This region of St. Croix was moving rapidly from an agricultural area to an industrial area. Most of the roadways around the island appeared to have been paved since 1959. However, no new or expanded housing developments had been built in the region around where the site currently exists.

February 17, 1971

The site was developed with building and equipment as of this date. According to previously discussed records, Caribe operated the site. Because the poor quality of this photograph provided poor ground resolution, the following photograph will be described in greater detail.

November 20, 1971

The site had been partially cleared and the laboratory, maintenance building, concrete surface equipment area, 20 aboveground storage tanks (ASTs), and the site driveway were all constructed and existed on the site at this time. What appear to be two surface runoff paths originating from the laboratory building and flowing to the east and northeast into the gut appear to be present. An unknown structure, possibly a concrete pad or a shed, existed in the northern corner of the property. Water existed in the gut adjacent to the site and all the way upstream to the dyked ponds at this time.

The path of River Gut had been altered by this date. The gut previously ran past site to Route 64 before heading south. As of this date in 1971, the gut wrapped around the VICHEM site and headed south on the course that it follows today. The adjacent properties across the gut from the site were developed on land that was previously the River Gut channel.

In addition to the site having been developed, many adjacent and nearby properties were also developed. To the east of the site, on the opposite side of the gut, a cement company and a paving company appeared to have been built. An asphalt plant and an engineering company were constructed to the northwest of the VICHEM site. A large, unknown facility was constructed to the southeast of the site, on the gut. All of these facilities were constructed sometime between 1964 and 1971.

Farther away from the site, expansion and industrialization were occurring rapidly. Many of the fields previously used for agriculture were being left fallow or were being developed for commercial, industrial, or residential use. A large housing development/trailer park was constructed approximately one-half mile to the northeast of the VICHEM site. Along the gut, close to the ocean, a sewage treatment plant was built. To the east of the site, the aluminum facility had greatly expanded. Large areas of boxite and what appear to be settling ponds existed between the plant and the ocean, where a citrus grove had previously existed. To the east of the aluminum plant, the Hess oil refinery had been built and covered a large area with its many oil tanks. The dredging of Krause lagoon area had been completed and was being used exclusively as a shipping channel. The St. Croix landfill could be seen for the first time, extending out into the ocean to the south of the aluminum plant. Smoke could be seen coming from a fire in the landfill along the oceanfront.

January 17, 1974

Between 1971 and 1974, the VICHEM facility continued to expand. A warehouse was constructed onto the northeastern side of the laboratory between 1971 and 1974. The construction of the Melvin Evans Highway to the east of the site.

November 14, 1977

According to previously discussed records, Pierrel America, Inc. (formerly Caribe) continued to operate the site. A great amount of water was present in the gut adjacent to and upstream of the site. The vegetation in and along the edge of the gut appeared to have been cut back on the northeastern side of the site. A path/road existed from the warehouse building, across the gut, to the adjacent cement company. The vegetation from the gut extended up to the south side of the laboratory building and concrete surface. There appeared to be pooled water present in the southwestern corner of the site.

Immediately adjacent to the northwest, west and southeast of the site, the scrubby, sparse vegetation that existed in 1959 had grown into thick stands of trees. Farther from the site, a prison facility was built approximately one-quarter mile to the northwest. The Melvin Evans Highway was built, running from east to west along the southern edge of the VICHEM property. The nearby St. Croix landfill had expanded inland to border the expanding aluminum plant.

November 20, 1988

The VICHEM site changed in many ways between 1977 and 1988. In 1988, VICHEM owned the site. Only 14 ASTs were present, a reduction of six from the northern corner of the property. A water tank and several other small buildings were present on the southern side of the facility. A concrete surface between the laboratory and the maintenance building and a concrete surface for a loading dock to the north of the laboratory were constructed. Vegetation had overgrown much of the northern corner of the site. Water could be seen in the gut adjacent to the site.

In the region around the site, the aluminum facility expanded over a much larger area. The part of the St. Croix landfill that extended into the ocean appeared to be inactive as of this date.

October 9, 1989

Two drainage pipes coming from the loading dock area and draining into River Gut could be seen. The gut appeared to be dry adjacent to the site, but water could be seen upstream and downstream of the VICHEM site.

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ATTACHMENT C
LIST OF ENDANGERED SPECIES

ENDANGERED PLANTS AND ANIMALS OF THE U.S. VIRGIN ISLANDS

Compiled by the Division of Fish and Wildlife (DFNW), the UVI Cooperative Extension Service, Eleanor Gibney (Caneel Bay), Gary Ray (U. of Wisconsin) and William McLean (UVD).

Scientific Name	Common Name	Distribution/Remarks
PLANTS		
<u>Federal List</u>		
<u>Boraginaceae</u>		
<i>Buxus vahlii</i>	Vahl's boxwood	Endangered, St.X - May be extinct
<u>Rutaceae</u>		
<i>Zanthoxylum thomasiianum</i>	Prickly Ash	Endangered, St.T., St.J.
<u>Virgin Islands List</u>		
<u>Agavaceae</u>		
<i>Agave eggersiana</i>	Egger's agave	St.X
<u>Aizoaceae</u>		
<i>Cypselia humifusa</i>		St.T., St.J.
<u>Aquifoliaceae</u>		
<i>Ilex urbanii</i>	Urban's holly	St.J., Tortola
<i>L. sideroxyloides</i>	Central Amer. oak	St.J.
<u>Bromeliaceae</u>		
<i>Tillandsia lineatispica</i>	Pinon	Rare bromeliad, St.J., St.T.
<u>Cactaceae</u>		
<i>Mammillaria nivosa</i>	Wooly nipple	St.X, St.J., St.T., offshore cays
<i>Opuntia triacantha</i>		Buck Is. (St.X), St.T.
<u>Calcestraceae</u>		
<i>Maytenus cymosa</i>		St.X, St.T.
<u>Convolvulaceae</u>		
<i>Operculina triquetra</i>		St.X, St.T. endemic
<u>Euphorbiaceae</u>		
<i>Croton fishlockii</i>		Recent St.J. sightings
<u>Fabaceae</u>		
<i>Erythrina eggersii</i>	Egger's Cockspur	St.T., St.J., St.X
<i>Galactia eggersii</i>	Egger's galactia	St.T., St.J.
<u>Malpighiaceae</u>		
<i>Malpighia woodburyana</i>	Cowage cherry	St.T., St.J., offshore cays
<i>M. infatissima (=pallens)</i>	S tinging bush	St.X
<i>M. linearis</i>		All VI
<i>Malpighia sp.</i>		Similar to <i>M. coccigera</i> , St.J.
<i>Byrsonima sp.</i>		New species?, St.J.
<u>Malvaceae</u>		
<i>Psidium amplexicaule</i>		St.J.
<i>Psidium sp.</i>		St.J., new species?
<u>Sida eggersii</u>		
<u>Myrtaceae</u>		
<i>Alphitranthes thomasiiana</i>	St. Thomas Lid Plant	Fed. endangered soon St.T./St.J.
<i>Eugenia sp.</i>		Recent sightings St.J.
<u>Olacaceae</u>		
<i>Schoepfia schreberi</i>		St.T., St.J., St.X
<u>Orchidaceae</u>		
<i>Brassavola cucullata</i>		St.T.
<i>Epidendrum bifidum</i>		
<i>E. ciliare</i>		
<i>E. cochleatum</i>		
<i>Habenaria alata</i>		St.T.
<i>Oncidium prionochilum</i>		
<i>O. variegatum</i>		
<i>Polystachya concreta</i>		St.T., Virgin Gorda
<i>Ponthieva racemosa</i>		
<i>Prescottia oligantha</i>		
<i>P. stachyoides</i>		
<i>Spiranthes elata</i>		
<i>Tetramicra canaliculata</i>		
<i>T. canaliculata alba</i>		End. subsp., Water Is.
<i>Vanilla barbellata</i>	Vanilla orchid	
<u>Piperaceae</u>		
<i>Peperomia myrtifolia</i>	Myrtle-leaved Peperomia	St.J., St.X
<u>Polygonaceae</u>		
		May be extinct in VI

<u>Rubiaceae</u>		St.X
<i>Catappa melanocarpa</i>		New St.J. sightings
<i>Machaonia woodburyana</i>		
<u>Sapotaceae</u>		
<i>Manilkara bidentata</i>	Bulletwood	St.T., St.J.
<u>Solanaceae</u>		
<i>Solanum mucronatum</i>		confused taxonomy, St.T., St.J.
<i>S. conocarpum</i>		Last seen 1900
<u>Urticaceae</u>		
<i>Pilea richardii</i>	Richard's clearweed	St.T.
<u>Verbenaceae</u>		
<i>Callicarpa ampla</i>	Capa rosa	info needs update
<i>Nashia inaguensis</i>		St.X
<u>Zygophyllaceae</u>		
<i>Guaiacum officinale</i>	Lignum vitae	W.I., High hort. demand

ANIMALS

Federal List

<i>Chelonia mydas</i>	Green turtle	Threatened, Resident, breeding
<i>Eretmochelys imbricata</i>	Hawksbill turtle	Endangered, Resident, breeding
<i>Dermochelys coriacea</i>	Leatherback turtle	Endangered, Migrant, breeding
<i>Pelecanus occidentalis</i>	Brown pelican	Endangered, Resident, breeding
<i>Falco peregrinus</i>	Peregrine falcon	Endangered, Winter migrant
<i>Epicratus monensis granti</i>	VI Tree toad	Endangered, Resident, breeding
<i>Ameiva ameiva</i>	St. X ground lizard	Endangered, Resident, breeding
<i>Sterna dougalli</i>	Roseate Tern	Threatened, Migrant, breeding

Virgin Islands List

<i>Mabuya mabouia</i>	Slipperyback skink	Resident, breeding
<i>Otus nudipes newtoni</i>	VI Screech owl	Resident, breeding
<i>Chordeiles gundlachii</i>	West Indian nighthawk	Resident, breeding?
<i>Anthracothonax dominicus</i>	Antillean mango	Resident, breeding?
<i>Podiceps dominicus</i>	Least grebe	Resident, breeding?
<i>Sterna antillarum</i>	Least tern	Migrant, breeding
<i>Phaethon lepturus</i>	White-tailed tropicbird	Resident, breeding
<i>Ardea herodias</i>	Gt. blue heron	Resident, breeding
<i>Caesariodius albus</i>	Great (common) egret	Resident, breeding
<i>Egretta thula</i>	Snowy egret	Resident, breeding
<i>Nycticorax nycticorax</i>	Black-cr. night heron	Resident, breeding
<i>Ixobrychus exilis</i>	Least bittern	Resident, breeding?
<i>Anas bahamensis</i>	Bahama duck	Resident, breeding
<i>Oxyura jamaicensis</i>	Ruddy duck	Peripheral resident
<i>Rallus longirostris</i>	Clapper rail	Resident, breeding
<i>Fulica caribea</i>	Caribbean coot	Resident, breeding
<i>Charadrius alexandrinus</i>	Snowy plover	Resident, breeding?
<i>Catoptrophorus semipalmatus</i>	Willet	Resident, breeding
<i>Puffinus lherminieri</i>	Audubon shearwater	Migrant, breeding
<i>Aratinga pertinax</i>	Brown-throated parakeet	Resident, breeding
<i>Columba leucocephala</i>	White-crowned pigeon	Resident, breeding
<i>Geotrygon mystacea</i>	Bridled Quail dove	Resident, breeding
<i>Myiarchus stolidus</i>	Stolid flycatcher	Resident, breeding
<i>Noctilio leporinus</i>	Fisherman bat	Resident, breeding
<i>Stenoderma rufum</i>	Red fruit bat	Resident, breeding
<i>Brachyphylla cavernarum</i>	Cave bat	Resident, breeding
Order Antipatharia	Black coral	Marine benthic, high demand
<i>Epinephelus itajara</i>	Jewfish	Marine

The above list represents plants and animals occurring in the US Virgin Islands which are protected by either the US Endangered Species Act of 1973 or the VI Endangered and Indigenous Species Act of 1990 (Act No. 5665). This list is promulgated under Act 5665, Section 104(g) and may be revised as new information becomes available.



Roy E. Adams, Commissioner, DPNR

5 June 1991
Date

303348

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Virgin Island Chemical Site, Inc.
St. Croix, U.S. Virgin Islands**

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