

OFFICE MEMORANDUM

To: Jason Schindler
HLA, Philadelphia

From: Mike Phillips MPP
HLA, Denver

Date: January 10, 1995

Subject: Island Chemical Company Data Review

Project Number: 29872 10.1

SDMS Document



115536

The completed reports for the data validation for the water samples collected November 4, 1994, 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
Schi0110.mem

Enclosures

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



Harding Lawson Associates
Engineering and Environmental Services
2400 ARCO Tower, 707 17th Street
Denver, CO 80202 - (303) 292-5365

300125

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Volatile Organic Compounds Analysis

Case Number : 94195	Project Number: 29872 10.1
Site: Island Chemical Co	
Contractor Laboratory: Pace Laboratory, Inc New Orleans	
Validator: RAKulp	Validation Date: 12/26/94
QC Reviewer: M. Phillips	Review Date: 1/3/95
Sample Matrix: Water	
Analytical Method: SAMLCWOA 10/92	

Sample Designations:

Lab Sample ID			
PT1110	UN5001		
PT2110	UN5002		
PT1021	UN5003		
TB1104	UN5007		

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 data were validated using the "USEPA CLP
 11/90 National Functional Guidelines for Organic Data Review",
 1/3/95 Feb. 1994.

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>X</u>	Surrogate Recovery Summary
<u>X</u>	MS/MSD Summary
<u>*</u>	Reagent Blank Summary
<u>X</u>	GC/MS Instrument Performance Summary

Sample Data

<u>X</u>	Chain of Custody Forms
<u>X</u>	Holding Times
<u>X</u>	Organic Analysis Data Sheets
<u>X</u>	Quantitation Reports
<u>X</u>	Reconstructed Ion Chromatograms
<u>X</u>	Mass Spectra Printouts
<u>NA</u>	TIC Mass Spectra Library Searches

Initial Calibration Data

<u>*</u>	Calibration Summary
<u>X</u>	Standards Quantitation Reports
<u>X</u>	Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

<u>*</u>	Calibration Summary
<u>X</u>	Standards Quantitation Reports
<u>X</u>	Standards Reconstructed Ion Chromatograms
<u>X</u>	Internal Standards Summary

Instrument Performance Data

<u>X</u>	BFB Mass Spectra
<u>X</u>	Reconstructed Ion Chromatogram
<u>X</u>	BFB Mass Listings

Reagent Blank Data

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

Matrix Spike and Matrix Spike Duplicate Data

~~X~~ Organic Analysis Data Sheets
~~X~~ Quantitation Reports
~~X~~ Reconstructed Ion Chromatograms

Laboratory Control Sample

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

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:

Holding Times

Were sample analyses performed within holding times?

☒ Yes No

Comments:

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:

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 page 13 for affected analytes and samples.
MPP
1/3/95

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 page 14 for affected analytes and samples.
MPP
1/3/95

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:

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:

* ~~What are the limits for RPDs?~~ The %R are all within limits (i.e., LCS limits). No RPD limits established for low concentration water samples since matrix spikes and matrix spike duplicates are not required for low concentration water analyses.

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1/3/95

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:

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:

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:

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

*and trip blank
MPP 1/3/95*

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:

*The RT for 1,4-Dichlorobenzene-24 in the TB1104 was 18:00.
This corresponds with 1,4-Dichlorobenzene non-distilled,
All other RT in this trip blank were OK.*

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:

** No TIC's were found in the samples.*

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:

Calculation Checks

Instrument Tuning

11/14/94, 11:16

MRP 11/3/95

Relative Abundance:

$$\frac{m/e\ 50}{10560} \times 100 = 29.05$$

$$\frac{m/e\ 75}{10560} \times 100 = 60.53$$

Initial Calibration

RRF: VSTD010
(10/15) 1,2-Dichloroethane
chloro

$$\frac{51096}{77318} \times \frac{5}{10} = .330$$

(19) Trichloroethene

$$\frac{77574}{57221} \times \frac{5}{10} = .678$$

%RSD:

$$\begin{array}{l} \text{1,1-Dichloroethene} \\ \text{avg} = .346 \end{array} \left| \begin{array}{l} \text{RSD} \\ = \frac{.0329}{.346} \times 100 = 9.5\% \end{array} \right.$$

$$\text{Methylenechloride avg} = .369 \quad \text{RSD} = \frac{.1102}{.369} \times 100 = 29.86\%$$

Continuing Calibration

RRF:

$$(18) \text{ Carbon Tetrachloride } \text{RRF} = \frac{61200}{47190} \times \frac{5}{5} = 1.297$$

%D:
1,2-Dichloroethane
.342 - .226
.342

$$\frac{.342 - .226}{.342} \times 100 = 19.3\%$$

Reported
19.3%

2-Hexanone

$$\frac{.040 - .013}{.040} \times 100 = 67.5\%$$

67.5%

Surrogate Recovery

PT1021

SSTD = 5.10 ng/L

$$\frac{5.10}{5.0} \times 100 = 102\%$$

Reported
102%

TB1104

SSTD = 4.37

$$\frac{4.37}{5.0} \times 100 = 87.4\%$$

87%

Matrix Spike Recovery

Carbon Tetrachloride $\frac{126}{125} \times 100 = 100.8\%$

Reported
101%

Trichloroethene $\frac{149}{125} \times 100 = 119.2\%$

119%

RPD:

cis-1,3-Dichloropropene $\frac{|89.6 - 121|}{(89.6 + 121)/2} \times 100 = 29.82\%$

Reported
30%

1,4-Dichlorobenzene using conc $\rightarrow \frac{|102 - 116|}{(102 + 116)/2} \times 100 = 6.22\%$

7%

Sample Results

using %R $\rightarrow \frac{|93 - 87|}{(93 + 87)/2} \times 100 = 6.66\%$

CRQL:

MIP Adjusted CRQL = CRQL x Dilution Factor

1/3/95 Adjusted CRQL = CRQL x 1

Detected Result:

MS1104 page 10082
(2) Benzene $\frac{54488A \times 5 \mu g/L}{48378A \times 1.159 \times 25} = 4.859 \mu g/L$

Reported
4.859 $\mu g/L$

TIC Result

None

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
11/14/94	E	Chloroethane		34.5	PT 1110, PT 2110, PT 1021 ^{TB 1104}	None J/AS
		Acetone	.016	36.9	↓	J/AS
		2-Butanone	.011	46.8	↓	↓
		2-Hexanone	.04			

Comments: * By eliminating the high RRF⁽²⁰¹⁾, the %RSD = 26.6%

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CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
10/15/94 (1152)	E	1,2-Dichloro-3-propanol		46.5	TB 1104	J/US
		Chloromethane		-41.4		↓
		Methylene Chloride		29.0		↓
		Acetone	.008	50.0		J/R
		2-Butanone	.006	45.4		J/R
		cis-1,3-Dichloropropene		26.4		J/US
		trans-1,3-Dichloropropene		27.7		J/US
		4-Methyl-2-pentanone	.049	44.9		J/R
		3-Hexanone	.013	67.5		J/R

Comments:

300139

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BLANK SUMMARY FORM

[illegible]

Comments:

* These three samples did not have methylene chlorides detected, therefore no qualification was required.

300140

Summary and Conclusions

The volatile organic compounds results for sample delivery group 94195 are acceptable for use as qualified.

The relative standard deviations (RSD) for acetone and 2-butanone in the initial calibration results did not meet the linearity criterion. In addition, the relative response factors for acetone, 2-butanone, and 2-hexanone did not meet the minimum criterion. Therefore, the positive results for acetone, 2-butanone, and 2-hexanone have been qualified as estimated (J), while the non-detected results have been qualified as unusable (K) in all samples.

The continuing calibration results for 1,2-dibromo-3-chloropropane, chloromethane, methylene chloride, acetone, 2-butanone, cis- & trans-1,3-dichloropropene, 4-methyl-2-pentanone, and 2-hexanone did not meet the acceptance criteria for percent difference and/or minimum relative response factor. This caused the positive results for these compounds in T13 1104 to be qualified as estimated (J) and the non-detected results to be qualified as either estimated (UJ) or unusable (K) (see page 14 for details).

MPP
11/3/95

Validator's Signature: <i>Richard Kulp</i>	
Validator's Initials: <i>RAK</i>	Validation Date: <i>12/26/94</i>
QC Reviewer's Signature: <i>Michael P. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>1/3/95</i>

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PT1021

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195
Lab Sample ID: UNSO03 Date Received: 11/05/94
Lab File ID: VOUNSO3 Date Analyzed: 11/14/94
Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
106-93-4	1,2-Dibromoethane	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
96-12-8	1,2-Dibromo-3-chloropropane	1	U
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
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
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U

VALIDATED

Reviewed By RSK

Date 12/26/94

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

EPA SAMPLE NO.

PT1021

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195
Lab Sample ID: UNS003 Date Received: 11/05/94
Lab File ID: VOUNS03 Date Analyzed: 11/14/94
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 RAK
Date 12/26/94

300143

010015

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

PT11110

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 94195

Lab Sample ID: LNS001

Date Received: 11/05/94

Lab File ID: VOUNS01

Date Analyzed: 11/14/94

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	R
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106-93-4	1,2-Dibromoethane	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
96-12-8	1,2-Dibromo-3-chloropropane	1	U
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 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	Bromoethanol	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
79-34-5	1,1,2,2-Tetrachloroethane	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

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VALIDATED

Reviewed By RAK

Date 12/26/94

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EPA SAMPLE NO.

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

PT1110

Lab Name: ETC/GULF SOUTH Contract: _____Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195Lab Sample ID: UNS001 Date Received: 11/05/94Lab File ID: VOUNS01 Date Analyzed: 11/14/94Purge Volume: 25.00 (ml) Dilution Factor: 1.0Number TICs found: 0

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

VALIDATED

Reviewed By RAK
Date 12/26/94

010019

300145

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LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PT2110

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 94195

Lab Sample ID: UNS002

Date Received: 11/05/94

Lab File ID: VOUNS02

Date Analyzed: 11/14/94

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
106-93-4	1,2-Dibromoethane	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
96-12-8	1,2-Dibromo-3-chloropropane	1	U
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 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
79-34-5	1,1,2,2-Tetrachloroethane	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

VALIDATED

Reviewed By RAK

Date 12/26/94

300146

FORM I LCV

10/92

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

EPA SAMPLE NO.

PT2110

Lab Name: ETC/GULF SOUTH Contract: _____

Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195

Lab Sample ID: UNSO02 Date Received: 11/05/94

Lab File ID: VOUNSO2 Date Analyzed: 11/14/94

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 RAK

Date 12/26/98

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LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

TB1104

Name: ETC/GULF SOUTH Contract: _____
 Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195
 Lab Sample ID: UNSO07 Date Received: 11/05/94
 Lab File ID: VOUNSO7R Date Analyzed: 11/15/94
 Purge Volume: 25.00 (ml) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
106-93-4	1,2-Dibromoethane	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
96-12-8	1,2-Dibromo-3-chloropropane	1	✓ 4J
74-87-3	Chloromethane	1	✓ 4J
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	✓ J
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	✓ 4J
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	✓ 4J
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U R
591-78-6	2-Hexanone	5	U R
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	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

VALIDATED

Reviewed By RAK
 Date 12/26/94

1LCE

EPA SAMPLE NO.

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

TB1104

b Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 94195

Lab Sample ID: UNS007

Date Received: 11/05/94

Lab File ID: VOUNS07R

Date Analyzed: 11/15/94

Purge Volume: 25.00 (ml)

Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	0

VALIDATED

Reviewed By RAK
Date 12/26/94

300149

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compounds Analysis

Case Number : 94195	Project Number: 29872 10.1
Site: Island Chemical Co.	
Contractor Laboratory: Pace Inc., New Orleans	
Validator: R.A. Kalp	Validation Date: 12/24/1994
QC Reviewer: M. Phillips	Review Date: 1/4/95
Sample Matrix: Water	
Analytical Method: SAMLCWOA 10/92	

Sample Designations:

Lab Sample No.			
PT1110	UN5001		
PT2110	UN5002		
PT1021	UN3003		

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 data were validated using the "USEPA CLP National Functional Guidelines for Organic Data Review", Feb. 1994.

MPP
1/4/95

DATA COMPLETENESS CHECKLIST

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

Quality Control Summary

RFP
1/4/95

X ~~*~~ Case Narrative
X Surrogate Recovery Summary
X MS/MSD Summary
* Reagent Blank Summary
X GC/MS Instrument Performance Summary

Sample Data

X 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

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

Continuing Calibration Data

NA Calibration Summary
NA Standards Quantitation Reports
NA Standards Reconstructed Ion Chromatograms
NA 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
- ☒ NA TIC Mass Spectra Library Searches

Comments:

~~Case Narrative states the MS/MSD was extracted beyond out-of-holding time requirements, however the preparation log and reported dates did not confirm this.~~

MPP
1/4/95

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:

Holding Times

Were sample extractions performed within holding times?

☒ Yes ☐ No

Were sample analyses performed within holding times?

☒ Yes ☐ No

Comments:

~~The case narrative states that the MS/MSD were extracted outside the required holding time. The preparation log shows extraction date as 11/9/94, five days after collection. (?)~~
MPP 1/4/95

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:

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:

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:

Not required

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:

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:

** No QC limits were given, MS/MSD not required, no limits established for low concentration method.
all the % R were within 61 - 111 % except for one analyte (1,2,4-Trichlorobenzene) which had % R of 33 and 38 %.
All the RPD's were below 20 %.*

MPP 1/4/95

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:

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:

Sample

Blank ID	Compound	Blank Conc	Action Level	Sample	Sample Conc	Qual
PT1110						
5 BLK1	bin (2-Ethylhexyl) phthalate	1 ug/L	10	PT1110	3 ug/L	5 u
"	"	"	"	PT2110	2 ug/L	5 u
"	"	"	"	PT1021	3 ug/L	5 u

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:

Sample Results

Were target analytes reported in the investigative samples?

☒ Yes No ⁽¹⁾

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: ⁽¹⁾ Only the blank contaminates bis(2-Ethylhexyl)phthalate.

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:

One sample did not have any TIC's.

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:

Calculation Checks

MPP 11/4/95

Instrument Tuning 12/2/94, 0754

Relative Abundance: (p 20083)

$$\frac{m/e 227}{\%RA} = \frac{1406}{3108} \times 100 = 45.24\% \quad \frac{m/e 442}{\%RA} = \frac{1674}{3108} \times 100 = 53.86$$

Initial Calibration

RRF: 4-chloro-3-methyl phenol (p. 20054)

$$RRF = \frac{1389}{27221} \times \frac{20}{5} = .204$$

%RSD:

Hexachlorobutadiene (p 20041)

.134

.140

.136

.137

.134

$$avg = .1402 \quad \%RSD = \frac{.0080124}{.1402} \times 100 = 5.72\%$$

Continuing Calibration

RRF:

NA

%D:

NA

Surrogate Recovery

MS/110494 (p 20101)

(SS-1) D₅-Nitrobenzene (spiked amt = 43.6) Reported 99%

$$\%R = \frac{43.304}{43.6} \times 100 = 99.3\%$$

(SS-4) D₅-Phenol Reported 84%

$$\%R = \frac{36.581}{43.6} \times 100 = 83.9$$

Matrix Spike Recovery (p20004)

MS 4-Nitrophenol %R = $\frac{10.7}{16.3} \times 100 = 65.6\%$ Reported 66%

MSD Pentachlorophenol %R = $\frac{13.7}{16.3} \times 100 = 84.05$ Reported 84%

RPD: (p20004)

Phenol $\frac{|12.8 - 13.3|}{(12.8 + 13.3)/2} \times 100 = 3.83\%$

Phenol $\frac{|82 - 78|}{(82 + 78)/2} \times 100 = 5\%$

Sample Results

CRQL: $CRQL \times \text{Dilution Factor} = \text{Adjusted CRQL}$
 $CRQL \times 1 = CRQL$

MPP
1/4/95

Detected Result: (p.20034)

PT 2110 bis (2-Ethyl hexyl) phthalate, reported 2.0 from I (p.519 Raw Data)

mg/L = $\frac{1085}{17995} \times \frac{21.6}{.158} = 1.518 \text{ mg/L}$

TIC Result

PT 2110 Reported 21.0 mg/L (p.20036)

mg/L = $\frac{53996}{54757} \times \frac{21.6}{1} = 21.3 \text{ mg/L}$

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

300161

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

BLANK SUMMARY FORM

[illegible]

Comments:

Summary and Conclusions

The results for the semivolatile organic compounds for sample delivery group 94195 are acceptable for use as qualified.

The method blank associated with the investigative sampler contained bis(2-ethylhexyl)phthalate at 1 ug/L. Therefore, all concentrations of bis(2-ethylhexyl)phthalate in the investigative samples less than 10 ug/L were qualified as undetected (U).

MPP 1/4/95

Validator's Signature: <i>Richard Kulp</i>	
Validator's Initials: <i>RAK</i>	Validation Date: <i>12/24/94</i>
QC Reviewer's Signature: <i>Michael P. Whitten</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>1/4/95</i>

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

PT1021

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 94195

Lab Sample ID: UNS003

Date Received: 11/05/94

Lab File ID: SVUNS03L

Date Extracted: 11/09/94

Sample volume: 910.0 (ml)

Date Analyzed: 12/02/94

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	G
108-95-2	Phenol	5	10
111-44-4	bis(2-Chloroethyl)Ether	5	10
95-57-8	2-Chlorophenol	5	10
95-48-7	2-Methylphenol	5	10
108-60-1	2,2'-oxybis(1-Chloropropane)	5	10
106-44-5	4-Methylphenol	5	10
621-64-7	N-Nitroso-Di-n-Propylamine	5	10
67-72-1	Hexachloroethane	5	10
98-95-3	Nitrobenzene	5	10
78-59-1	Isophorone	5	10
88-75-5	2-Nitrophenol	5	10
105-67-9	2,4-Dimethylphenol	5	10
111-91-1	bis(2-Chloroethoxy)Methane	5	10
120-83-2	2,4-Dichlorophenol	5	10
120-82-1	1,2,4-Trichlorobenzene	5	10
91-20-3	Napthalene	5	10
106-47-6	4-Chloroaniline	22	10
67-68-3	hexachlorobutadiene	5	10
59-50-7	4-Chloro-3-Methylphenol	5	10
91-57-6	2-Methylnapthalene	5	10
77-47-4	Hexachlorocyclopentadiene	5	10
88-06-2	2,4,6-Trichlorophenol	5	10
95-95-4	2,4,5-Trichlorophenol	22	10
91-56-7	2-Chloronapthalene	5	10
88-74-4	2-Nitroaniline	22	10
131-11-3	Dimethyl Phthalate	5	10
208-96-8	Acenaphthylene	5	10
606-20-2	2,6-Dinitrotoluene	5	10
99-09-2	3-Nitroaniline	22	10
83-32-9	Acenaphthene	5	10

VALIDATED

Reviewed By RAK

Date 12/24/94

020011

300166

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PT1021

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDB No.: 94195
Lab Sample ID: UNS003 Date Received: 11/05/94
Lab File ID: SVUNS03L Date Extracted: 11/09/94
Sample volume: 910.0 (ml) Date Analyzed: 12/02/94
Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0
Injection Volume: 1.0 (ul) pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
51-28-5	2,4-Dinitrophenol	22	10
100-02-7	4-Nitrophenol	22	10
132-64-9	Dibenzofuran	5	10
121-14-2	2,4-Dinitrotoluene	5	10
84-66-2	Diethylphthalate	5	10
7005-72-3	4-Chlorophenyl-phenylether	5	10
86-73-7	Fluorene	5	10
100-01-6	4-Nitroaniline	22	10
534-52-1	4,6-Dinitro-2-Methylphenol	22	10
86-30-6	N-Nitrosodiphenylamine (1)	5	10
101-55-3	4-Bromophenyl-phenylether	5	10
118-74-1	Hexachlorobenzene	5	10
87-86-5	Pentachlorophenol	22	10
85-01-8	Phenanthrene	5	10
120-12-7	Anthracene	5	10
84-74-2	Di-n-Butylphthalate	5	10
206-44-0	Fluoranthene	5	10
129-00-0	Pyrene	5	10
85-68-7	Butylbenzylphthalate	5	10
91-94-1	3,3'-Dichlorobenzidine	5	10
56-55-3	Benzo(a)Anthracene	5	10
218-01-9	Chrysene	5	10
117-81-7	bis(2-Ethylhexyl)Phthalate	5	10
117-84-0	Di-n-Octyl Phthalate	5	10
205-99-2	Benzo(b)Fluoranthene	5	10
207-08-9	Benzo(k)Fluoranthene	5	10
50-32-8	Benzo(a)Pyrene	5	10
193-39-5	Indeno(1,2,3-cd)Pyrene	5	10
53-70-3	Dibenz(a,h)Anthracene	5	10
191-24-2	Benzo(g,h,i)Perylene	5	10

VALIDATED

Reviewed By RAK

Date 12/24/94

020012

300167

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PT1021

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195
Lab Sample ID: UNS003 Date Received: 11/05/94
Lab File ID: SVUNS03L Date Extracted: 11/09/94
Sample volume: 210.0 (ml) Date Analyzed: 12/02/94
Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0
Injection Volume: 1.0 (ul) pH: 8.4

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	R
1.	UNKNOWN	11.39	17	3

VALIDATED

Reviewed By RAK
Date 12/28/94

020013

300168

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: ETC/GULF SOUTH

Contract: _____

PT1110

Lab Code: GULF

Case No.: ELA

SAS No.: _____

SDG No.: 24125

Lab Sample ID: UNSO01

Date Received: 11/05/94

Lab File ID: SVUNSO1L

Date Extracted: 11/09/94

Sample volume: 230.0 (ml)

Date Analyzed: 12/02/94

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.3

CAS NO.

COMPOUND

CONCENTRATION
(ug/L)

0

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
89-75-5	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
87-68-3	Hexachlorobutadiene	22	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	3	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	5	U
91-58-7	2-Chloronaphthalene	22	U
88-74-4	2-Nitroaniline	5	U
131-11-3	Dimethyl Phthalate	22	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	5	U
83-32-9	Acenaphthene	22	U
		5	U

VALIDATED

Reviewed By RAK

Date 12/24/94

FORM I LCBV-1

020022

300169

1LCC
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PT11110

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195
Lab Sample ID: UNSO01 Date Received: 11/05/94
Lab File ID: SVUNSO01 Date Extracted: 11/09/94
Sample volume: 930.0 (ml) Date Analyzed: 12/02/94
Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0
Injection Volume: 1.0 (ul) pH: 8.3

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	U
51-28-5	2,4-Dinitrophenol	22	U
100-02-7	4-Nitrophenol	22	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	22	U
534-52-1	4,6-Dinitro-2-Methylphenol	22	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	22	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
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

VALIDATED

Reviewed By RAK

Date 12/24/94

FORM 1 LCSV-2

020023

300170

1LCF

EPA SAMPLE NO.

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

PT1110

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195
Lab Sample ID: UNS001 Date Received: 11/05/94
Lab File ID: SVUNS01L Date Extracted: 11/09/94
Sample volume: 930.0 (ml) Date Analyzed: 12/02/94
Concentrated Extract Volume: 1000 (ul) Dilution Factor: 1.0
Injection Volume: 1.0 (ul) pH: 8.3

Number TICs found: 0

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

VALIDATED

Reviewed By RAK
Date 12/24/94

020024

1LCB
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMP

PT2110

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 9419
Lab Sample ID: UNSO02 Date Received: 11/05
Lab File ID: SVUNSO2L Date Extracted: 11/02
Sample volume: 925.0 (ml) Date Analyzed: 12/02
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
120-63-2	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	22	U
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
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	22	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	22	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	22	U
83-32-9	Acenaphthene	5	U

VALIDATED

Reviewed By RAK

Date 12/24/94

300172

020029

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

PT2110

Lab Name: ETC/GULF SOUTH

Contract: _____

Lab Code: GULF

Case No.: HLA

SAS No.: _____

SDG No.: 94195

Lab Sample ID: UNS002

Date Received: 11/05/94

Lab File ID: SVUN502L

Date Extracted: 11/09/94

Sample volume: 925.0 (ml)

Date Analyzed: 12/02/94

Concentrated Extract Volume: 1000 (ul)

Dilution Factor: 1.0

Injection Volume: 1.0 (ul)

pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	g
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51-28-5	2,4-Dinitrophenol	22	10
100-02-7	4-Nitrophenol	22	10
132-64-9	Dibenzofuran	5	10
121-14-2	2,4-Dinitrotoluene	5	10
84-66-2	Diethylphthalate	5	10
7005-72-3	4-Chlorophenyl-phenylether	5	10
86-73-7	Fluorene	5	10
100-01-6	4-Nitroaniline	22	10
534-52-1	4,6-Dinitro-2-Methylphenol	22	10
86-30-6	N-Nitrosodiphenylamine (1)	5	10
101-55-3	4-Bromophenyl-phenylether	5	10
118-74-1	Hexachlorobenzene	5	10
87-86-5	Pentachlorophenol	22	10
85-01-8	Phenanthrene	5	10
120-12-7	Anthracene	5	10
84-74-2	Di-n-Butylphthalate	5	10
206-44-0	Fluoranthene	5	10
129-00-0	Pyrene	5	10
85-68-7	Butylbenzylphthalate	5	10
91-94-1	3,3'-Dichlorobenzidine	5	10
56-55-3	Benzo(a)Anthracene	5	10
218-01-9	Chrysene	5	10
117-81-7	bis(2-Ethylhexyl)Phthalate	2	50
117-84-0	Di-n-Octyl Phthalate	5	10
205-99-2	Benzo(b)Fluoranthene	5	10
207-08-9	Benzo(k)Fluoranthene	5	10
50-32-8	Benzo(a)Pyrene	5	10
193-39-5	Indeno(1,2,3-cd)Pyrene	5	10
53-70-3	Dibenz(a,h)Anthracene	5	10
191-24-2	Benzo(g,h,i)Perylene	5	10

VALIDATED

300173

Reviewed By RAKDate 12/24/94

020030

1LCF
LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE

PT2110

Lab Name: ETC/GULF SOUTH Contract: _____
Lab Code: GULF Case No.: HLA SAS No.: _____ SDG No.: 94195
Lab Sample ID: UNS002 Date Received: 11/05/94
Lab File ID: SVUNS02L Date Extracted: 11/09/94
Sample volume: 925.0 (ml) Date Analyzed: 12/02/94
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	11.34	21	3

VALIDATED

Reviewed By RAK
Date 12/24/94

020031

300174

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Metals Analysis

Case Number : 94195	Project Number: 29872 10.1
Site: Island Chemical Co	
Contractor Laboratory: Pace, Inc New Orleans	
Validator: RAKulp	Validation Date: Jan 2, 1995
QC Reviewer: M. Phillips	Review Date: 1-5-95
Sample Matrix: Water	
Analytical Methods: ILM 03.0 and ILM 02.0*	

Sample Designations:

Lab Sample ID			
PT 1110	UN5001		
PT 2110	UN5002		
PT 1021	UN5003		

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:

* CLP SOW ILM 03.0 (May 1993) was followed for all metals and cyanide, with the exception of antimony, beryllium, and thallium, which were analyzed using furnace technique as given in the CLP SOW ILM 02.0, Part B, pages D-28 to D-40.

The data were validated using the "USEPA CLP National Functional Guidelines for Inorganic Data Review", Feb. 1994.

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
 NA Linear Range Verification Standard Summary
 * Calibration and Preparation Blank Summary
 X ICP Interference Check Sample Summary
 * Matrix Spike Summary
 O Post Digestion Spike Sample Summary
 X Duplicate Sample Summary
 X Laboratory Control Sample Summary
 NA Method of Standard Additions Summary
 * 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
 X 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:

Holding Times

Were sample preparations and analyses performed within holding times?

☒ Yes

☐ No

Comments:

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:

* Thallium CRDL on Form X shows 10 ug/L which was crossed out and 3 ug/L was hand written in. The ICAL standards are 0, 10, 25, 50, and 100 (Form XIV, p. 80041).

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:

The % recovery for antimony in the initial calibration was 127.4%. Therefore, all results greater than the IBL are qualified as unusable (X) and all results less than the IBL are acceptable. Since all antimony results are "undetected", no data have been qualified as a result of this problem.

CRDL Standards

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

☒ Yes ☐ No

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

☒ Yes ☐ No

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

☒ Yes ☐ No ☐ NA

Comments:

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:

Because the matrix spike recoveries were outside the acceptance criteria, all selenium, thallium, and antimony results have been qualified as estimated (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:

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:

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:

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:

The iron and zinc results for PT 1110 and the beryllium result for PT 2110 have been qualified as not detected (u) because these results are less than 5 times the associated blank concentrations.

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 serial dilution results for calcium, magnesium, and manganese were outside the acceptance limits. Therefore, all calcium, magnesium, and manganese results are qualified as estimated (J).

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 ☒ NA

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

Yes ☐ No ☒ NA

Comments:

Due to GFAA analytical spike recoveries outside the acceptance criteria, the following results have been qualified as estimated (J/UJ):

PT 1021 Antimony, lead, selenium, and thallium.

MS 1104 Antimony, arsenic, lead, selenium, and thallium.

PT 1110 Lead and thallium.

PT 2110 Antimony, lead, and thallium.

ICP Interelement Correction Factors

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

☒ Yes ☐ No

Comments:

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 results acceptable?

☒ Yes ☐ No ☐ NA

Comments:

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:

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:

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Analysis Holding Time	Qualifier
PT1110	ICP + GFAA	11-4-94	11-12-94	11-12-94		None
PT1021	↓	↓	↓	↓		↓
MS1104	↓	↓	↓	↓		↓
PT2110	↓	↓	↓	↓		↓
PT1110	Cyanide	11-4-94	11-10-94	11-15-94		↓
PT1021	↓	↓	↓	↓		↓
MS1104	↓	↓	↓	↓		↓
PT2110	↓	↓	↓	↓		↓
	Se, As, Pb	↓	11-12-94	11-18-94		↓
	Tl, Be	↓	"	11-18-94		↓
	Hg	↓	-	11-10-94		↓
	Sb	11-4-94	11-17-94	12-02-94		↓

Comments:

300185

met_1.doc
10141994 1035

BLANK SUMMARY FORM

[illegible]

Comments:

300186

Summary and Conclusions

The metals and cyanide results for sample delivery group 94/95 are acceptable for use as qualified.

Due to matrix spike recoveries falling outside the acceptance criteria, all selenium, thallium, and antimony results have been qualified as estimated (J/UJ).

The iron and zinc results for PT 1110 and the beryllium result for PT 2110 have been qualified as undetected (U) because these results are less than five times the associated blank concentrations.

All calcium, magnesium, and manganese results are qualified as estimated (J) because the serial dilution results for these elements were outside acceptance criteria.

Due to GFAA analytical spike recoveries outside the acceptance criteria, the following results have been qualified as estimated (J/UJ):

PT 1021 Antimony, lead, selenium, and thallium.

MS 1104 Antimony, arsenic, lead, selenium, and thallium.

PT 1110 Lead and thallium.

PT 2110 Antimony, lead, and thallium.

Validator's Signature: <i>Richard Kulk</i>	
Validator's Initials: <i>RAK</i>	Validation Date: <i>Jan 2, 1995</i>
QC Reviewer's Signature: <i>Michael R. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>1/5/95</i>

1
INORGANIC ANALYSIS DATA SHEET

PT1

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.:

Matrix (soil/water): WATER

Lab Sample ID: UNS

Level (low/med): LOW

Date Received: 11/

% 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	145	B		P
7440-36-0	Antimony	1.4	U	NW J	F
7440-38-2	Arsenic	8.6	B		F
7440-39-3	Barium	10.6	B		P
7440-41-7	Beryllium	0.10	U		F
7440-43-9	Cadmium	3.3	U		P
7440-70-2	Calcium	50700		E J	P
7440-47-3	Chromium	4.5	U		P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	11.9	U		P
7439-89-6	Iron	516			P
7439-92-1	Lead	0.92	B	W J	F
7439-95-4	Magnesium	23300		E J	P
7439-96-5	Manganese	315		E J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	25.8	U		P
7440-09-7	Potassium	30800			P
7782-49-2	Selenium	2.0	U	NW J	F
7440-22-4	Silver	4.1	U		P
7440-23-5	Sodium	513000			P
7440-28-0	Thallium	1.5	U	NW J	F
7440-62-2	Vanadium	5.9	U		P
7440-66-6	Zinc	278			P
57-12-5	Cyanide	10.0	U		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

VALIDATEDReviewed By Michael T. Whillips forDate 1-5-95

1

INORGANIC ANALYSIS DATA SHEET

PT211

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 0:

Matrix (soil/water): WATER

Lab Sample ID: UNS002

Level (low/med): LOW

Date Received: 11/05/

% 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	641			P
7440-36-0	Antimony	1.4	U	NW J	F
7440-38-2	Arsenic	21.6			F
7440-39-3	Barium	19.2	B		P
7440-41-7	Beryllium	0.10	B	U	F
7440-43-9	Cadmium	5.1			P
7440-70-2	Calcium	245000		E J	P
7440-47-3	Chromium	17.3			P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	15.9	B		P
7439-89-6	Iron	3230			P
7439-92-1	Lead	9.7		W J	F
7439-95-4	Magnesium	29100		E J	P
7439-96-5	Manganese	1090		E J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	34.1	B		P
7440-09-7	Potassium	30300			P
7782-49-2	Selenium	20.0	U	N J	F
7440-22-4	Silver	4.1	U		P
7440-23-5	Sodium	501000			P
7440-28-0	Thallium	1.5	U	NW J	F
7440-62-2	Vanadium	12.7	B		P
7440-66-6	Zinc	1460			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 Michael P. Shelly for RAKDate 1-5-95

300189

FORM I - IN

ILM02.

080006

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Organochlorine Pesticides and Polychlorinated Biphenyls Analysis

Case Number : 94195	Project Number: 29872 10.1
Site: Island Chemical Co.	
Contractor Laboratory: Pace Inc., New Orleans	
Validator: R.A. Kulp	Validation Date: 12/24/94, 12/26/94
QC Reviewer: M. Phillips	Review Date: 1/5/95
Sample Matrix: Water	
Analytical Method: SAMLCWOA 10/92	

Sample Designations:

Lab Sample ID			
PT1110	UNS001		
PT2110	UNS002		
PT1021	UNS003		

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 data were validated using the "USEPA CLP National Functional Guidelines for Organic Data Review", Feb. 1994.

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>X</u>	Surrogate Recovery Summary
<u>X</u>	MS/MSD Summary
<u>X</u>	Reagent Blank Summary

Sample Data

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

Instrument Calibration and Performance Data

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

Reagent and Instrument Blank Data

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

Matrix Spike Data

~~_____~~ Organic Analysis Data Sheets
~~_____~~ Quantitation Reports
~~_____~~ GC/EC Chromatograms

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

☒ Yes ☐ No

Comments:

Holding Times

Were sample extractions performed within holding times?

☒ Yes ☐ No

Were sample analyses performed within holding times?

☒ Yes ☐ No

Comments:

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:

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:

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

Analytical Sequence

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

☒ Yes No

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes ☒ No *

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

Yes ☒ No

Comments:

* The only surrogate out was TCX in the PBLK W1 for the confirmation column (DB-1701). The %R was 58%, only 2% points below the limit of 60-150. Since there were no detects in the blank or any of the environmental samples, professional judgement says no qualification was required.

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:

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

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

Yes ☒ No

Comments:

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:

PEM03 4,4'-DDT Breakdown reported 0.4%

$$\frac{4,4'\text{-DDE} + 4,4'\text{-DDD}}{\text{DDE} + \text{DDT} + \text{DDD}} \times 100 =$$

$$\frac{.4786 + 0}{.4786 + 95.2246} \times 100 = 0.5\%$$

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

Laboratory Control Samples

Were LCS analyses performed?

Yes

☒ No

Were the LCS recoveries within acceptable limits?

Yes

No

☒ NA

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:

Calculation Check

Initial Calibration

Retention Time Window:

	Mean	Window	
alpha-BHC (DB1701)	10.42	10.37 - 10.47	±.05
4,4'-DDD (DB1701)	17.77	17.70 - 17.84	±.07

%RSD: (DB-608)

	Low	Mid	High	Calcd Mean	%RSD
Heptachlor	6930000	6960000	6580000	6823333	(Reported 3.1)

Calcd R =

$$\%RSD = \frac{2 \times 1266}{6823333} \times 100 = 3.096\%$$

Continuing Calibration

INDAM03 11/15/94 @ 1311 (P 30057) Reported RPD = 7.8%

%D: Endrin $\frac{.0369}{.040} \times 100 = 9.23\%$ mfr 11/195

%RPD = $\frac{.04 - .0369}{(.04 + .0369)} \times 200 = 8.06\%$, %D = $\frac{0.04 - 0.0369}{0.04} \times 100 = 7.8\%$

Surrogate Recovery

PT 1021 TEX (DB608 Cl 1) Reported %R = 106%

(P30008-9) %R = $\frac{1.0425}{.040} \times 100 = 106\%$

DCB Reported 100%

%R = $\frac{.0403}{.040} \times 100 = 100.8\%$

Matrix Spike Recovery

Heptachlor %R = $\frac{.0721}{.1121} \times 100 = 68.8\%$ Reported 69%

Endrin %R = $\frac{0.182}{0.223} \times 100 = 81.6\%$ Reported 82%

RPD:

Endrin RPD = $\frac{82 - 85}{(82 + 85)/2} \times 100 = 3.59\%$ Reported 4%

Sample Results

M.P.P.
1/5/95

PT 1021

CRQL: Alpha-BHC

Adjusted CRQL =

$$\frac{\text{CRQL} \times \text{Dilution Factor}}{\text{Sample Volume}} = \frac{0.01 \text{ ug/L} \times 1}{0.940 \text{ L}} = 0.011 \text{ ug/L}$$

Positive Result:

$$\text{ng/L} = \frac{A_{\text{r}} \times V_{\text{a}} \times D_{\text{f}}}{C_{\text{F}} \times V_{\text{o}} \times V_{\text{i}}}$$

MSD 1104

gamma-BHC

$$\text{ng/L} = \frac{247641 \text{ A} \times 2000 \text{ ml} \times 1}{575000 \text{ C} \times 895 \text{ ml} \times 1 \text{ ml}} = .096 \text{ ng/L}$$

Heptachlor

$$\text{ng/L} = \frac{255120 \text{ A} \times 2000 \text{ ml} \times 1}{696000 \text{ C} \times 895 \text{ ml} \times 1 \text{ ml}} = .0819 \text{ ng/L}$$

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

300202

ocp_1.doc
10141994 1032

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

BLANK SUMMARY FORM

[illegible]

Comments:

Form OCP 1.0

300204

Summary and Conclusions

The organochlorine pesticides and polychlorinated biphenyls analytical results for sample delivery group 94195 are acceptable for use.

Validator's Signature: <i>Richard Kulp</i>	
Validator's Initials: <i>RAK</i>	Validation Date: <i>12/24 and 26/94</i>
QC Reviewer's Signature: <i>Michael P. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>1/5/95</i>

Lab Name: G S E L IContract: HLA

PT1021

Lab Code: PAGECase No.: HLA

SAS No.: _____

SDG No.: 94195Matrix: (soil/water) WATERLab Sample ID: UNSQ03Sample wt/vol: 940.0 (g/mL) ML

Lab File ID: _____

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

Date Received: 11/05/94Extraction: (SepF/Cont/Sonc) CONTDate Extracted: 11/09/94Concentrated Extract Volume: 2000 (uL)Date Analyzed: 11/15/94Injection Volume: 1.00 (uL)Dilution Factor: 1.00GPC Cleanup: (Y/N) NpH: 8.4Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	<u>0</u>
---------	----------	---	----------

319-84-6	alpha-BHC	0.01110	
319-85-7	beta-BHC	0.01110	
319-86-8	delta-BHC	0.01110	
58-89-9	gamma-BHC (Lindane)	0.01110	
76-44-8	Heptachlor	0.01110	
309-00-2	Aldrin	0.01110	
1024-57-3	Heptachlor epoxide	0.01110	
959-98-8	Endosulfan I	0.01110	
60-57-1	Dieldrin	0.02110	
72-55-9	4,4'-DDE	0.02110	
72-20-8	Endrin	0.02110	
33213-65-9	Endosulfan II	0.02110	
72-54-8	4,4'-DDD	0.02110	
1031-07-8	Endosulfan sulfate	0.02110	
50-29-3	4,4'-DDT	0.02110	
72-43-5	Methoxychlor	0.1110	
53494-70-5	Endrin ketone	0.02110	
7421-93-4	Endrin Aldehyde	0.02110	
5103-71-9	alpha-Chlordane	0.01110	
5103-74-2	gamma-Chlordane	0.01110	
8001-35-2	Toxaphene	1.110	
12674-11-2	Aroclor-1016	0.2110	
11104-28-2	Aroclor-1221	0.4310	
11141-16-5	Aroclor-1232	0.2110	
53469-21-9	Aroclor-1242	0.2110	
12672-29-6	Aroclor-1248	0.2110	
11097-69-1	Aroclor-1254	0.2110	
11096-82-5	Aroclor-1260	0.2110	

VALIDATED

300206

Reviewed By RAK

FORM I PEST

3/90

Date 12/26/94

030007

PT1110

Lab Name: G S E L I

Contract: HLA

Lab Code: FACE

Case No.: HLA

SAS No.: _____

SDG No.: 94195

Matrix: (soil/water) WATER

Lab Sample ID: UNS001

Sample wt/vol: 910.0 (g/mL) ML

Lab File ID: _____

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

Date Received: 11/05/94

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 11/09/94

Concentrated Extract Volume: 2000 (uL)

Date Analyzed: 11/15/94

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	0.0111U
319-85-7	beta-BHC	0.0111U
319-86-8	delta-BHC	0.0111U
58-89-9	gamma-BHC (Lindane)	0.0111U
76-44-8	Heptachlor	0.0111U
309-00-2	Aldrin	0.0111U
1024-57-3	Heptachlor epoxide	0.0111U
959-98-8	Endosulfan I	0.0111U
60-57-1	Dieldrin	0.0221U
72-55-9	4,4'-DDE	0.0221U
72-20-8	Endrin	0.0221U
33213-65-9	Endosulfan II	0.0221U
72-54-8	4,4'-DDD	0.0221U
1031-07-8	Endosulfan sulfate	0.0221U
50-29-3	4,4'-DDT	0.0221U
72-43-5	Methoxychlor	0.111U
53494-70-5	Endrin ketone	0.0221U
7421-93-4	Endrin Aldehyde	0.0221U
5103-71-9	alpha-Chlordane	0.0111U
5103-74-2	gamma-Chlordane	0.0111U
8001-35-2	Toxaphene	1.11U
12674-11-2	Aroclor-1016	0.221U
11104-28-2	Aroclor-1221	0.441U
11141-16-5	Aroclor-1232	0.221U
53469-21-9	Aroclor-1242	0.221U
12672-29-6	Aroclor-1248	0.221U
11097-69-1	Aroclor-1254	0.221U
11096-82-5	Aroclor-1260	0.221U

VALIDATED

Reviewed By RAK

FORM I PEST

Date 12/26/94

300207

2790

030016

PT2110

Lab Name: G S E L IContract: HLALab Code: PAGECase No.: HLA

SAS No.: _____

SDG No.: 94195Matrix: (soil/water) WATERLab Sample ID: UNS002Sample wt/vol: 910.0 (g/mL) ML

Lab File ID: _____

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

Date Received: 11/05/94Extraction: (SepF/Cont/Sonc) CONTDate Extracted: 11/09/94Concentrated Extract Volume: 2000 (uL)Date Analyzed: 11/15/94Injection Volume: 1.00 (uL)Dilution Factor: 1.00GPC Cleanup: (Y/N) NpH: 8.2Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

Q

319-84-6	alpha-BHC	0.0111U
319-85-7	beta-BHC	0.0111U
319-86-8	delta-BHC	0.0111U
58-89-9	gamma-BHC (Lindane)	0.0111U
76-44-8	Heptachlor	0.0111U
309-00-2	Aldrin	0.0111U
1024-57-3	Heptachlor epoxide	0.0111U
959-98-8	Endosulfan I	0.0111U
60-57-1	Dieldrin	0.0221U
72-55-9	4,4'-DDE	0.0221U
72-20-8	Endrin	0.0221U
23213-65-9	Endosulfan II	0.0221U
72-54-8	4,4'-DDD	0.0221U
1031-07-8	Endosulfan sulfate	0.0221U
50-29-3	4,4'-DDT	0.0221U
72-43-5	Methoxychlor	0.111U
53494-70-5	Endrin ketone	0.0221U
7421-93-4	Endrin Aldehyde	0.0221U
5103-71-9	alpha-Chlordane	0.0111U
5103-74-2	gamma-Chlordane	0.0111U
8001-35-2	Toxaphene	1.11U
12674-11-2	Aroclor-1016	0.221U
11104-28-2	Aroclor-1221	0.441U
11141-16-5	Aroclor-1232	0.221U
53469-21-9	Aroclor-1242	0.221U
12672-29-6	Aroclor-1248	0.221U
11097-69-1	Aroclor-1254	0.221U
11096-82-5	Aroclor-1260	0.221U

VALIDATED

FORM I PEST

300208

3/90

Reviewed By RAKDate 12/26/94

030024

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compound Analysis

Case Number: 94195	Project Number: 29872 10.1
Site: Island Chemical Company	
Contractor Lab: Pace Incorporated, New Orleans	
Validator: Kirsten Meier	Validation Date: January 6, 1995
QC Reviewer: M. Phillips	Review Date: 1/9/95
Sample Matrix: Water	
Analytical Method: SW 846, Method 8270, Pyridine only	

Sample Designations:

Client ID (Lab Sample ID)

PT-1/110494 (UNS-001)	PT-2/110494 (UNS-002)	PT-102/110494 (UNS-003)	

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 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:

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[x] No

Were sample analyses performed within holding times?

Yes[x] No

Comments:

The associated matrix spike samples were extracted on 11-23-94, exceeding hold time by 12 days. No qualification of data.

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:

Tune on 11/9/94, 9:26:00 :

For obtaining the mass spectrum, the background subtraction included a small peak. The analyst should insure, that only baseline scans are used for background subtractions. No qualification of data.

Tune on 11/29/94, 13:42:00 :

The baseline is not visible on the Ion Chromatogram. It is assumed, that it is identical to the x-coordinate of the chromatogram. No qualification of data.

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 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[x] No

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 QC criteria were met for Pyridine.

As stated previously, the chromatograms 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:

The lab provided a summary of the surrogate recoveries and the recoveries were within the lab specific windows. The concentrations of the surrogates used were not provided and recalculation of data was not possible. No qualification of data.

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, recoveries were within 8270 QC limits. The concentration of the added matrix spike solution was not provided and recalculation of the recoveries was not possible. 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.

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 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.

300216

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

300217

Calculation Checks

Instrument Tuning m/z of 127, 11/16/94, 11:20:00, BP111694D

Relative Abundance: $864/1758 \times 100\% = 49.147$

Initial Calibration Std 50, 11/9/94, D5-Phenol

RRF: $16823 \times 20 / 10117 / 25 = 1.330$

%RSD: $0.071 / 1.309 \times 100\% = 5.422$

Continuing Calibration Std 50, 11/16/94, Pyridine

RRF: $10826 \times 20 / 9825 / 25 = 0.882$

%D: $(0.918 - 0.882) / 0.918 \times 100\% = 3.922$

Surrogate Recovery

Concentration used unknown

Matrix Spike Recovery

Concentration used unknown

RPD:

Sample Results

CRQL: Water sample

Detected Result: No detection

TIC Result

Not required

300219

Case Number: 94195
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

300220

Case Number: 94195
Project Number: 29872.10.1
Site ID: Island Chemical Company

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier

Comments:
None

300221

Case Number: 94195
Project Number: 29872 10.1
Site ID: Island Chemical Company

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier

Comments:
None

300222

Case Number: 94195
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

300223

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12291994 1530

Summary and Conclusions

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

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.

Validator's Signature: <i>Kirsten Muir</i>	
Validator's Initials: <i>KM</i>	Validation Date: <i>1-6-95</i>
QC Reviewer's Signature: <i>Michael P. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>1-9-95</i>

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: PT-1/110494
Description: NA
Sample ID: UNS-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 11/04/94
Received: 11/05/94
Prepared: 11/11/94
Analyzed: 11/16/94
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/l (ppb)		Detection
		Sample	Blank	Limit
110-86-1	Pyridine	ND 3	ND	10.0

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

VALIDATED

Reviewed By Kirsten Reitz
Date 1-6-95

300225

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: PT-2/110494
Description: NA
Sample ID: UNS-002
Matrix: Water
Wet/Dry Basis: NA

Collected: 11/04/94
Received: 11/05/94
Prepared: 11/11/94
Analyzed: 11/16/94
Percent Moisture: NA

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

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

VALIDATED

Reviewed By

Kristen Marie

Date

1-6-95

300226

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: PT-102/110494
Description: NA
Sample ID: UNS-003
Matrix: Water
Wet/Dry Basis: NA

Collected: 11/04/94
Received: 11/05/94
Prepared: 11/11/94
Analyzed: 11/16/94
Percent Moisture: NA

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

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

VALIDATED

Reviewed By

Kristen Meier

Date

1-6-95

300227