

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compound Analysis

Case Number: 95020	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 N. Phyllis</i>	Review Date: 4-12-95
Sample Matrix: Water	
Analytical Method: SW 846, Method 8270, Pyridine only	

Sample Designations:

Client ID (Lab Sample ID)

SO0012	SO0119	SO0127	BS0013

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:

For the instrument B 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:

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[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 2-17-95, 14:06, shows a percent difference for Pyridine of 39.2%, exceeding the limit of 25%. Therefore, the result for Pyridine in the associated sample BSO013 was qualified as estimated (J).

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.

300693

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.

300694

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.

300695

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 SO0012, SO0119 and SO0127 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.

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

RRF:

$$\frac{16823 * 20}{10117 * 25} = 1.330$$

%RSD:

$$\frac{0.071}{1.309} * 100\% = 5.422$$

Continuing Calibration Std 50, 2-8-95, 11:24, Pyridine

RRF:

$$\frac{9392 * 20}{9715 * 25} = 0.7734$$

%D:

$$\frac{0.918 - 0.775}{0.918} * 100 = 15.58 \%$$

Surrogate Recovery SO0127, 2-Fluorophenol

$$\frac{20771 * 20}{6911 * 0.951} = 63.2071$$

$$\frac{63.21}{75} * 100 = 84.28 \% \text{ recovery}$$

Matrix Spike Recovery

Detected concentrations not known

RPD: Batch 12098, Phenol

$$\frac{2 | 8 - 14 |}{| 8 + 14 |} = -54.54$$

Sample Results

CRQL: Water sample

Detected Result: No detection

TIC Result

Not required

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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

300700

Case Number: 95020
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

300701

Case Number: 95020
Project Number: 29872 10.1
Site ID: Island Chemical Company

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
2-17-95, 14:29	H	Pyridine		39.2	BS0013	J/UJ

Comments:
None

300702

bna_cico.11
12291994 1530

Case Number: 95020
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

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Summary and Conclusions

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

The reported results for Pyridine in the investigative samples SO0012, SO0119 and SO0127 were qualified as estimated (J) since a visual comparison of the peak acquisition was not possible.

The results for Pyridine in the investigative sample BSO013 was 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>11 April 95</i>
QC Reviewer's Signature:	<i>Michael R. Phillips</i>	
QC Reviewer's Initials:	<i>MPP</i>	Review Date: <i>4-12-95</i>

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: S00012
Description: NA
Sample ID: VSR-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 01/24/95
Received: 01/25/95
Prepared: 01/30/95
Analyzed:
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 Keir

Date

4-11-95

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: S00119
Description: NA
Sample ID: UQB-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 01/19/95
Received: 01/23/95
Prepared: 01/24/95
Analyzed: 02/08/95
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

Kirsten Meier
4-11-95

300706

202

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: S00127
Description: NA
Sample ID: VTF-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 01/27/95
Received: 01/30/95
Prepared: 02/02/95
Analyzed: 02/08/95
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 Meier

Date

4-11-95

REPORT OF LABORATORY ANALYSIS

Analytical Results - Semivolatile Organics by Method 8270
Harding Lawson Associates

Client ID: BS0013
Description: NA
Sample ID: VVG-001
Matrix: Water
Wet/Dry Basis: NA

Collected: 01/31/95
Received: 02/03/95
Prepared: 02/06/95
Analyzed: 02/17/95
Percent Moisture: NA

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

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

VALIDATED

Reviewed By

Idiston Heie

Date

4-11-95

1
INORGANIC ANALYSIS DATA SHEET

E12022

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VQB002

Level (low/med): LOW

Date Received: 01/23/95

% Solids: 85.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12700		*	P
7440-36-0	Antimony	0.88	B		F
7440-38-2	Arsenic	0.29	B	LA	F
7440-39-3	Barium	99.5			P
7440-41-7	Beryllium	0.34			F
7440-43-9	Cadmium	1.7		*	P
7440-70-2	Calcium	4970		*	P
7440-47-3	Chromium	12.9		*	P
7440-48-4	Cobalt	13.6			P
7440-50-8	Copper	51.7			P
7439-89-6	Iron	24800		*	P
7439-92-1	Lead	3.4			F
7439-95-4	Magnesium	5360		*	P
7439-96-5	Manganese	858			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	16.0			P
7440-09-7	Potassium	936	B		P
7782-49-2	Selenium	3.3	UN	R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	908	B		P
7440-28-0	Thallium	0.63	U		F
7440-62-2	Vanadium	108		*	P
7440-66-6	Zinc	45.4			P
57-12-5	Cyanide	1.2	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

1
INORGANIC ANALYSIS DATA SHEET

RBS001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): WATER

Lab Sample ID: VTX004

Level (low/med): LOW

Date Received: 02/01/95

% 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	26.4	B		P
7440-36-0	Antimony	1.4	U	N	F
7440-38-2	Arsenic	1.1	U	W J	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	88.5	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		P
7439-89-6	Iron	32.1	U		P
7439-92-1	Lead	0.50	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	1.4	U	W J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U		P
7440-28-0	Thallium	2.7	U	W J	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	12.1	B		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 Z. Whittle
03/22/95

1
INORGANIC ANALYSIS DATA SHEET

S00118

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): WATER

Lab Sample ID: VQC001

Level (low/med): LOW

Date Received: 01/23/95

% 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	22.9	B		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	42.0	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		P
7439-89-6	Iron	32.1	U		P
7439-92-1	Lead	0.50	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	1.4	U	W J	F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U		P
7440-28-0	Thallium	2.7	U	W J	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	13.3	B		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
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

SO0119

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): WATER

Lab Sample ID: VQB001

Level (low/med): LOW

Date Received: 01/23/95

% 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	22.5	B		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	132	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		P
7439-89-6	Iron	95.9	B		P
7439-92-1	Lead	0.64	B	U	F
7439-95-4	Magnesium	26.0	U		P
7439-96-5	Manganese	4.4	B		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		F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U		P
7440-28-0	Thallium	2.7	U	W J	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	19.1	B		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
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

S00120

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): WATER

Lab Sample ID: VQA001

Level (low/med): LOW

Date Received: 01/23/95

% 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	26.7	B		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	1.7		N* UJ	F
7440-43-9	Cadmium	3.1	U		P
7440-70-2	Calcium	55.8	B		P
7440-47-3	Chromium	5.6	B	U	P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U		P
7439-89-6	Iron	46.3	B		P
7439-92-1	Lead	0.50	U		F
7439-95-4	Magnesium	32.0	B	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	1.4	U		F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U		P
7440-28-0	Thallium	2.7	U	W J	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	17.1	B		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

1
INORGANIC ANALYSIS DATA SHEET

SO0125

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): WATER

Lab Sample ID: VSI001

Level (low/med): LOW

Date Received: 01/27/95

% 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	26.3	B		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	56.8	B		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		P
7439-92-1	Lead	0.86	B	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	1.4	U		F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	359	B		P
7440-28-0	Thallium	2.7	U	W J	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	12.7	B		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

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

Case Number : 95010	Project Number: 29872, 10.2
Site: Island Chemical Company	
Contractor Laboratory: PACE Incorporated	
Validator: J. Whittle	Validation Date: 3/29/95
QC Reviewer: Michael R. Whitten	Review Date: 3/31/95
Sample Matrix: Soil (12), Water (5)	
Analytical Method: EPA CLP Organics SOW	

Sample Designations:

C20001	D21921	RBS001	
C22022	D30002	S00118	
C22426	D31719	S00119	
D10001	E10005	S00120	
D11214	E12022	S00125	
D12224			
D20020			

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
 X 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
 * Performance Evaluation Mix Summary
 X Continuing Calibration Verification Summary
 X Analytical Run Sequence Summary
 X GPC Calibration and Florisil Cartridge Check Summary
 * 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:



PROJECT

Island Chemical Company

SUBJECT

Data Validation

Sample ID Summary

<u>Client ID</u>	<u>Abbreviated Client ID</u>	<u>Laboratory ID</u>
RBS0/012095	S00120	VQA-001
SBD3/0-2/012095	D30002	VQA-002
QW SBD3/17-19/012095	D31719	VQA-003
RBS0/011995	S00119	VQB-001
SBE1/20-22/011995	E12022	VQB-002
SBD2/0.0-20/011995	D20020	VQB-003
SBD2/19-21/011995	D21921	VQB-004
RBS0/011895	S00118	VQC-001
SBE1/0.5-2.0/011895	E10520	VQC-002
SBE1/0.0-0.5/011895	E10005	VQC-003
RBS0/012595	S00125	VSI-001
SBD1/0-1/012595	D10001	VSI-002
SBD1/12-14/012595	D11214	VSI-003
SBD1/22-24/012595	D12224	VSI-004
SBC2/0-1/013095	C20001	VTX-001
SBC2/20-22/013095	C22022	VTX-002
SBC2/24-26/013095	C22426	VTX-003
RBS0/013095	RBS001	VTX-004

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SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes ☒ No

Comments: Two coolers were shipped and/or received above the 2°-6°C cooling range according to the COCs. Since the samples were otherwise in good condition, no qualifying action was taken on the basis of shipping temperatures.

Holding Times

Were sample extractions performed within holding times?

Yes ☒ No

Were sample analyses performed within holding times?

Yes ☒ No

Comments: Sample E12022 was extracted 1 day past the recommended 14-day holding period. Since the sample was among those shipped at an elevated temperature (9°C), estimation of the data is recommended (J/UT). The reanalysis of sample S00120 was also performed (extraction) well past the 7-day holding time for waters. This data has also been estimated (J/UT).

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: *Refer to page 13 for a list of samples qualified because of %RSD values above the 20% control limit.*

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

Comments: Sample 500120 and the reanalysis (500120RE), as well, showed surrogate recoveries on both columns slightly below the QC range for decachlorobiphenyl, which the lab identifies as 60-150%. However, the USEPA Functional Guidelines allows a limit of 30-150%. Sample D10001 and PBLKW4 also showed ~~had~~ slightly depressed recoveries, but well above 30%. Therefore, ~~qualifiers~~ are not recommended for these samples.

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 for the soil matrix was performed on sample E10005. Water matrix MS/MSD was not performed on a sample in this case.

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: The resolution performance check for 1/26/95 involving samples 500118 and 500119 indicated a percent resolution of 10% for 4,4'-DDE, below the 60% limit. 4,4'-DDE was not detected in these samples, and review of the chromatograms did not suggest coelution and false non-detects. Therefore, no qualification of the data is necessary.

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

None

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: The percent differences between column detection amounts were greater than 25% for all detected compounds, except for gamma-chlordane in sample D10001. In all cases, the lowest concentration has been reported. These values for all detections, except gamma-chlordane, should be considered estimated (J).

Calculation Check

Initial Calibration

1/26/95

Retention Time Window:

Average of 3 Standard RTs ± 0.05 = Window
 $14.08 \pm 0.05 = [14.03 \text{ to } 14.13]$ for aldrin

%RSD:

$$\frac{\text{Standard Deviation of 3 Calibration Factors}}{\text{Mean of 3 Calibration Factors}} \times 100 = \% \text{RSD}$$
$$\frac{185831.46}{2343333.3} \times 100 = 7.9\% \text{ for heptachlor}$$

Continuing Calibration

1/27/95

%D:

DB608, 06:05, INDBM02

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

Surrogate Recovery

Sample S00119

$$\frac{0.04 - 0.043}{0.04} \times 100 = 7.5\% \text{ for 4,4'-DE}$$

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

$$\frac{0.0967}{0.080} \times 100 = 121\% \text{ for TCX}$$

Matrix Spike Recovery

Sample E10005

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

$$\frac{47.1}{35.8} \times 100 = 132\% \text{ for endrin}$$

RPD:

$$\frac{\text{MS Conc.} - \text{MSD Conc.}}{\text{MS/MSD Average Conc.}} \times 100 = \text{RPD}$$

$$\frac{85 - 97}{91} \times 100 = 13\% \text{ for heptachlor}$$

Sample Results

Sample E10005

CRQL:

$$\frac{\text{Base CRQL} \times \text{Dilution Factor}}{\% \text{ Solids}} = \text{Adjusted CRQL}$$
$$\frac{3.3 \times 1}{0.93} = 3.5 \text{ ug/Kg for endosulfan II}$$

Positive Result:

$$\frac{\text{Compound Area} \times 5000 \times 2.0}{\text{Mid-Level CF} \times \text{Inject Amt.} \times \% \text{ Solids} \times \text{Sample Wgt.}} = \text{Conc.}$$
$$\frac{75091 \times 5000 \times 2}{1630000 \times 1.0 \times 0.93 \times 30} = 16.5 \text{ ug/Kg for endosulfan II}$$

HOLDING TIME QUALIFICATION SUMMARY FORM

[illegible]

Comments:

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

[illegible]

Comments:

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BLANK SUMMARY FORM

[illegible]

Comments:

ocp_1.doc
10141994 1032

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Summary and Conclusions

All data was present for a full validation of the pesticide analysis. Sample data and QC were reviewed and calculation checks were made. No errors were found, nor any indication of compound missidentification. However, with most of the detected compounds, there was a large percent difference between the quantitated amounts on the two columns. The lab had flagged these with a "P", and estimation of the data (J) is recommended.

Qualifications of samples E12022 and S00120RE were necessary on the basis of holding time discrepancies (J/ut). Alpha-BHC was also estimated (ut) in samples E12022, C20001, C22022, C22426, D11214, D12224, and D10001 since the initial calibration %RSD value was above the 20% limit. Some problems with the data were noted in surrogate recoveries and percent resolution for 4,4'-DDE, but qualifiers were not recommended, for reasons outlined in this report.

Validator's Signature: <i>Joyce E. Whittle</i>	
Validator's Initials: <i>Jw</i>	Validation Date: <i>3/30/95</i>
QC Reviewer's Signature: <i>Michael W. Whitty</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>3/31/95</i>

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C20001

Lab Name: G S E L I Contract: HLA
 Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010
 Matrix: (soil/water) SOIL Lab Sample ID: VTX001
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 % Moisture: 11 decanted: (Y/N) N Date Received: 02/01/95
 Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95
 Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) Y pH: 8.2 Sulfur Cleanup: (Y/N) N

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

319-84-6-----alpha-BHC	1.9	UJ
319-85-7-----beta-BHC	1.9	U
319-86-8-----delta-BHC	1.9	U
58-89-9-----gamma-BHC (Lindane)	1.9	U
76-44-8-----Heptachlor	1.9	U
309-00-2-----Aldrin	1.9	U
1024-57-3-----Heptachlor epoxide	1.9	U
959-98-8-----Endosulfan I	1.9	U
60-57-1-----Dieldrin	3.7	U
72-55-9-----4,4'-DDE	3.7	U
72-20-8-----Endrin	3.7	U
33213-65-9-----Endosulfan II	3.7	U
72-54-8-----4,4'-DDD	3.7	U
1031-07-8-----Endosulfan sulfate	3.7	U
50-29-3-----4,4'-DDT	3.7	U
72-43-5-----Methoxychlor	19	U
53494-70-5-----Endrin ketone	3.7	U
7421-93-4-----Endrin Aldehyde	4.2	PJ
5103-71-9-----alpha-Chlordane	1.9	U
5103-74-2-----gamma-Chlordane	1.9	U
8001-35-2-----Toxaphene	190	U
12674-11-2-----Aroclor-1016	37	U
11104-28-2-----Aroclor-1221	74	U
11141-16-5-----Aroclor-1232	37	U
53469-21-9-----Aroclor-1242	37	U
12672-29-6-----Aroclor-1248	37	U
11097-69-1-----Aroclor-1254	37	U
11096-82-5-----Aroclor-1260	37	U

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FORM I PEST

Reviewed By

Date

Joyce E. Whittle
3/29/95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C22022

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VTX002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Moisture: 16 decanted: (Y/N) N Date Received: 02/01/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

SPC Cleanup: (Y/N) Y pH: 9.0 Sulfur Cleanup: (Y/N) N

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

CAS NO. COMPOUND Q

319-84-6-----	alpha-BHC	2.0	U J
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	U
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	3.9	U
72-55-9-----	4,4'-DDE	3.9	U
72-20-8-----	Endrin	3.9	U
33213-65-9-----	Endosulfan II	3.9	U
72-54-8-----	4,4'-DDD	3.9	U
1031-07-8-----	Endosulfan sulfate	3.9	U
50-29-3-----	4,4'-DDT	3.9	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	3.9	U
7421-93-4-----	Endrin Aldehyde	3.9	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	39	U
11104-28-2-----	Aroclor-1221	79	U
11141-16-5-----	Aroclor-1232	39	U
53469-21-9-----	Aroclor-1242	39	U
12672-29-6-----	Aroclor-1248	39	U
11097-69-1-----	Aroclor-1254	39	U
11096-82-5-----	Aroclor-1260	39	U

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FORM I PEST

Reviewed By Joyce E. White
Date 3/29/95 3/90

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C22426

Lab Name: G S E L I Contract: HLA
 Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010
 Matrix: (soil/water) SOIL Lab Sample ID: VTX003
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 % Moisture: 14 decanted: (Y/N) N Date Received: 02/01/95
 Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95
 Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) Y pH: 8.6 Sulfur Cleanup: (Y/N) N

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

CAS NO. COMPOUND Q

319-84-6-----	alpha-BHC	2.0	U J
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	U
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	3.8	U
72-55-9-----	4,4'-DDE	3.8	U
72-20-8-----	Endrin	3.8	U
33213-65-9-----	Endosulfan II	3.8	U
72-54-8-----	4,4'-DDD	3.8	U
1031-07-8-----	Endosulfan sulfate	3.8	U
50-29-3-----	4,4'-DDT	3.8	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	3.8	U
7421-93-4-----	Endrin Aldehyde	3.8	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	38	U
11104-28-2-----	Aroclor-1221	77	U
11141-16-5-----	Aroclor-1232	38	U
53469-21-9-----	Aroclor-1242	38	U
12672-29-6-----	Aroclor-1248	38	U
11097-69-1-----	Aroclor-1254	38	U
11096-82-5-----	Aroclor-1260	38	U

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FORM I PEST

Reviewed By

Date

Joyce E. Whittle
3/29/95 3/90

300734

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D10001

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VSI002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/01/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.3 Sulfur Cleanup: (Y/N) N

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

319-84-6-----alpha-BHC	1.9	U J
319-85-7-----beta-BHC	1.9	U
319-86-8-----delta-BHC	1.9	U
58-89-9-----gamma-BHC (Lindane)	1.9	U
76-44-8-----Heptachlor	1.9	U
309-00-2-----Aldrin	1.9	U
1024-57-3-----Heptachlor epoxide	1.9	U
959-98-8-----Endosulfan I	1.9	U
60-57-1-----Dieldrin	3.6	U
72-55-9-----4,4'-DDE	3.6	U
72-20-8-----Endrin	3.6	U
33213-65-9-----Endosulfan II	3.6	U
72-54-8-----4,4'-DDD	3.6	U
1031-07-8-----Endosulfan sulfate	3.6	U
50-29-3-----4,4'-DDT	3.6	U
72-43-5-----Methoxychlor	19	U
53494-70-5-----Endrin ketone	3.6	U
7421-93-4-----Endrin Aldehyde	3.6	U
5103-71-9-----alpha-Chlordane	7.2	P J
5103-74-2-----gamma-Chlordane	7.7	
8001-35-2-----Toxaphene	190	U
12674-11-2-----Aroclor-1016	36	U
11104-28-2-----Aroclor-1221	73	U
11141-16-5-----Aroclor-1232	36	U
53469-21-9-----Aroclor-1242	36	U
12672-29-6-----Aroclor-1248	36	U
11097-69-1-----Aroclor-1254	36	U
11096-82-5-----Aroclor-1260	36	U

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FORM I PEST

Reviewed By

Date

Grace S. White
3/29/95 3/90

300735

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D11214

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VSI003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 17 decanted: (Y/N) N Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/01/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.8 Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	2.0	UJ
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	U
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	4.0	U
72-55-9-----	4,4'-DDE	4.0	U
72-20-8-----	Endrin	4.0	U
33213-65-9-----	Endosulfan II	4.0	U
72-54-8-----	4,4'-DDD	4.0	U
1031-07-8-----	Endosulfan sulfate	4.0	U
50-29-3-----	4,4'-DDT	4.0	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	4.0	U
7421-93-4-----	Endrin Aldehyde	4.0	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	40	U
11104-28-2-----	Aroclor-1221	80	U
11141-16-5-----	Aroclor-1232	40	U
53469-21-9-----	Aroclor-1242	40	U
12672-29-6-----	Aroclor-1248	40	U
11097-69-1-----	Aroclor-1254	40	U
11096-82-5-----	Aroclor-1260	40	U

VALIDATED

Reviewed By Joyce S. Whittle
Date 3/29/95 3/90

FORM I PEST

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D12224

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VSI004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 13 decanted: (Y/N) N Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/01/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.6 Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	2.0	UJ
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	U
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	3.8	U
72-55-9-----	4,4'-DDE	3.8	U
72-20-8-----	Endrin	3.8	U
33213-65-9-----	Endosulfan II	3.8	U
72-54-8-----	4,4'-DDD	3.8	U
1031-07-8-----	Endosulfan sulfate	3.8	U
50-29-3-----	4,4'-DDT	3.8	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	3.8	U
7421-93-4-----	Endrin Aldehyde	3.8	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	38	U
11104-28-2-----	Aroclor-1221	76	U
11141-16-5-----	Aroclor-1232	38	U
53469-21-9-----	Aroclor-1242	38	U
12672-29-6-----	Aroclor-1248	38	U
11097-69-1-----	Aroclor-1254	38	U
11096-82-5-----	Aroclor-1260	38	U

VALIDATED

FORM I PEST

Reviewed By

Date

George W. Little
3/29/95 3/90

300737

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D20020

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VOB003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 20 decanted: (Y/N) N Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/03/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

SPC Cleanup: (Y/N) Y pH: 8.3 Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	2.1	U
319-85-7-----	beta-BHC	2.1	U
319-86-8-----	delta-BHC	2.1	U
58-89-9-----	gamma-BHC (Lindane)	2.1	U
76-44-8-----	Heptachlor	2.1	U
309-00-2-----	Aldrin	2.1	U
1024-57-3-----	Heptachlor epoxide	2.1	U
959-98-8-----	Endosulfan I	2.1	U
60-57-1-----	Dieldrin	4.1	U
72-55-9-----	4,4'-DDE	4.1	U
72-20-8-----	Endrin	4.1	U
33213-65-9-----	Endosulfan II	4.1	U
72-54-8-----	4,4'-DDD	4.1	U
1031-07-8-----	Endosulfan sulfate	4.1	U
50-29-3-----	4,4'-DDT	4.1	U
72-43-5-----	Methoxychlor	21	U
53494-70-5-----	Endrin ketone	4.1	U
7421-93-4-----	Endrin Aldehyde	4.1	U
5103-71-9-----	alpha-Chlordane	2.1	U
5103-74-2-----	gamma-Chlordane	2.1	U
8001-35-2-----	Toxaphene	210	U
12674-11-2-----	Aroclor-1016	41	U
11104-28-2-----	Aroclor-1221	82	U
11141-16-5-----	Aroclor-1232	41	U
53469-21-9-----	Aroclor-1242	41	U
12672-29-6-----	Aroclor-1248	41	U
11097-69-1-----	Aroclor-1254	41	U
11096-82-5-----	Aroclor-1260	41	U

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3/29/95

3/90

300738

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D21921

Lab Name: G S E L I Contract: HLA
 Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010
 Matrix: (soil/water) SOIL Lab Sample ID: VOB004
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 Moisture: 12 decanted: (Y/N) N Date Received: 01/23/95
 Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/95
 Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/03/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 HPC Cleanup: (Y/N) Y pH: 8.8 Sulfur Cleanup: (Y/N) N

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

CAS NO.	COMPOUND		
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.7	U
72-55-9	4,4'-DDE	3.7	U
72-20-8	Endrin	3.7	U
33213-65-9	Endosulfan II	3.7	U
72-54-8	4,4'-DDD	3.7	U
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	3.7	U
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.7	U
7421-93-4	Endrin Aldehyde	3.7	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	75	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	37	U
11096-82-5	Aroclor-1260	37	U

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Reviewed By Joyce E. Whittle
 Date 3/29/95

FORM I PEST

300739

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D30002

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VOA002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 11 decanted: (Y/N) N Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/03/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.9 Sulfur Cleanup: (Y/N) N

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

CAS NO.

COMPOUND

Q

319-84-6-----	alpha-BHC	1.9	U
319-85-7-----	beta-BHC	1.9	U
319-86-8-----	delta-BHC	1.9	U
58-89-9-----	gamma-BHC (Lindane)	1.9	U
76-44-8-----	Heptachlor	1.9	U
309-00-2-----	Aldrin	1.9	U
1024-57-3-----	Heptachlor epoxide	1.9	U
959-98-8-----	Endosulfan I	1.9	U
60-57-1-----	Dieldrin	3.7	U
72-55-9-----	4,4'-DDE	3.7	U
72-20-8-----	Endrin	3.7	U
33213-65-9-----	Endosulfan II	3.7	U
72-54-8-----	4,4'-DDD	3.7	U
1031-07-8-----	Endosulfan sulfate	3.7	U
50-29-3-----	4,4'-DDT	3.7	U
72-43-5-----	Methoxychlor	19	U
53494-70-5-----	Endrin ketone	3.7	U
7421-93-4-----	Endrin Aldehyde	3.7	U
5103-71-9-----	alpha-Chlordane	1.9	U
5103-74-2-----	gamma-Chlordane	1.9	U
8001-35-2-----	Toxaphene	190	U
12674-11-2-----	Aroclor-1016	37	U
11104-28-2-----	Aroclor-1221	74	U
11141-16-5-----	Aroclor-1232	37	U
53469-21-9-----	Aroclor-1242	37	U
12672-29-6-----	Aroclor-1248	37	U
11097-69-1-----	Aroclor-1254	37	U
11096-82-5-----	Aroclor-1260	37	U

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Reviewed By

Date

FORM I PEST

3/90

300740

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D31719

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VOA003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 12 decanted: (Y/N) N Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/03/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

SPC Cleanup: (Y/N) Y pH: 8.5 Sulfur Cleanup: (Y/N) N

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

319-84-6-----alpha-BHC	1.9	U
319-85-7-----beta-BHC	1.9	U
319-86-8-----delta-BHC	1.9	U
58-89-9-----gamma-BHC (Lindane)	1.9	U
76-44-8-----Heptachlor	1.9	U
309-00-2-----Aldrin	1.9	U
1024-57-3-----Heptachlor epoxide	1.9	U
959-98-8-----Endosulfan I	1.9	U
60-57-1-----Dieldrin	3.7	U
72-55-9-----4,4'-DDE	3.7	U
72-20-8-----Endrin	3.7	U
33213-65-9-----Endosulfan II	3.7	U
72-54-8-----4,4'-DDD	3.7	U
1031-07-8-----Endosulfan sulfate	3.7	U
50-29-3-----4,4'-DDT	3.7	U
72-43-5-----Methoxychlor	19	U
53494-70-5-----Endrin ketone	3.7	U
7421-93-4-----Endrin Aldehyde	3.7	U
5103-71-9-----alpha-Chlordane	1.9	U
5103-74-2-----gamma-Chlordane	1.9	U
8001-35-2-----Toxaphene	190	U
12674-11-2-----Aroclor-1016	37	U
11104-28-2-----Aroclor-1221	75	U
11141-16-5-----Aroclor-1232	37	U
53469-21-9-----Aroclor-1242	37	U
12672-29-6-----Aroclor-1248	37	U
11097-69-1-----Aroclor-1254	37	U
11096-82-5-----Aroclor-1260	37	U

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Date

FORM I PEST

300741

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E10005

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VOC003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 7 decanted: (Y/N) N Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/03/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

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

319-84-6-----alpha-BHC	1.8	U
319-85-7-----beta-BHC	1.8	U
319-86-8-----delta-BHC	1.8	U
58-89-9-----gamma-BHC (Lindane)	1.8	U
76-44-8-----Heptachlor	1.8	U
309-00-2-----Aldrin	1.8	U
1024-57-3-----Heptachlor epoxide	1.8	U
959-98-8-----Endosulfan I	1.8	U
60-57-1-----Dieldrin	3.5	U
72-55-9-----4,4'-DDE	3.5	U
72-20-8-----Endrin	3.5	U
33213-65-9-----Endosulfan II	16	P J
72-54-8-----4,4'-DDD	3.5	U
1031-07-8-----Endosulfan sulfate	3.5	U
50-29-3-----4,4'-DDT	3.5	U
72-43-5-----Methoxychlor	18	U
53494-70-5-----Endrin ketone	3.5	U
7421-93-4-----Endrin Aldehyde	3.5	U
5103-71-9-----alpha-Chlordane	4.6	P J
5103-74-2-----gamma-Chlordane	4.8	P J
8001-35-2-----Toxaphene	180	U
12674-11-2-----Aroclor-1016	35	U
11104-28-2-----Aroclor-1221	71	U
11141-16-5-----Aroclor-1232	35	U
53469-21-9-----Aroclor-1242	35	U
12672-29-6-----Aroclor-1248	35	U
11097-69-1-----Aroclor-1254	35	U
11096-82-5-----Aroclor-1260	35	U

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FORM I PEST

Date

300742

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E12022

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) SOIL Lab Sample ID: VOB002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 14 decanted: (Y/N) N Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.7 Sulfur Cleanup: (Y/N) N

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

CAS NO. COMPOUND Q

319-84-6-----alpha-BHC	2.0	U J
319-85-7-----beta-BHC	2.0	U J
319-86-8-----delta-BHC	2.0	U J
58-89-9-----gamma-BHC (Lindane)	2.0	U J
76-44-8-----Heptachlor	2.0	U J
309-00-2-----Aldrin	2.0	U J
1024-57-3-----Heptachlor epoxide	2.0	U J
959-98-8-----Endosulfan I	2.0	U J
60-57-1-----Dieldrin	3.8	U J
72-55-9-----4,4'-DDE	3.8	U J
72-20-8-----Endrin	3.8	U J
33213-65-9-----Endosulfan II	3.8	U J
72-54-8-----4,4'-DDD	3.8	U J
1031-07-8-----Endosulfan sulfate	3.8	U J
50-29-3-----4,4'-DDT	3.8	U J
72-43-5-----Methoxychlor	20	U J
53494-70-5-----Endrin ketone	3.8	U J
7421-93-4-----Endrin Aldehyde	3.8	U J
5103-71-9-----alpha-Chlordane	2.0	U J
5103-74-2-----gamma-Chlordane	2.0	U J
8001-35-2-----Toxaphene	200	U J
12674-11-2-----Aroclor-1016	38	U J
11104-28-2-----Aroclor-1221	77	U J
11141-16-5-----Aroclor-1232	38	U J
53469-21-9-----Aroclor-1242	38	U J
12672-29-6-----Aroclor-1248	38	U J
11097-69-1-----Aroclor-1254	38	U J
11096-82-5-----Aroclor-1260	38	U J

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Reviewed By

Date

FORM I PEST

300743

3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBS001

Lab Name: G S E L I Contract: HLA
 Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010
 Matrix: (soil/water) WATER Lab Sample ID: VTX004
 Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____
 % Moisture: _____ decanted: (Y/N) _____ Date Received: 02/01/95
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/01/95
 Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/03/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) N pH: 5.6 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

VALIDATED

Reviewed By

Date

FORM I PEST

300744

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S00118

Lab Name: G S E L I Contract: HLA
Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010
Matrix: (soil/water) WATER Lab Sample ID: VOC001
Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____
% Moisture: _____ decanted: (Y/N) _____ Date Received: 01/23/95
Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 01/24/95
Concentrated Extract Volume: 2000 (uL) Date Analyzed: 01/27/95
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 6.9 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

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Reviewed By Joyce E. White
Date 3/29/95 3/90

FORM I PEST

300745

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SO0119

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) WATER Lab Sample ID: VOB001

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

% Moisture: _____ decanted: (Y/N) _____ Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 01/24/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 01/27/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.8 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	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

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Reviewed By

Date

FORM I PEST

300746

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S00120

Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95010

Matrix: (soil/water) WATER

Lab Sample ID: VOA001

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

Lab File ID: _____

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

Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 01/24/95

Concentrated Extract Volume: 2000 (uL)

Date Analyzed: 02/03/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.1

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	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	0.024	P J
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

300747

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SO0120RE

Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) WATER Lab Sample ID: VOA001RE

Sample wt/vol: 600.0 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 01/23/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/08/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/11/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.1 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

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

319-84-6-----alpha-BHC	0.017	UJ
319-85-7-----beta-BHC	0.017	UJ
319-86-8-----delta-BHC	0.017	UJ
58-89-9-----gamma-BHC (Lindane)	0.017	UJ
76-44-8-----Heptachlor	0.025	PJ
309-00-2-----Aldrin	0.017	UJ
1024-57-3-----Heptachlor epoxide	0.017	UJ
959-98-8-----Endosulfan I	0.017	UJ
60-57-1-----Dieldrin	0.033	UJ
72-55-9-----4,4'-DDE	0.033	UJ
72-20-8-----Endrin	0.033	UJ
33213-65-9-----Endosulfan II	0.033	UJ
72-54-8-----4,4'-DDD	0.033	UJ
1031-07-8-----Endosulfan sulfate	0.033	UJ
50-29-3-----4,4'-DDT	0.033	UJ
72-43-5-----Methoxychlor	0.17	UJ
53494-70-5-----Endrin ketone	0.033	UJ
7421-93-4-----Endrin Aldehyde	0.033	UJ
5103-71-9-----alpha-Chlordane	0.017	UJ
5103-74-2-----gamma-Chlordane	0.017	UJ
8001-35-2-----Toxaphene	1.7	UJ
12674-11-2-----Aroclor-1016	0.33	UJ
11104-28-2-----Aroclor-1221	0.67	UJ
11141-16-5-----Aroclor-1232	0.33	UJ
53469-21-9-----Aroclor-1242	0.33	UJ
12672-29-6-----Aroclor-1248	0.33	UJ
11097-69-1-----Aroclor-1254	0.33	UJ
11096-82-5-----Aroclor-1260	0.33	UJ

VALIDATED

Reviewed By

Date

FORM I PEST

300748

3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S00125

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95010

Matrix: (soil/water) WATER Lab Sample ID: VSI001

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

% Moisture: _____ decanted: (Y/N) _____ Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 01/30/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/03/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.6 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

VALIDATED

Reviewed By Joyce S. Whittle
Date 3/29/95 3/90

FORM I PEST

300749

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Organochlorine Pesticides and Polychlorinated Biphenyls Analysis

Case Number:	95020	Project Number:	29872 10.2
Site:	Island Chemical Company		
Contractor Lab:	Pace Environmental Laboratories, St. Rosa, LA		
Validator:	Kirsten Meier	Validation Date:	28 March 1995
QC Reviewer:	<i>Michael P. Phillips</i>	Review Date:	4-6-95
Sample Matrix:	water and soil		
Analytical Method:	Low Level Pest/PCB		

Sample Designations:

RBSO/012495 * (SO0012)	SBF2/12-15/012495 (F21215)	SBF2/18-20/012495 (F21820)	SBF3/0-1/012495 (F30001)
SBF3/12-14/012495 (F31214)	SBF3/18-20/012495 (F31820)	SBB1/24-26/013195 (B12426)	RBSO/012795 * (SO0127)
SBC1/0-1/012795 (C10001)	SBC1/16-18/012795 (C11618)	SBC1/18-20/012795 (C11820)	SBC1/20-22/012795 (C12022)
SBD4/0-1/012795 (D40001)	SBD4/14-16/012795 (D41416)	SBD4/20-22/012795 (D42022)	RBSO/013195 * (BSO013)
SBB1/0-1/013195 (B10001)	SBB1/6-8/013195 (B16008)	SBB101/0-1/013195 (B10101)	

* = aqueous sample

() = Lab sample ID

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 analyzed using the Low Concentration SOW for Pesticides/PCB and the analytical data were reviewed in accordance with the Functional Guidelines, February 1994.

The investigative sample RBSO/012395 was requested for analysis on the Chain of Custody, the lab prepped the sample as VTE-001, but then the lab was requested not to analyze this sample.

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

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: 95020
Project Number: 29872 10.2
Site ID: Island Chemical Company

Matrix Spike/LCS Data

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

Comments:

None

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes[x]

No

Comments:

The Chain of Custodies submitted are not signed and dated by the lab upon sample receipt. No qualification of data.

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 samples RBSO/012495 and RBSO/012795 were re-extracted on 2-20-94, 17 and 20 days past their hold time. Therefore, the results for these samples were qualified as estimated (J).

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 No[x]

Were retention time windows provided and correctly calculated?

Yes[x] No

Were peak resolutions acceptable?

Yes[x] No

Comments:

The compound alpha-BHC in the initial calibration on 2-10-94 has a 20.8% RSD, exceeding the criteria of 20%. Therefore, the result for alpha-BHC in the investigative samples SBF2/12-15/012495 (F21215), SBF2/18-20/012495 (F21820), SBF3/0-1/012495 (F30001), SBC1/0-1/012795 (C10001), SBC1/16-18/012795 (C11618), SBC1/18-20/012795 (C11820), SBC1/20-22/012795 (C12022), SBD4/0-1/012795 (D40001), SBD4/14-16/012795 (D41416), SBD4/20-22/012795 (D42022) and RBSO/013195 (BSO013) were qualified as estimated (J).

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

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:

None

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 surrogate recoveries outside the required 60-150% were reported:

Sample ID	TCX1	TCX2	DCB1	DCB2
RBSO/012495 * (SO0012)		50%	52%	51%
RBSO/012795 * (SO0127)		48%	49%	46%
SBB1/6-8/013195 (B16008)	15%	14%	16%	19%
SBC1/0-1/012795 (C10001)		56%		
SBF2/12-15/012495 (F21215)	56%	50%		
SBF3/0-1/012495 (F30001)			2850%	
SBF3/0-1/012495MS (F30001MS)			3400%	
SBF3/0-1/012495MSD (F30001MSD)			3550%	156%

Therefore, the results in the above listed investigative samples were qualified as estimated (J).

The prep bench sheet lists the surrogate standard ID, but not the concentration. When assuming that the lab used 20 ug/l surrogate as listed in the SOW Low Concentration Pest/PCB, then the surrogate recoveries calculate to the values the lab reported. No qualification of data.

300756

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[x] No

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

Yes No[x]

Comments:

The Low Level Method does not require matrix spike analyses, and the regular method recommends not to qualify on matrix spike recoveries alone. However, the matrix spikes performed were requested by the client and therefore it seems important to make an evaluation based on matrix spike recoveries.

The Endrin recovery was -13% in the MS and MSD samples. The recovery for 4,4'-DDT was 152% in the MSD sample. It appears, that the sample matrix is interfering with the detection of Endrin, therefore, the non-detections of Endrin in the investigative samples were rejected (R), and reported detections are qualified as estimated (J). No detections were reported for 4,4'-DDT, therefore an estimated (J) qualification of 4,4'-DDT detections is not necessary.

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 No[x]

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

300757

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[x] No

Was the GPC column check acceptable?

Yes[x] No NA

Was a Florisil cartridge check performed?

Yes[x] No

Was the Florisil cartridge check acceptable?

Yes[x] No NA

Comments:

None

300758

Laboratory Control Samples

Were LCS analyses performed?

Yes[x]

No

Were the LCS recoveries within acceptable limits?

Yes

No[x]

NA

Comments:

For the blank spike performed on 2-16-94, the recovery for Heptachlor Epoxide was 73%, below the required 74%. Therefore, the results for Heptachlor Epoxide in the investigative samples were qualified as estimated (J).

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?

Yes[x]

No

Comments:

The analytical instrument is set up in such way, that the raw data concentration has been adjusted for extract volume, GPC factor, soil sample amount and percent moisture and lists the concentration in ug/kg (ppb-dry). A more standard approach is to have the raw data in ug/l, then concentrations can be more easily compared to each other. No qualification of data.

300759

Calculation Check

Initial Calibration

Retention Time Window: were provided by lab, no calculation necessary

%RSD: 2-10-95, DB-608, alpha BHC

$$\frac{1466015}{7060000} \times 100 = 20.765\%$$

Continuing Calibration, 2-2-95, 12:19, DB-1701, alpha BHC

$$\frac{\%D: 0.009 - 0.010}{0.009} \times 100 = 11.11\%$$

Surrogate Recovery, C10001 (VTF002), TCX

$$\frac{190902 \times 5000 \times 2}{7460000 \times 30 \times 0.82} = 10.402 \text{ ug/kg}$$

A 100% recovery of the surrogate would result in

$$\frac{0.2 \text{ ng/ml} \times 0.2 \text{ ml} \times 5000 \text{ ul} \times 2}{30 \text{ g} \times 1 \text{ ul} \times 0.82} = 16.26 \text{ ug/kg}$$

therefore, $10.402 \text{ ug/kg} = 63.97\%$ surrogate recovery

Matrix Spike Recovery, F30001MSD, 4,4'-DDT

$$\frac{58.4}{38.3} \times 100 = 152.48\%$$

RPD: for 126% and 152% is 18.7%RPD

300760

Sample Results

CRQL:

Positive Result: F30001, alpha Chlordane

$$\frac{65946 \times 5000 \times 2}{6480000 \times 1 \times 30 \times 0.87} = 3.89$$

Case Number: 95020
Project Number: 29872 10.2
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
RBSO/012495 RE	1/24/94	2/20/94	2/21/94	27 days	1	J/UJ
RBSO/012795 RE	1/27/94	2/20/94	2/21/94	24 days	1	J/UJ

Comments:
None

300762

Case Number: 95020
Project Number: 29872 10.2
Site ID: Island Chemical Company

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
2/10/94		alpha BHC		20.8 %	SBF2/12-15/012495 (F21215), SBF2/18-20/012495 (F21820), SBF3/0-1/012495 (F30001), SBC1/0-1/012795 (C10001), SBC1/16-18/012795 (C11618), SBC1/18-20/012795 (C11820), SBC1/20-22/012795 (C12022), SBD4/0-1/012795 (D40001), SBD4/14-16/012795 (D41416), SBD4/20-22/012795 (D42022), RBSO/013195 (BSO013)	J/UJ

Comments:
None

300763

Case Number: 95020
Project Number: 29872 10.2
Site ID: Island Chemical Company

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier

Comments:
None

300764

Case Number: 95020
Project Number: 29872 10.2
Site ID: Island Chemical Company

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier

Comments: None

300765

Summary and Conclusions

The analytical results for the Pesticide/PCBs low level analyses are acceptable for use as qualified.

The results for the reanalyses of the investigative samples RBSO/012495 and RBSO/012795 were qualified as estimated (J) since the prep for these samples exceeded the hold time.

The results for alpha-BHC in the investigative samples SBF2/12-15/012495 (F21215), SBF2/18-20/012495 (F21820), SBF3/0-1/012495 (F30001), SBC1/0-1/012795 (C10001), SBC1/16-18/012795 (C11618), SBC1/18-20/012795 (C11820), SBC1/20-22/012795 (C12022), SBD4/0-1/012795 (D40001), SBD4/14-16/012795 (D41416), SBD4/20-22/012795 (D42022), and RBSO/013195 (BSO013) were qualified as estimated (J) since the %RSD was exceeded in the initial calibration.

The results for the investigative samples RBSO/012495 (SO0012), RBSO/012795 (SO0127), SBB1/6-8/013195 (B16008), SBC1/0-1/012795 (C10001), SBF2/12-15/012495 (F21215), and SBF3/0-1/012495 (F30001) were qualified as estimated due to surrogate recoveries exceeding the QC criteria.

Due to the negative recovery of Endrin in the matrix spike and matrix spike duplicate, the detection of Endrin in the investigative samples were qualified as estimated (J), while non-detections were rejected (R).

The recovery of Heptachlor epoxide in the LCS sample was below the QC criteria. Therefore, the results for Heptachlor epoxide in the investigative samples were qualified as estimated (J).

Validator's Signature: <i>Risten Meier</i>	
Validator's Initials: <i>KM</i>	Validation Date: <i>3-28-95</i>
QC Reviewer's Signature: <i>Michael P. Kelly</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4-6-95</i>

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10001

Lab Name: G S E L I

Contract: HLA

Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95020

Matrix: (soil/water) SOIL

Lab Sample ID: VVG002

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N

Date Received: 02/03/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/06/95

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 03/04/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 8.6

Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	2.1	U
319-85-7-----	beta-BHC	2.1	U
319-86-8-----	delta-BHC	2.1	U
58-89-9-----	gamma-BHC (Lindane)	2.1	U
76-44-8-----	Heptachlor	2.1	U
309-00-2-----	Aldrin	2.1	U
1024-57-3-----	Heptachlor epoxide	2.1	UJ
959-98-8-----	Endosulfan I	2.1	U
60-57-1-----	Dieldrin	4.1	U
72-55-9-----	4,4'-DDE	4.1	U
72-20-8-----	Endrin	4.1	UR
33213-65-9-----	Endosulfan II	4.1	U
72-54-8-----	4,4'-DDD	4.1	U
1031-07-8-----	Endosulfan sulfate	4.1	U
50-29-3-----	4,4'-DDT	4.1	U
72-43-5-----	Methoxychlor	21	U
53494-70-5-----	Endrin ketone	4.1	U
7421-93-4-----	Endrin Aldehyde	4.1	U
5103-71-9-----	alpha-Chlordane	2.1	U
5103-74-2-----	gamma-Chlordane	2.1	U
8001-35-2-----	Toxaphene	210	U
12674-11-2-----	Aroclor-1016	41	U
11104-28-2-----	Aroclor-1221	82	U
11141-16-5-----	Aroclor-1232	41	U
53469-21-9-----	Aroclor-1242	41	U
12672-29-6-----	Aroclor-1248	41	U
11097-69-1-----	Aroclor-1254	41	U
11096-82-5-----	Aroclor-1260	41	U

300767

VALIDATED

FORM I PEST

Reviewed By

Kristen Meier

Date

3-28-95

3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10101

Lab Name: G S E L I Contract: HLA

Lab Code: PAGE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VVG004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 02/03/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/06/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/04/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.6 Sulfur Cleanup: (Y/N) N

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

CAS NO.

COMPOUND

Q

319-84-6-----	alpha-BHC	2.0	U
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	UJ
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	3.9	U
72-55-9-----	4,4'-DDE	3.9	U
72-20-8-----	Endrin	3.9	UR
33213-65-9-----	Endosulfan II	3.9	U
72-54-8-----	4,4'-DDD	3.9	U
1031-07-8-----	Endosulfan sulfate	3.9	U
50-29-3-----	4,4'-DDT	3.9	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	3.9	U
7421-93-4-----	Endrin Aldehyde	3.9	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	39	U
11104-28-2-----	Aroclor-1221	79	U
11141-16-5-----	Aroclor-1232	39	U
53469-21-9-----	Aroclor-1242	39	U
12672-29-6-----	Aroclor-1248	39	U
11097-69-1-----	Aroclor-1254	39	U
11096-82-5-----	Aroclor-1260	39	U

300768

VALIDATED

FORM I PEST

Reviewed By Loren Reies 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B12426

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VVG005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N Date Received: 02/03/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/06/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/04/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.9 Sulfur Cleanup: (Y/N) N

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

CAS NO. COMPOUND Q

319-84-6-----	alpha-BHC	2.1	U
319-85-7-----	beta-BHC	2.1	U
319-86-8-----	delta-BHC	2.1	U
58-89-9-----	gamma-BHC (Lindane)	2.1	U
76-44-8-----	Heptachlor	2.1	U
309-00-2-----	Aldrin	2.1	U
1024-57-3-----	Heptachlor epoxide	2.1	UJ
959-98-8-----	Endosulfan I	2.1	U
60-57-1-----	Dieldrin	4.1	U
72-55-9-----	4,4'-DDE	4.1	U
72-20-8-----	Endrin	4.1	UR
33213-65-9-----	Endosulfan II	4.1	U
72-54-8-----	4,4'-DDD	4.1	U
1031-07-8-----	Endosulfan sulfate	4.1	U
50-29-3-----	4,4'-DDT	4.1	U
72-43-5-----	Methoxychlor	21	U
53494-70-5-----	Endrin ketone	4.1	U
7421-93-4-----	Endrin Aldehyde	4.1	U
5103-71-9-----	alpha-Chlordane	2.1	U
5103-74-2-----	gamma-Chlordane	2.1	U
8001-35-2-----	Toxaphene	210	U
12674-11-2-----	Aroclor-1016	41	U
11104-28-2-----	Aroclor-1221	82	U
11141-16-5-----	Aroclor-1232	41	U
53469-21-9-----	Aroclor-1242	41	U
12672-29-6-----	Aroclor-1248	41	U
11097-69-1-----	Aroclor-1254	41	U
11096-82-5-----	Aroclor-1260	41	U

300769

VALIDATED

FORM I PEST

Reviewed By Kirsten Kure 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.:

B16008

Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95020

Matrix: (soil/water) SOIL

Lab Sample ID: VVG003

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

% Moisture: 28 decanted: (Y/N) N

Date Received: 02/03/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/06/95

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 03/04/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 8.9

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

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

Q

319-84-6-----	alpha-BHC	2.4	UJ
319-85-7-----	beta-BHC	2.4	U
319-86-8-----	delta-BHC	2.4	U
58-89-9-----	gamma-BHC (Lindane)	2.4	U
76-44-8-----	Heptachlor	2.4	U
309-00-2-----	Aldrin	2.4	U
1024-57-3-----	Heptachlor epoxide	2.4	U
959-98-8-----	Endosulfan I	2.4	U
60-57-1-----	Dieldrin	4.6	U ✓
72-55-9-----	4,4'-DDE	4.6	UJ
72-20-8-----	Endrin	4.6	UR
33213-65-9-----	Endosulfan II	4.6	UJ
72-54-8-----	4,4'-DDD	4.6	U
1031-07-8-----	Endosulfan sulfate	4.6	U
50-29-3-----	4,4'-DDT	4.6	U
72-43-5-----	Methoxychlor	24	U
53494-70-5-----	Endrin ketone	4.6	U
7421-93-4-----	Endrin Aldehyde	4.6	U
5103-71-9-----	alpha-Chlordane	2.4	U
5103-74-2-----	gamma-Chlordane	2.4	U
8001-35-2-----	Toxaphene	240	U
12674-11-2-----	Aroclor-1016	45	U
11104-28-2-----	Aroclor-1221	92	U
11141-16-5-----	Aroclor-1232	46	U
53469-21-9-----	Aroclor-1242	46	U
12672-29-6-----	Aroclor-1248	46	U
11097-69-1-----	Aroclor-1254	46	U ✓
11096-82-5-----	Aroclor-1260	46	UJ

300770

VALIDATED

FORM I PEST

Reviewed By Kristen Merle 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS0013

Lab Name: G S E L I Contract: HLA
 Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020
 Matrix: (soil/water) WATER Lab Sample ID: VVG001
 Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____
 % Moisture: _____ decanted: (Y/N) _____ Date Received: 02/03/95
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/06/95
 Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/16/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) N pH: 6.8 Sulfur Cleanup: (Y/N) N

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

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	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	UJ
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	UR
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

300771

VALIDATED

FORM I PEST

Reviewed By Winston Meigs 90
 Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C10001

Lab Name: G S E L I Contract: HLA

Lab Code: PAGE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VTF002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 18 decanted: (Y/N) N Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 10.4 Sulfur Cleanup: (Y/N) N

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

319-84-6-----alpha-BHC	2.1	UJ
319-85-7-----beta-BHC	2.1	U
319-86-8-----delta-BHC	2.1	U
58-89-9-----gamma-BHC (Lindane)	2.1	U
76-44-8-----Heptachlor	2.1	U
309-00-2-----Aldrin	2.1	U
1024-57-3-----Heptachlor epoxide	2.1	U
959-98-8-----Endosulfan I	2.1	U
60-57-1-----Dieldrin	4.0	U
72-55-9-----4,4'-DDE	4.0	UJ
72-20-8-----Endrin	4.0	UJ
33213-65-9-----Endosulfan II	4.0	UJ
72-54-8-----4,4'-DDD	4.0	U
1031-07-8-----Endosulfan sulfate	4.0	U
50-29-3-----4,4'-DDT	4.0	U
72-43-5-----Methoxychlor	21	U
53494-70-5-----Endrin ketone	4.0	U
7421-93-4-----Endrin Aldehyde	4.0	U
5103-71-9-----alpha-Chlordane	2.1	U
5103-74-2-----gamma-Chlordane	2.1	U
8001-35-2-----Toxaphene	210	U
12674-11-2-----Aroclor-1016	40	U
11104-28-2-----Aroclor-1221	81	U
11141-16-5-----Aroclor-1232	40	U
53469-21-9-----Aroclor-1242	40	U
12672-29-6-----Aroclor-1248	40	U
11097-69-1-----Aroclor-1254	40	U
11096-82-5-----Aroclor-1260	40	UJ

300772

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FORM I PEST Reviewed By Kristen Meier 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C11618

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VTF003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 12 decanted: (Y/N) N Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 9.0 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO.

COMPOUND

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

Q

319-84-6-----alpha-BHC	1.9	UJ
319-85-7-----beta-BHC	1.9	U
319-86-8-----delta-BHC	1.9	U
58-89-9-----gamma-BHC (Lindane)	1.9	U
76-44-8-----Heptachlor	1.9	U
309-00-2-----Aldrin	1.9	U
1024-57-3-----Heptachlor epoxide	1.9	UJ
959-98-8-----Endosulfan I	1.9	U
60-57-1-----Dieldrin	3.7	U
72-55-9-----4,4'-DDE	3.7	U
72-20-8-----Endrin	3.7	UR
33213-65-9-----Endosulfan II	3.7	U
72-54-8-----4,4'-DDD	3.7	U
1031-07-8-----Endosulfan sulfate	3.7	U
50-29-3-----4,4'-DDT	3.7	U
72-43-5-----Methoxychlor	19	U
53494-70-5-----Endrin ketone	3.7	U
7421-93-4-----Endrin Aldehyde	3.7	U
5103-71-9-----alpha-Chlordane	1.9	U
5103-74-2-----gamma-Chlordane	1.9	U
8001-35-2-----Toxaphene	190	U
12674-11-2-----Aroclor-1016	37	U
11104-28-2-----Aroclor-1221	75	U
11141-16-5-----Aroclor-1232	37	U
53469-21-9-----Aroclor-1242	37	U
12672-29-6-----Aroclor-1248	37	U
11097-69-1-----Aroclor-1254	37	U
11096-82-5-----Aroclor-1260	37	U

300773

FORM I PEST

VALIDATED

Reviewed By

Kristen Heie 3/90

Date

3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C11820

Sample Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VTF004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 18 decanted: (Y/N) N Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 9.2 Sulfur Cleanup: (Y/N) N

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

CAS NO. COMPOUND Q

319-84-6-----alpha-BHC	2.1	UJ
319-85-7-----beta-BHC	2.1	U
319-86-8-----delta-BHC	2.1	U
58-89-9-----gamma-BHC (Lindane)	2.1	U
76-44-8-----Heptachlor	2.1	U
309-00-2-----Aldrin	2.1	U
1024-57-3-----Heptachlor epoxide	2.1	UJ
959-98-8-----Endosulfan I	2.1	U
60-57-1-----Dieldrin	4.0	U
72-55-9-----4,4'-DDE	4.0	U
72-20-8-----Endrin	4.0	UR
33213-65-9-----Endosulfan II	4.0	U
72-54-8-----4,4'-DDD	4.0	U
1031-07-8-----Endosulfan sulfate	4.0	U
50-29-3-----4,4'-DDT	4.0	U
72-43-5-----Methoxychlor	21	U
53494-70-5-----Endrin ketone	4.0	U
7421-93-4-----Endrin Aldehyde	4.0	U
5103-71-9-----alpha-Chlordane	2.1	U
5103-74-2-----gamma-Chlordane	2.1	U
8001-35-2-----Toxaphene	210	U
12674-11-2-----Aroclor-1016	40	U
11104-28-2-----Aroclor-1221	81	U
11141-16-5-----Aroclor-1232	40	U
53469-21-9-----Aroclor-1242	40	U
12672-29-6-----Aroclor-1248	40	U
11097-69-1-----Aroclor-1254	40	U
11096-82-5-----Aroclor-1260	40	U

VALIDATED

FORM I PEST

Reviewed By Listen Meyer

Date

3-28-95

3/90

300774

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

C12022

Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95020

Matrix: (soil/water) SOIL

Lab Sample ID: VTF005

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

% Moisture: 15 decanted: (Y/N) N

Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 8.5

Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	2.0	UJ
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	UJ
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	3.9	U
72-55-9-----	4,4'-DDE	3.9	U
72-20-8-----	Endrin	3.9	UR
33213-65-9-----	Endosulfan II	3.9	U
72-54-8-----	4,4'-DDD	3.9	U
1031-07-8-----	Endosulfan sulfate	3.9	U
50-29-3-----	4,4'-DDT	3.9	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	3.9	U
7421-93-4-----	Endrin Aldehyde	3.9	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	39	U
11104-28-2-----	Aroclor-1221	78	U
11141-16-5-----	Aroclor-1232	39	U
53469-21-9-----	Aroclor-1242	39	U
12672-29-6-----	Aroclor-1248	39	U
11097-69-1-----	Aroclor-1254	39	U
11096-82-5-----	Aroclor-1260	39	U

300775

VALIDATED

FORM I PEST Reviewed By Kristen Heie 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D40001

Lab Name: G S E L I

Contract: HLA

Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95020

Matrix: (soil/water) SOIL

Lab Sample ID: VTF006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

% Moisture: 29 decanted: (Y/N) N

Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 8.6

Sulfur Cleanup: (Y/N) N

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

CAS NO.

COMPOUND

Q

319-84-6-----	alpha-BHC	2.4	UJ
319-85-7-----	beta-BHC	2.4	U
319-86-8-----	delta-BHC	2.4	U
58-89-9-----	gamma-BHC (Lindane)	2.4	U
76-44-8-----	Heptachlor	2.4	U
309-00-2-----	Aldrin	2.4	U
1024-57-3-----	Heptachlor epoxide	2.4	UJ
959-98-8-----	Endosulfan I	2.4	U
60-57-1-----	Dieldrin	4.6	U
72-55-9-----	4,4'-DDE	4.6	U
72-20-8-----	Endrin	4.6	UR
33213-65-9-----	Endosulfan II	4.6	U
72-54-8-----	4,4'-DDD	4.6	U
1031-07-8-----	Endosulfan sulfate	4.6	U
50-29-3-----	4,4'-DDT	4.6	U
72-43-5-----	Methoxychlor	24	U
53494-70-5-----	Endrin ketone	4.6	U
7421-93-4-----	Endrin Aldehyde	4.6	U
5103-71-9-----	alpha-Chlordane	2.4	U
5103-74-2-----	gamma-Chlordane	2.4	U
8001-35-2-----	Toxaphene	240	U
12674-11-2-----	Aroclor-1016	46	U
11104-28-2-----	Aroclor-1221	93	U
11141-16-5-----	Aroclor-1232	46	U
53469-21-9-----	Aroclor-1242	46	U
12672-29-6-----	Aroclor-1248	46	U
11097-69-1-----	Aroclor-1254	46	U
11096-82-5-----	Aroclor-1260	46	U

300776

VALIDATED

FORM I PEST

Reviewed By Kirsten Meier

Date

3-28-95

3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D41416

Job Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VTF007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 14 decanted: (Y/N) N Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.8 Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	2.0	UJ
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	UJ
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	3.8	U
72-55-9-----	4,4'-DDE	3.8	U
72-20-8-----	Endrin	3.8	UR
33213-65-9-----	Endosulfan II	3.8	U
72-54-8-----	4,4'-DDD	3.8	U
1031-07-8-----	Endosulfan sulfate	3.8	U
50-29-3-----	4,4'-DDT	3.8	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	3.8	U
7421-93-4-----	Endrin Aldehyde	3.8	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	38	U
11104-28-2-----	Aroclor-1221	77	U
11141-16-5-----	Aroclor-1232	38	U
53469-21-9-----	Aroclor-1242	38	U
12672-29-6-----	Aroclor-1248	38	U
11097-69-1-----	Aroclor-1254	38	U
11096-82-5-----	Aroclor-1260	38	U

300777

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FORM I PEST

Reviewed By Kirsten Heier 3/90

Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D42022

Lab Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95020

Matrix: (soil/water) SOIL

Lab Sample ID: VTF008

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

% Moisture: 15 decanted: (Y/N) N

Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 02/20/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 8.8

Sulfur Cleanup: (Y/N) N

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

319-84-6-----alpha-BHC	2.0	UJ
319-85-7-----beta-BHC	2.0	U
319-86-8-----delta-BHC	2.0	U
58-89-9-----gamma-BHC (Lindane)	4.8	
76-44-8-----Heptachlor	2.0	U
309-00-2-----Aldrin	2.0	U
1024-57-3-----Heptachlor epoxide	2.0	UJ
959-98-8-----Endosulfan I	2.0	U
60-57-1-----Dieldrin	3.9	U
72-55-9-----4,4'-DDE	3.9	U
72-20-8-----Endrin	3.9	NR
33213-65-9-----Endosulfan II	3.9	U
72-54-8-----4,4'-DDD	3.9	U
1031-07-8-----Endosulfan sulfate	3.9	U
50-29-3-----4,4'-DDT	3.9	U
72-43-5-----Methoxychlor	20	U
53494-70-5-----Endrin ketone	3.9	U
7421-93-4-----Endrin Aldehyde	3.9	U
5103-71-9-----alpha-Chlordane	2.0	U
5103-74-2-----gamma-Chlordane	2.0	U
8001-35-2-----Toxaphene	200	U
12674-11-2-----Aroclor-1016	39	U
11104-28-2-----Aroclor-1221	78	U
11141-16-5-----Aroclor-1232	39	U
53469-21-9-----Aroclor-1242	39	U
12672-29-6-----Aroclor-1248	39	U
11097-69-1-----Aroclor-1254	39	U
11096-82-5-----Aroclor-1260	39	U

300778

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FORM I PEST

Reviewed By Kirsten Reier
Date 3-28-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F21215

Lab Name: G S E L I Contract: HLA
 Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020
 Matrix: (soil/water) SOIL Lab Sample ID: VSR002
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 % Moisture: 7 decanted: (Y/N) N Date Received: 01/27/95
 Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95
 Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/22/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	1.8	UJ
319-85-7-----	beta-BHC	1.8	U
319-86-8-----	delta-BHC	1.8	U
58-89-9-----	gamma-BHC (Lindane)	1.8	U
76-44-8-----	Heptachlor	1.8	U
309-00-2-----	Aldrin	1.8	U
1024-57-3-----	Heptachlor epoxide	1.8	U
959-98-8-----	Endosulfan I	1.8	U
60-57-1-----	Dieldrin	3.5	U ✓
72-55-9-----	4,4'-DDE	3.5	UJ
72-20-8-----	Endrin	3.5	UR
33213-65-9-----	Endosulfan II	3.5	UJ
72-54-8-----	4,4'-DDD	3.5	U
1031-07-8-----	Endosulfan sulfate	3.5	U
50-29-3-----	4,4'-DDT	3.5	U
72-43-5-----	Methoxychlor	18	U
53494-70-5-----	Endrin ketone	3.5	U
7421-93-4-----	Endrin Aldehyde	3.5	U
5103-71-9-----	alpha-Chlordane	1.8	U
5103-74-2-----	gamma-Chlordane	1.8	U
8001-35-2-----	Toxaphene	180	U
12674-11-2-----	Aroclor-1016	35	U
11104-28-2-----	Aroclor-1221	71	U
11141-16-5-----	Aroclor-1232	35	U
53469-21-9-----	Aroclor-1242	35	U
12672-29-6-----	Aroclor-1248	35	U
11097-69-1-----	Aroclor-1254	35	U ✓
11096-82-5-----	Aroclor-1260	35	UJ

300779

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FORM I PEST

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 Date 3-28-95 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F21820

Lab Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95020

Matrix: (soil/water) SOIL

Lab Sample ID: VSR003

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

% Moisture: 14 decanted: (Y/N) N

Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 02/22/95

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 7.0

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

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

Q

319-84-6-----alpha-BHC	2.0	UJ
319-85-7-----beta-BHC	2.0	U
319-86-8-----delta-BHC	2.0	U
58-89-9-----gamma-BHC (Lindane)	2.0	U
76-44-8-----Heptachlor	2.0	U
309-00-2-----Aldrin	2.0	U
1024-57-3-----Heptachlor epoxide	2.0	UJ
959-98-8-----Endosulfan I	2.0	U
60-57-1-----Dieldrin	3.8	U
72-55-9-----4,4'-DDE	3.8	U
72-20-8-----Endrin	3.8	UR
33213-65-9-----Endosulfan II	3.8	U
72-54-8-----4,4'-DDD	3.8	U
1031-07-8-----Endosulfan sulfate	3.8	U
50-29-3-----4,4'-DDT	3.8	U
72-43-5-----Methoxychlor	20	U
53494-70-5-----Endrin ketone	3.8	U
7421-93-4-----Endrin Aldehyde	3.8	U
5103-71-9-----alpha-Chlordane	2.0	U
5103-74-2-----gamma-Chlordane	2.0	U
8001-35-2-----Toxaphene	200	U
12674-11-2-----Aroclor-1016	38	U
11104-28-2-----Aroclor-1221	77	U
11141-16-5-----Aroclor-1232	38	U
53469-21-9-----Aroclor-1242	38	U
12672-29-6-----Aroclor-1248	38	U
11097-69-1-----Aroclor-1254	38	U
11096-82-5-----Aroclor-1260	38	U

300780

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FORM I PEST

Reviewed By

Golden Heier 3/90

Date

3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F30001

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VSR004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 13 decanted: (Y/N) N Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/22/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4 Sulfur Cleanup: (Y/N) N

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

319-84-6-----	alpha-BHC	2.0	UJ
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC (Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	U
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	3.8	U
72-55-9-----	4,4'-DDE	3.8	U
72-20-8-----	Endrin	5.0	P
33213-65-9-----	Endosulfan II	3.8	U
72-54-8-----	4,4'-DDD	3.8	U
1031-07-8-----	Endosulfan sulfate	3.8	U
50-29-3-----	4,4'-DDT	3.8	U
72-43-5-----	Methoxychlor	20	U
53494-70-5-----	Endrin ketone	3.8	U
7421-93-4-----	Endrin Aldehyde	4.0	P
5103-71-9-----	alpha-Chlordane	3.9	P
5103-74-2-----	gamma-Chlordane	4.1	P
8001-35-2-----	Toxaphene	200	U
12674-11-2-----	Aroclor-1016	38	U
11104-28-2-----	Aroclor-1221	76	U
11141-16-5-----	Aroclor-1232	38	U
53469-21-9-----	Aroclor-1242	38	U
12672-29-6-----	Aroclor-1248	38	U
11097-69-1-----	Aroclor-1254	38	UJ
11096-82-5-----	Aroclor-1260	38	UJ

300781

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FORM I PEST Reviewed By Kristen Meier 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F31214

Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VSR007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 11 decanted: (Y/N) N Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/04/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.5 Sulfur Cleanup: (Y/N) N

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

319-84-6-----alpha-BHC	1.9	U
319-85-7-----beta-BHC	1.9	U
319-86-8-----delta-BHC	1.9	U
58-89-9-----gamma-BHC (Lindane)	1.9	U
76-44-8-----Heptachlor	1.9	U
309-00-2-----Aldrin	1.9	U
1024-57-3-----Heptachlor epoxide	1.9	UJ
959-98-8-----Endosulfan I	1.9	U
60-57-1-----Dieldrin	3.7	U
72-55-9-----4,4'-DDE	3.7	U
72-20-8-----Endrin	3.7	UR
33213-65-9-----Endosulfan II	3.7	U
72-54-8-----4,4'-DDD	3.7	U
1031-07-8-----Endosulfan sulfate	3.7	U
50-29-3-----4,4'-DDT	3.7	U
72-43-5-----Methoxychlor	19	U
53494-70-5-----Endrin ketone	3.7	U
7421-93-4-----Endrin Aldehyde	3.7	U
5103-71-9-----alpha-Chlordane	1.9	U
5103-74-2-----gamma-Chlordane	1.9	U
8001-35-2-----Toxaphene	190	U
12674-11-2-----Aroclor-1016	37	U
11104-28-2-----Aroclor-1221	74	U
11141-16-5-----Aroclor-1232	37	U
53469-21-9-----Aroclor-1242	37	U
12672-29-6-----Aroclor-1248	37	U
11097-69-1-----Aroclor-1254	37	U
11096-82-5-----Aroclor-1260	37	U

300782

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FORM I PEST

Reviewed By Steven Kreis 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F31820

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) SOIL Lab Sample ID: VSR009

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 11 decanted: (Y/N) N Date Received: 01/27/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/03/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/04/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.6 Sulfur Cleanup: (Y/N) N

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

CAS NO.

COMPOUND

Q

319-84-6-----	alpha-BHC	1.9	U
319-85-7-----	beta-BHC	1.9	U
319-86-8-----	delta-BHC	1.9	U
58-89-9-----	gamma-BHC (Lindane)	1.9	U
76-44-8-----	Heptachlor	1.9	U
309-00-2-----	Aldrin	1.9	U
1024-57-3-----	Heptachlor epoxide	1.9	UJ
959-98-8-----	Endosulfan I	1.9	U
60-57-1-----	Dieldrin	3.7	U
72-55-9-----	4,4'-DDE	3.7	U
72-20-8-----	Endrin	3.7	UR
33213-65-9-----	Endosulfan II	3.7	U
72-54-8-----	4,4'-DDD	3.7	U
1031-07-8-----	Endosulfan sulfate	3.7	U
50-29-3-----	4,4'-DDT	3.7	U
72-43-5-----	Methoxychlor	19	U
53494-70-5-----	Endrin ketone	3.7	U
7421-93-4-----	Endrin Aldehyde	3.7	U
5103-71-9-----	alpha-Chlordane	1.9	U
5103-74-2-----	gamma-Chlordane	1.9	U
8001-35-2-----	Toxaphene	190	U
12674-11-2-----	Aroclor-1016	37	U
11104-28-2-----	Aroclor-1221	74	U
11141-16-5-----	Aroclor-1232	37	U
53469-21-9-----	Aroclor-1242	37	U
12672-29-6-----	Aroclor-1248	37	U
11097-69-1-----	Aroclor-1254	37	U
11096-82-5-----	Aroclor-1260	37	U

300783

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FORM I PEST

Reviewed By

Date

3-28-95

3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S00012

Name: G S E L I Contract: HLA
 Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020
 Matrix: (soil/water) WATER Lab Sample ID: VSR001
 Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____
 % Moisture: _____ decanted: (Y/N) _____ Date Received: 01/27/95
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 01/30/95
 Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/03/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) N pH: 7.0 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	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	UJ
72-20-8-----	Endrin	0.020	UR
33213-65-9-----	Endosulfan II	0.020	UJ
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

300784

VALIDATED

FORM I PEST

Reviewed By Kristen Keiser 3/90
 Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S00012RE

Name: G S E L I

Contract: HLA

Lab Code: PACE

Case No.: HLA

SAS No.: _____

SDG No.: 95020

Matrix: (soil/water) WATER

Lab Sample ID: VSR001RE

Sample wt/vol: 420.0 (g/mL) ML

Lab File ID: _____

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

Date Received: 01/27/95

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: 7.0

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO.

COMPOUND

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

Q

319-84-6-----alpha-BHC	0.024	UJ
319-85-7-----beta-BHC	0.024	U
319-86-8-----delta-BHC	0.024	U
58-89-9-----gamma-BHC (Lindane)	0.024	U
76-44-8-----Heptachlor	0.024	U
309-00-2-----Aldrin	0.024	U
1024-57-3-----Heptachlor epoxide	0.024	U
959-98-8-----Endosulfan I	0.024	U
60-57-1-----Dieldrin	0.048	U
72-55-9-----4,4'-DDE	0.048	UJ
72-20-8-----Endrin	0.048	UR
33213-65-9-----Endosulfan II	0.048	UJ
72-54-8-----4,4'-DDD	0.048	U
1031-07-8-----Endosulfan sulfate	0.048	U
50-29-3-----4,4'-DDT	0.048	U
72-43-5-----Methoxychlor	0.24	U
53494-70-5-----Endrin ketone	0.048	U
7421-93-4-----Endrin Aldehyde	0.048	U
5103-71-9-----alpha-Chlordane	0.024	U
5103-74-2-----gamma-Chlordane	0.024	U
8001-35-2-----Toxaphene	2.4	U
12674-11-2-----Aroclor-1016	0.48	U
11104-28-2-----Aroclor-1221	0.95	U
11141-16-5-----Aroclor-1232	0.48	U
53469-21-9-----Aroclor-1242	0.48	U
12672-29-6-----Aroclor-1248	0.48	U
11097-69-1-----Aroclor-1254	0.48	U
11096-82-5-----Aroclor-1260	0.48	UJ

300785

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FORM I PEST

Rev

By Kristen Miller

Date

3-28-95

3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SO0127

Lab Name: G S E L I Contract: HLA

Lab Code: PAGE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) WATER Lab Sample ID: VTF001

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

% Moisture: _____ decanted: (Y/N) _____ Date Received: 01/30/95

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 02/01/95

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/03/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 5.8 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	UV
72-55-9-----4,4'-DDE	0.020	UJ
72-20-8-----Endrin	0.020	UR
33213-65-9-----Endosulfan II	0.020	UJ
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	UV
11096-82-5-----Aroclor-1260	0.20	UJ

300786

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FORM I PEST

By Kirsten Meier 3/90
Date 3-28-95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SO0127RE

Lab Name: G S E L I Contract: HLA

Lab Code: PACE Case No.: HLA SAS No.: _____ SDG No.: 95020

Matrix: (soil/water) WATER Lab Sample ID: VTF001RE

Sample wt/vol: 490.0 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____ Date Received: 01/30/95

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: 5.8 Sulfur Cleanup: (Y/N) N

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	Q
319-84-6	alpha-BHC	0.020	UJ
319-85-7	beta-BHC	0.020	U
319-86-8	delta-BHC	0.020	U
58-89-9	gamma-BHC (Lindane)	0.020	U
76-44-8	Heptachlor	0.020	U
309-00-2	Aldrin	0.020	U
1024-57-3	Heptachlor epoxide	0.020	U
959-98-8	Endosulfan I	0.020	U
60-57-1	Dieldrin	0.041	U
72-55-9	4,4'-DDE	0.041	UJ
72-20-8	Endrin	0.041	UR
33213-65-9	Endosulfan II	0.041	UJ
72-54-8	4,4'-DDD	0.041	U
1031-07-8	Endosulfan sulfate	0.041	U
50-29-3	4,4'-DDT	0.041	U
72-43-5	Methoxychlor	0.20	U
53494-70-5	Endrin ketone	0.041	U
7421-93-4	Endrin Aldehyde	0.041	U
5103-71-9	alpha-Chlordane	0.020	U
5103-74-2	gamma-Chlordane	0.020	U
8001-35-2	Toxaphene	2.0	U
12674-11-2	Aroclor-1016	0.41	U
11104-28-2	Aroclor-1221	0.82	U
11141-16-5	Aroclor-1232	0.41	U
53469-21-9	Aroclor-1242	0.41	U
12672-29-6	Aroclor-1248	0.41	U
11097-69-1	Aroclor-1254	0.41	U
11096-82-5	Aroclor-1260	0.41	UJ

300787

VALIDATED

FORM I PEST

Reviewed By R. K. Heil 3/90

Date 3-28-95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Metals Analysis

Case Number : 95010	Project Number: 29872, 10.2
Site: Island Chemical Company	
Contractor Laboratory: PACE Incorporated	
Validator: J. Whittle	Validation Date: 3/21/95
QC Reviewer: Michael R. Phillips	Review Date: 4/3/95
Sample Matrix: Soil (12), Water (5)	
Analytical Methods: EPA CLP Metals SOW, Mercury, Cyanide	

Sample Designations:

C22022	D30002	RBS001	
C22426	D31719	S00118	
D10001	E10005	S00119	
D11214	E12022	S00120	
D12224	C20001	S00125	
D20020			
D21921			

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" (Feb. 1994). Calibration requirements for mercury were obtained from the July, 1988 version of the functional guidelines.

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4/3/95

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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>*</u>	Holding Times
<u>X</u>	Inorganic Analysis Data Sheets
<u>X</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>NA</u>	Method of Standard Additions Summary
<u>X</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: The COCs indicate that two shipments of samples came at $> 6^{\circ}\text{C}$ and one shipment at $< 1^{\circ}\text{C}$. These involved all samples but S00120, S00125, D30002, D31719, D10001, D11214, and D12224. Qualifications for samples C20001, C22022, C22426, and RBS001 are not recommended, since they involved a cooler shipped at 1°C . Refer to page 11 for a summary of recommended qualifiers.

Holding Times

Were sample preparations and analyses performed within holding times?

Yes

☒ No

Comments: Several samples were analyzed past the 14-day holding time for cyanide, and one sample was analyzed past the 28-day holding time for mercury. Since the exceedance was only 1 day for mercury, qualifiers are not recommended for the one sample. Several samples were analyzed on the 28th day past sampling. However even though holding time exceedances were only 1-2 days for cyanide, qualifiers are recommended since they were associated with samples also shipped at temperatures slightly above the required $2-6^{\circ}\text{C}$ limit. Refer to page 1 for a summary of recommended qualifiers and additional comments. The Laboratory control sample section also contains more information about cyanide problems (page 4) as well as the matrix spike section (page 5).



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Sample ID Summary

<u>Client ID</u>	<u>Abbreviated Client ID</u>	<u>Laboratory ID</u>
RBS0/012095	S00120	VQA-001
SBD3/0-2/012095	D30002	VQA-002
QW SBD3/17-19/012095	D31719	VQA-003
RBS0/011995	S00119	VQB-001
SBE1/20-22/011995	E12022	VQB-002
SBD2/0.0-20/011995	D20020	VQB-003
SBD2/19-21/011995	D21921	VQB-004
RBS0/011895	S00118	VQC-001
SBE1/0.5-2.0/011895	E10520	VQC-002
SBE1/0.0-0.5/011895	E10005	VQC-003
RBS0/012595	S00125	VSI-001
SBD1/0-1/012595	D10001	VSI-002
SBD1/12-14/012595	D11214	VSI-003
SBD1/22-24/012595	D12224	VSI-004
SBC2/0-1/013095	C20001	VTX-001
SBC2/20-22/013095	C22022	VTX-002
SBC2/24-26/013095	C22426	VTX-003
RBS0/013095	RBS001	VTX-004

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:

None

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 (CRL) 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:

The following analytes were recovered outside the 75-125% control range and have been qualified as shown.

<u>Spike Sample</u>	<u>Analyte</u>	<u>% R</u>	<u>Affected Samples</u>	<u>(+/-) Qualifiers</u>
500120	Antimony	127.7	All waters	J/-
	Beryllium	74.0	All waters	J/UJ
D30002	Selenium	23.8	All soils	J/R
VTF002	Cyanide	71.2	All soils	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: At 120.6%, the LCSW recovery for potassium was outside the 80-120% control range, but not to an extent that warrants data qualification. The LCSS recovery of cyanide (11.4 mg/Kg) was outside the 30-170 mg/Kg control range. Rerun of the LCSS sample yielded 94.9 mg/Kg recovery however, the samples were not rerun due to holding time constraints. Therefore, the initial LCSS associates with the reported sample results. All results for cyanide in the soil samples should be considered estimated (J/UT).

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 4/3/95

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

☒ Yes ☒ No

MPP 4/3/95

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

☒ Yes ☒ No

MPP 4/3/95

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: Analytes showing duplicate results outside the method acceptance criteria are included as page 7A of this report. The laboratory suggests that the lack of sample homogeneity may be the reason for the recoveries, suggesting matrix difficulties. Considering the prespike, postspike, and LC results, this seems plausible. Therefore, a less restrictive criteria of 35% RPD and $\pm 2X$ the CRDL has been used for evaluation of the soil samples. No qualifiers have resulted

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 (A+B) for a summary of qualifiers and associated samples.



PROJECT

Island Chemical Company

SUBJECT

Data Validation

Duplicate Sample Results

<u>Duplicate Sample</u>	<u>Analyte</u>	<u>QC* Limit</u>	<u>Result</u>	<u>Qualifier</u>	<u>For</u>
D30002	Aluminum	< 35%	33.1%	none	Soils
	Cadmium	< $\pm 2 \times$ CRDL (2.2)	1.1 mg/kg	none	
	Calcium	< 35%	34.7%	none	
	Chromium	< 35%	24.4%	none	
	Iron	< 35%	26.3%	none	
	Magnesium	< 35%	20.4%	none	
	Vanadium	< 35%	28.0%	none	
S00120	Beryllium	< $\pm$ CRDL (5.0)	1.7 μ g/l	none	waters

* The criteria of a difference of $\pm$ the CRDL is used for the difference between sample and duplicate values, when those values are less than 5x the CRDL. When values are greater than 5x the CRDL, RPDs must be less than 20%, by the method. Refer to comment on page 7.

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 (Not required)

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

☐ Yes ☐ No ☒ NA

Comments: Post-digestion spike recoveries exceeded the 85-115% control limit for several compounds. Refer to page 8A for a summary of qualifiers. GFAA analysis was done for antimony, arsenic, beryllium, lead, selenium, and thallium.



PROJECT Island Chemical Company
SUBJECT Data Validation

Analytical Spike Results

<u>Sample No.</u>	<u>Compound</u>	<u>% R</u>	<u>(+/-) Qualifier</u>
D30002	Antimony	141.4	J/UT
	Thallium	84.6	
D31719	Antimony	133.0	
	Selenium	42.6	
D20020	Antimony	130.1	
	Thallium	82.3	
D21921	Antimony	123.0	
	Selenium	51.0	
E10005	Antimony	119.9	
D10001	Antimony	129.4 ^{4.9}	
	Thallium	83.4	
D12224	Antimony	118.9	
	Selenium	40.1	
C20001	Antimony	122.2	
	Thallium	82.9	
C22022	Antimony	162.4	
C22426	Antimony	124.5	
	Selenium	40.5	
	Thallium	84.5	

MPP
4/3/95

8A

(continued)

300798



Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____

JOB NO. _____

DATE 3/23/95

COMPUTED BY J. Whittle

CHECKED BY _____

PROJECT Island Chemical Company
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<u>Sample No.</u>	<u>Compound</u>	<u>% R</u>	<u>(+/-) Qualifier</u>
RBS001	Arsenic	55.3	J/UT
	Selenium	61.1	
	Thallium	73.9	
D11214	Selenium	45.5	
S00118	Selenium	70.1	
	Thallium	83.5	
S00120	Thallium	82.9	
S00119	Thallium	81.4	
S00125	Thallium	83.7	

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8B

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

Sample Identification	Analyte	Date Sampled	Date Prepared (CN Distilled)	Date Analyzed	Analysis Holding Time (days)	Qualifier (+/-)	SHIPPING TEMP. (°C)
E12022	CN	1/19/95	2/1	2/3	14	J/UJ	(CN only)
E10005	CN	1/18/95	2/1	2/3	14	J/UJ	
D20020	CN	1/19/95	2/1	2/3	14	J/UJ	
D21921	CN	1/19/95	2/1	2/3	14	J/UJ	
S00118	CN; Hg	1/18/95	1/30; —	2/2; 2/16	14; 28	J/UJ	
S00119	CN	1/19/95				J/UJ	9.3
E12022	CN	1/19/95				J/UJ	9.3
D20020	CN	1/19/95				J/UJ	9.3
D21921	CN	1/19/95				J/UJ	9.3
S00118	CN	1/18/95				J/UJ	8.3
E10005	CN	1/18/95				J/UJ	8.3

Comments: Only qualifiers for CN are recommended on the basis of shipping temperatures, since exceedance is slight, since samples were preserved, and since only CN holding times were exceeded. Water samples for metals and mercury are not required to be cooled, but only preserved.

BLANK SUMMARY FORM (SOILS)

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples	Qualifier
PBS	Aluminum	4.35 mg/kg	21.75 mg/kg	C22022, C22426,	u/-
PBS	Arsenic	0.32 mg/kg	1.6 mg/kg	D10001, D11214, D12224,	
ICB	Chromium	4.1 µg/l	4.1 mg/kg	D20020, D21921, D30002,	
CCB	Lead	0.8 µg/l	0.8 mg/kg	D31719, E10005, E12022,	
CCB	Magnesium	27.8 µg/l	27.8 mg/kg	C20001	
CCB	Selenium	1.5 µg/l	1.5 mg/kg	↓	↓
PBS	Zinc	1.64 mg/kg	8.2 mg/kg	↓	↓

Comments:

300803

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12 A

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BLANK SUMMARY FORM
(WATERS)

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples	Qualifier
CCB	Arsenic	1.4 µg/l	7 µg/l	RBS001, S00118, S00119, U/-	
PBW	Beryllium	0.8 µg/l	4 µg/l	S00120, S00125	
ICB	Chromium	4.1 µg/l	20.5 µg/l		
PBW	Lead	0.97 µg/l	4.85 µg/l		
CCB	Magnesium	27.8 µg/l	139 µg/l		
CCB	Selenium	1.5 µg/l	7.5 µg/l	↓	↓

Comments:

300804

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12 B

Form MET 1.0

Summary and Conclusions

All data were present for a full validation of the metals analysis, and all holding times were met, except for the analysis of cyanide. Samples E12022, E10005, D20020, D21921, S00118, and S00119 have been qualified as estimated for CN due to holding time and shipping temperature problems. Review of the QC and sample data did not show errors or suggest any problems with compound identification or quantitation.

Qualification of CN in all soil samples was also necessary on the basis of laboratory control sample and matrix spike recoveries outside control limits (J/UJ). All water sample results for Antimony and Beryllium, and all soil sample results for selenium were estimated (J) for positive results, because of matrix spike recoveries outside control limits. However, because of the degree of the recoveries, nondetected results for antimony were not qualified (>125%), whereas nondetected results for selenium were rejected (R) because of recoveries less than 30%. Nondetected results for beryllium were qualified as estimated (UJ). (Continued)

MPP
4/3/95

Validator's Signature: <i>Joyce E. Whittle</i>	
Validator's Initials: <i>JW</i>	Validation Date: <i>3/22/95</i>
QC Reviewer's Signature: <i>Michael P. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4/3/95</i>



PROJECT _____

SUBJECT _____

Island Chemical Company
Data Validation

Summary and Conclusions (continued)

Because of blank contamination, arsenic was qualified as undetected (U) in the soil samples, lead (U) in samples 500119 and 500125, chromium (U) in samples 500120 and 500125, and beryllium and magnesium were qualified as well (U) in sample 500120.

Due to post-digestion spike results outside the 85-115% control limit, antimony, selenium, thallium, and arsenic were qualified as estimated (J/U) in most of the samples, as outlined on pages 8A and 8B of this report.

Qualifiers were not necessary on the basis of duplicate results, since a less restrictive criteria was used for evaluation (35%RPD, $\leq \pm 2 \times \text{CRDL}$). The apparent lack of sample homogeneity seemed to warrant this approach.

1
INORGANIC ANALYSIS DATA SHEET

C20001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VTX001

Level (low/med): LOW

Date Received: 02/01/95

% Solids: 88.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14700	*		P
7440-36-0	Antimony	1.3	W	J	F
7440-38-2	Arsenic	1.5	B	U	F
7440-39-3	Barium	112			P
7440-41-7	Beryllium	0.34			F
7440-43-9	Cadmium	3.0	*		P
7440-70-2	Calcium	71800	*		P
7440-47-3	Chromium	18.9	*		P
7440-48-4	Cobalt	12.4			P
7440-50-8	Copper	50.9			P
7439-89-6	Iron	26300	*		P
7439-92-1	Lead	31.2			F
7439-95-4	Magnesium	7650	*		P
7439-96-5	Manganese	689			P
7439-97-6	Mercury	0.27			CV
7440-02-0	Nickel	15.6			P
7440-09-7	Potassium	2460			P
7782-49-2	Selenium	3.1	U	N R	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	416	B		P
7440-28-0	Thallium	0.61	U	W J	F
7440-62-2	Vanadium	65.6	*		P
7440-66-6	Zinc	182			P
57-12-5	Cyanide	1.1	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Date

Joyce E. White
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

C22022

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VTX002

Level (low/med): LOW

Date Received: 02/01/95

% Solids: 83.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11700		*	P
7440-36-0	Antimony	0.33	U	W J	F
7440-38-2	Arsenic	0.34	B	U	F
7440-39-3	Barium	106			P
7440-41-7	Beryllium	0.33			F
7440-43-9	Cadmium	1.9		*	P
7440-70-2	Calcium	12100		*	P
7440-47-3	Chromium	18.8		*	P
7440-48-4	Cobalt	15.2			P
7440-50-8	Copper	47.8			P
7439-89-6	Iron	20800		*	P
7439-92-1	Lead	3.9			F
7439-95-4	Magnesium	6290		*	P
7439-96-5	Manganese	291			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	12.5			P
7440-09-7	Potassium	1250			P
7782-49-2	Selenium	3.3	U	N R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	965	B		P
7440-28-0	Thallium	0.64	U		F
7440-62-2	Vanadium	90.0		*	P
7440-66-6	Zinc	45.8			P
57-12-5	Cyanide	1.2	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**Reviewed By: Joyce E. WhiteDate: 3/22/95

1
INORGANIC ANALYSIS DATA SHEET

C22426

b Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VTX003

Level (low/med): LOW

Date Received: 02/01/95

% Solids: 86.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9980		*	P
7440-36-0	Antimony	0.33	U	W J	F
7440-38-2	Arsenic	0.91	B	U	F
7440-39-3	Barium	67.8			P
7440-41-7	Beryllium	0.36			F
7440-43-9	Cadmium	2.0		*	P
7440-70-2	Calcium	5680		*	P
7440-47-3	Chromium	18.6		*	P
7440-48-4	Cobalt	12.6			P
7440-50-8	Copper	47.1			P
7439-89-6	Iron	24500		*	P
7439-92-1	Lead	3.2			F
7439-95-4	Magnesium	5110		*	P
7439-96-5	Manganese	354			P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	14.1			P
7440-09-7	Potassium	1040	B		P
7782-49-2	Selenium	0.33	U	NW R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	586	B		P
7440-28-0	Thallium	0.63	U	W J	F
7440-62-2	Vanadium	131		*	P
7440-66-6	Zinc	50.9			P
57-12-5	Cyanide	1.1	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

300809

ILM02.0

080007

1
INORGANIC ANALYSIS DATA SHEET

D10001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VSI002

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 90.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16100	*		P
7440-36-0	Antimony	0.31	U W J		F
7440-38-2	Arsenic	1.2	B U		F
7440-39-3	Barium	132			P
7440-41-7	Beryllium	0.35			F
7440-43-9	Cadmium	2.8	*		P
7440-70-2	Calcium	84500	*		P
7440-47-3	Chromium	19.8	*		P
7440-48-4	Cobalt	16.1			P
7440-50-8	Copper	45.1			P
7439-89-6	Iron	25400	*		P
7439-92-1	Lead	6.8			F
7439-95-4	Magnesium	8540	*		P
7439-96-5	Manganese	976			P
7439-97-6	Mercury	0.26			CV
7440-02-0	Nickel	15.6			P
7440-09-7	Potassium	1940			P
7782-49-2	Selenium	3.1	U N R		F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	557	B		P
7440-28-0	Thallium	0.59	U W J		F
7440-62-2	Vanadium	99.4	*		P
7440-66-6	Zinc	89.5			P
57-12-5	Cyanide	1.1	U J		AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Joyce S. Whittle
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

D11214

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VSI003

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 82.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13400	*		P
7440-36-0	Antimony	0.46	B	W	F
7440-38-2	Arsenic	0.80	B	U	F
7440-39-3	Barium	187			P
7440-41-7	Beryllium	0.34			F
7440-43-9	Cadmium	3.5	*		P
7440-70-2	Calcium	14700	*		P
7440-47-3	Chromium	25.4	*		P
7440-48-4	Cobalt	23.0			P
7440-50-8	Copper	50.4			P
7439-89-6	Iron	32700	*		P
7439-92-1	Lead	4.7			F
7439-95-4	Magnesium	7320	*		P
7439-96-5	Manganese	2070			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	20.9			P
7440-09-7	Potassium	1250			P
7782-49-2	Selenium	0.34	U	NW R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	1200	B		P
7440-28-0	Thallium	0.65	U		F
7440-62-2	Vanadium	194	*		P
7440-66-6	Zinc	50.3			P
57-12-5	Cyanide	1.2	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Date

Joyce E. W. Little
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

D12224

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VSI004

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 87.5

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	0.45	BW J		F
7440-38-2	Arsenic	0.33	BW U		F
7440-39-3	Barium	121			P
7440-41-7	Beryllium	0.24			F
7440-43-9	Cadmium	3.4	*		P
7440-70-2	Calcium	5820	*		P
7440-47-3	Chromium	19.9	*		P
7440-48-4	Cobalt	15.2			P
7440-50-8	Copper	50.4			P
7439-89-6	Iron	33200	*		P
7439-92-1	Lead	2.9			F
7439-95-4	Magnesium	6700	*		P
7439-96-5	Manganese	940			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	22.6			P
7440-09-7	Potassium	1000	B		P
7782-49-2	Selenium	0.32	UNW R		F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	1120	B		P
7440-28-0	Thallium	0.62	U		F
7440-62-2	Vanadium	157	*		P
7440-66-6	Zinc	59.3			P
57-12-5	Cyanide	1.1	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Date

Joyce E. White
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

D20020

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VQB003

Level (low/med): LOW

Date Received: 01/23/95

% Solids: 80.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18400		*	P
7440-36-0	Antimony	0.35	U W J		F
7440-38-2	Arsenic	1.5	B U		F
7440-39-3	Barium	98.3			P
7440-41-7	Beryllium	0.37			F
7440-43-9	Cadmium	1.9		*	P
7440-70-2	Calcium	60600		*	P
7440-47-3	Chromium	22.1		*	P
7440-48-4	Cobalt	18.9			P
7440-50-8	Copper	51.7			P
7439-89-6	Iron	26700		*	P
7439-92-1	Lead	5.9			F
7439-95-4	Magnesium	7530		*	P
7439-96-5	Manganese	842			P
7439-97-6	Mercury	0.15			CV
7440-02-0	Nickel	18.2			P
7440-09-7	Potassium	2090			P
7782-49-2	Selenium	3.5	U N R		F
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	558	B		P
7440-28-0	Thallium	0.67	U W J		F
7440-62-2	Vanadium	116		*	P
7440-66-6	Zinc	66.3			P
57-12-5	Cyanide	1.2	U J		AS

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

1
INORGANIC ANALYSIS DATA SHEET

D21921

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VQB004

Level (low/med): LOW

Date Received: 01/23/95

% Solids: 88.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10700	*		P
7440-36-0	Antimony	0.48	B W J		F
7440-38-2	Arsenic	0.66	B U		F
7440-39-3	Barium	131			P
7440-41-7	Beryllium	0.26			F
7440-43-9	Cadmium	2.6	*		P
7440-70-2	Calcium	5700	*		P
7440-47-3	Chromium	19.9	*		P
7440-48-4	Cobalt	16.0			P
7440-50-8	Copper	47.7			P
7439-89-6	Iron	27400	*		P
7439-92-1	Lead	4.0			F
7439-95-4	Magnesium	5480	*		P
7439-96-5	Manganese	755			P
7439-97-6	Mercury	0.13			CV
7440-02-0	Nickel	16.7			P
7440-09-7	Potassium	985	B		P
7782-49-2	Selenium	0.32	U NW R		F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	780	B		P
7440-28-0	Thallium	0.61	U		F
7440-62-2	Vanadium	141	*		P
7440-66-6	Zinc	50.5			P
57-12-5	Cyanide	1.1	U J		AS

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Joyce G. Whittle
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

D30002

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VQA002

Level (low/med): LOW

Date Received: 01/23/95

% Solids: 88.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12800	*		P
7440-36-0	Antimony	0.32	U	MW J	F
7440-38-2	Arsenic	0.67	B	IA	F
7440-39-3	Barium	99.7			P
7440-41-7	Beryllium	0.38			F
7440-43-9	Cadmium	1.7	*		P
7440-70-2	Calcium	21900	*		P
7440-47-3	Chromium	20.4	*		P
7440-48-4	Cobalt	15.4			P
7440-50-8	Copper	62.2			P
7439-89-6	Iron	23600	*		P
7439-92-1	Lead	5.4			F
7439-95-4	Magnesium	6250	*		P
7439-96-5	Manganese	589			P
7439-97-6	Mercury	0.13			CV
7440-02-0	Nickel	20.5			P
7440-09-7	Potassium	1280			P
7782-49-2	Selenium	3.2	U	N R	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	497	B		P
7440-28-0	Thallium	0.61	U	W J	F
7440-62-2	Vanadium	98.1	*		P
7440-66-6	Zinc	56.7			P
57-12-5	Cyanide	1.1	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Joyce E. Whittle
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

D31719

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VQA003

Level (low/med): LOW

Date Received: 01/23/95

% Solids: 87.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9350		*	P
7440-36-0	Antimony	0.32	U W J		F
7440-38-2	Arsenic	0.40	B U		F
7440-39-3	Barium	140			P
7440-41-7	Beryllium	0.30			F
7440-43-9	Cadmium	1.6		*	P
7440-70-2	Calcium	4640		*	P
7440-47-3	Chromium	18.0		*	P
7440-48-4	Cobalt	12.2			P
7440-50-8	Copper	39.7			P
7439-89-6	Iron	25000		*	P
7439-92-1	Lead	3.9			F
7439-95-4	Magnesium	4340		*	P
7439-96-5	Manganese	1020			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	14.7			P
7440-09-7	Potassium	602	B		P
7782-49-2	Selenium	0.32	U NW R		F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	610	B		P
7440-28-0	Thallium	0.62	U		F
7440-62-2	Vanadium	137		*	P
7440-66-6	Zinc	56.7			P
57-12-5	Cyanide	1.1	U	J	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Joyce E. Whittle
3/22/95

1
INORGANIC ANALYSIS DATA SHEET

E10005

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095010

Matrix (soil/water): SOIL

Lab Sample ID: VQC003

Level (low/med): LOW

Date Received: 01/23/95

% Solids: 92.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16900	*		P
7440-36-0	Antimony	0.54	B W J		F
7440-38-2	Arsenic	1.7	B U		F
7440-39-3	Barium	60.1			P
7440-41-7	Beryllium	0.30			F
7440-43-9	Cadmium	4.0	*		P
7440-70-2	Calcium	35200	*		P
7440-47-3	Chromium	17.5	*		P
7440-48-4	Cobalt	16.8			P
7440-50-8	Copper	43.4			P
7439-89-6	Iron	32200	*		P
7439-92-1	Lead	89.9			F
7439-95-4	Magnesium	7920	*		P
7439-96-5	Manganese	791			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	16.8			P
7440-09-7	Potassium	1470			P
7782-49-2	Selenium	3.0	U N R		F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	358	B		P
7440-28-0	Thallium	0.58	U		F
7440-62-2	Vanadium	88.0	*		P
7440-66-6	Zinc	555			P
57-12-5	Cyanide	1.1	U J		AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

Goyce E. Whittle
3/22/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Metals Analysis

Case Number: 95020	Project Number: 29872 10.2
Site: Island Chemical Company	
Contractor Lab: Pace Environmental Laboratories, St. Rosa, LA	
Validator: Kirsten Meier	Validation Date: 31 March 1995
QC Reviewer: <i>Michael R. Phyllis</i>	Review Date: 4-6-95
Sample Matrix: water and soil	
Analytical Method: CLP metals, including Cyanide	

Sample Designations:

RBSO/012495 * (SO0012)	SBF2/12-15/012495 (F21215)	SBF2/18-20/012495 (F21820)	SBF3/0-1/012495 (F30001)
SBF3/12-14/012495 (F31214)	SBF3/18-20/012495 (F31820)	SBB1/24-26/013195 (B12426)	RBSO/012795 * (SO0127)
SBC1/0-1/012795 (C10001)	SBC1/16-18/012795 (C11618)	SBC1/18-20/012795 (C11820)	SBC1/20-22/012795 (C12022)
SBD4/0-1/012795 (D40001)	SBD4/14-16/012795 (D41416)	SBD4/20-22/012795 (D42022)	RBSO/013195 * (BSO013)
SBB1/0-1/013195 (B10001)	SBB1/6-8/013195 (B16008)	SBB101/0-1/013195 (B10101)	

* = aqueous sample

() = Sample ID on Form I

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 sample were analyzed following the CLP ILM02.0 methods and the data was reviewed in accordance with the Functional Guidelines, February 1994. Calibration requirements for mercury were obtained from the July, 1988 version of the Functional Guidelines.

The metals Antimony, Arsenic, Beryllium, Lead, Selenium and Thallium were analyzed by GFAA.

300818

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:

None

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:

The submitted Chain of Custody forms were not signed and dated by the lab. No qualification of data.

Holding Times

Were sample preparations and analyses performed within holding times?

Yes[x] 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 GFAA calibrations the lab chose non-linear correlation, the correlation coefficients were > 0.995 for this type of calibration. No qualification of data.

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[x] No

Comments:

On Form II (page 080028) the cyanide ICV recovery is listed as 55%; that is a typo, the true concentration is 20 ug/l which results in 110% recovery. No qualification of data.

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 No[x]

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 NA

Comments:

For Mercury the matrix spikes were performed on samples not belonging to this SDG. No further qualification of data.

The soil spike recoveries for Cyanide were 58.7%, 71.2%, and 0% recovery. Therefore, detections of Cyanide reported in the investigative soil samples were qualified as estimated (J), while non-detections were rejected (R).

The following analytes had soil spike recoveries outside the QC criteria of 75-125% :

Analyte	% Recovery	Qualifier
Antimony	17.9	J/R
Arsenic	0	J/R
Cadmium	68.4	J/UJ
Copper	26.1	J/R
Lead	62	J/UJ
Selenium	25	J/R
Vanadium	132.3	J/-

Therefore, the qualifiers listed in the above table were applied to all of the associated investigative soil samples.

The post digestion spike recoveries for Cadmium (63.4%), Copper (75.2%) and Vanadium (71.9%) were low, however qualification under the Functional Guidelines is not necessary.

The water spike recoveries for antimony (127.7%) and beryllium (74%) were outside the acceptance range. Therefore, the detections of antimony and beryllium in the investigative water samples were qualified as estimated (J). Non-detected beryllium results were qualified as estimated (UJ), while non-detected antimony results are acceptable and not qualified.

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 aqueous LCS recovery for Potassium was 120.6%, exceeding the limit of 120.0%. Therefore, detections of Potassium in the investigative water samples were qualified as estimated (J).

The soil LCS recovery for Cyanide was 11.4 mg/kg, below the limit of 30 mg/kg and represents a recovery of 15.4%. In accordance with the functional guidelines, the soil Cyanide data is unusable and was rejected (R).

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:

The following analytes exceeded the criteria for duplicate analysis:
Aluminum (22.9% RPD), Cadmium (75.3% RPD), Chromium (29.1% RPD), Copper (39.6% RPD),
Iron (63.2% RPD), Lead (145.5% RPD), Nickel (> 1xCRDL) and Zinc (55.1% RPD). Therefore, the
results for these analytes in the investigative soil samples were qualified as estimated (J).

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.

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 duplicate analysis for Zinc resulted in 11.0% difference, outside the QC criteria of 10%.
Therefore, the results for Zinc in the investigative samples were 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

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

Yes☒ No

Comments:

For the following analytes the analytical spike recovery exceeded the criteria of 85-115% and the samples were not reanalyzed at a dilution:

Analyte	Sample ID	Spike Recovery	Qualifier
Antimony	SO0127	81.3	J/UJ
Arsenic	C11820	121.5	J/-
Arsenic	D42022	118.1	J/-
Lead	F21820	84.1	J/UJ
Lead	F31820	81.2	J/UJ
Lead	C10001	80.0	J/UJ
Lead	B16008	81.2	J/UJ
Selenium	F21820	72.5	J/UJ
Selenium	F31214	45.8	J/UJ
Selenium	F31820	79.0	J/UJ
Selenium	C10001	76.2	J/UJ
Selenium	C11618	77.9	J/UJ
Selenium	C11820	84.3	J/UJ
Selenium	D42022	79.3	J/UJ
Selenium	B10001	78.0	J/UJ
Selenium	B16008	53.0	J/UJ
Selenium	B12426	47.3	J/UJ
Thallium	S00012	81.8	J/UJ
Thallium	S00127	81.0	J/UJ
Thallium	BS0013	79.3	J/UJ

The above listed qualifiers were applied to the appropriate analytes in the associated investigative samples.

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[x] No

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:

None

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 No[x]

Comments:

For the GFAA analyses the date and time when the standards were prepped was not noted on the raw data. No qualification of data.

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:

None

Case Number: 95020
Project Number: 29872 10.2
Site ID: Island Chemical Company

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Analysis Holding Time	Qualifier

Comments:
None

300830

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result [ug/l]	Action Level	Associated Samples	Qualifier
ICB	Chromium	4.1	4.1 mg/kg or 20.5 ug/l	all investigative samples	U
CCB	Lead	1.9	1.9 mg/kg or 9.5 ug/l	all investigative samples	U
CCB	Magnesium	27.8	27.8 mg/kg or 139 ug/l	all investigative samples	U
ICB	Selenium	-1.5	1.5 mg/kg or 7.5 ug/l	all investigative samples	U
CCB	Alumium	-21.1	21.1 mg/kg or 105.5 ug/l	all investigative samples	U
ICB	Arsenic	2.4	2.4 mg/kg or 12 ug/l	all investigative samples	U
CCB	Beryllium	0.1	0.1 mg/kg or 0.5 ug/l	all investigative samples	U
CCB	Copper	-19.9	19.9 mg/kg or 99.5 ug/l	all investigative samples	U
Prep Blank Water	Beryllium	0.804	4.02 ug/l	all water samples	U
Prep Blank Water	Lead	0.970	4.85 ug/l	all water samples	U
Prep Blank Soil	Zinc	2.291 mg/kg	11.455 mg/kg	all soil samples	U

Comments:

Detections of the listed analytes in the investigative sample below the action level were qualified as undetected (U) due to blank contamination.

300831

Summary and Conclusions

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

The data for Mercury was rejected (R) in accordance with the Functional Guidelines, because the initial calibration was performed with less standards than the method requires.

Due to low spike recoveries, the detections of Antimony, Arsenic, Copper, Selenium and Cyanide reported in the investigative samples were qualified as estimated (J), while non-detections were rejected (R).

Due to low spike recoveries, the results for Cadmium and Lead in the investigative samples were qualified as estimated (J).

Due to high spike recoveries, the detections of Vanadium in the investigative samples were qualified as estimated (J).

Detections of Potassium in the investigative samples were qualified as estimated (J), since the LCS recovery exceeded the upper QC limit.

The results for Mercury in the soil investigative samples were rejected (R), due to very low recovery of the soil LCS.

The soil results for the analytes Aluminum, Cadmium, Chromium, Copper, Iron, Lead, Nickel and Zinc were qualified as estimated (J), because the duplicate analysis exceeded the QC criteria.

Blank contamination was observed for several analytes and detections in the investigative samples below the action level were qualified as undetected (U). See table "Blank Summary Form" for detailed information.

The results for Zinc in the investigative samples were qualified as estimated (J), since the duplicate analysis exceeded the QC criteria.

The analytical spike recoveries for several analytes did not meet the QC criteria and the results for these analytes were qualified. See table in report for details.

Validator's Signature: <i>Kirsten Meier</i>	
Validator's Initials: <i>KM</i>	Validation Date: <i>3-31-95</i>
QC Reviewer's Signature: <i>Michael P. Phillips</i>	
QC Reviewer's Initials: <i>MPP</i>	Review Date: <i>4-6-95</i>

1
INORGANIC ANALYSIS DATA SHEET

B10001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VVG002

Level (low/med): LOW

Date Received: 02/03/95

% Solids: 81.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	23300		*J	P
7440-36-0	Antimony	0.34	U	N R	F
7440-38-2	Arsenic	0.27	U	N R	F
7440-39-3	Barium	197			P
7440-41-7	Beryllium	0.32			F
7440-43-9	Cadmium	2.8		N*J	P
7440-70-2	Calcium	17800			P
7440-47-3	Chromium	19.9		*J	P
7440-48-4	Cobalt	29.6			P
7440-50-8	Copper	54.5		N*J	P
7439-89-6	Iron	32100		*J	P
7439-92-1	Lead	3.4		NS*J	F
7439-95-4	Magnesium	7260			P
7439-96-5	Manganese	1860			P
7439-97-6	Mercury	0.29			CV
7440-02-0	Nickel	19.2		*J	P
7440-09-7	Potassium	4180			P
7782-49-2	Selenium	0.34	U	NW R	F
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	575	B		P
7440-28-0	Thallium	0.66	U		F
7440-62-2	Vanadium	109		N J	P
7440-66-6	Zinc	72.7		E*J	P
57-12-5	Cyanide	1.2	U	N R	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

F
DateKirsten Meier
3-31-95

1
INORGANIC ANALYSIS DATA SHEET

B10101

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VVG004

Level (low/med): LOW

Date Received: 02/03/95

% Solids: 83.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	28200		*J	P
7440-36-0	Antimony	0.33	U	NR	F
7440-38-2	Arsenic	1.5	B	NR	F
7440-39-3	Barium	268			P
7440-41-7	Beryllium	0.58			F
7440-43-9	Cadmium	3.1		N*J	P
7440-70-2	Calcium	12200			P
7440-47-3	Chromium	21.9		*J	P
7440-48-4	Cobalt	31.7			P
7440-50-8	Copper	58.4		N*J	P
7439-89-6	Iron	37000		*J	P
7439-92-1	Lead	7.1		N*J	F
7439-95-4	Magnesium	7760			P
7439-96-5	Manganese	2100			P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	24.7		*J	P
7440-09-7	Potassium	4330			P
7782-49-2	Selenium	3.3	U	NR	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	702	B		P
7440-28-0	Thallium	0.64	U		F
7440-62-2	Vanadium	110		N J	P
7440-66-6	Zinc	3620		E*J	P
57-12-5	Cyanide	1.2	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Kirsten Meier

Date

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

B12426

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VVG005

Level (low/med): LOW

Date Received: 02/03/95

% Solids: 80.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17600		* J	P
7440-36-0	Antimony	0.35	U	NR	F
7440-38-2	Arsenic	0.27	U	NR	F
7440-39-3	Barium	87.4			P
7440-41-7	Beryllium	0.36			F
7440-43-9	Cadmium	3.0		N* J	P
7440-70-2	Calcium	6550			P
7440-47-3	Chromium	28.2		* J	P
7440-48-4	Cobalt	16.4			P
7440-50-8	Copper	47.3		N* J	P
7439-89-6	Iron	33100		* J	P
7439-92-1	Lead	2.8		N* J	F
7439-95-4	Magnesium	7070			P
7439-96-5	Manganese	545			P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	18.1		* J	P
7440-09-7	Potassium	1130	B		P
7782-49-2	Selenium	0.35	U	NWR	F
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	1220	B		P
7440-28-0	Thallium	0.67	U		F
7440-62-2	Vanadium	162		N J	P
7440-66-6	Zinc	53.6		E* J	P
57-12-5	Cyanide	1.2	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**Reviewed By Kirsten HuieDate 3-31-95

1
INORGANIC ANALYSIS DATA SHEET

B16008

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VVG003

Level (low/med): LOW

Date Received: 02/03/95

% Solids: 72.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	26400		*J	P
7440-36-0	Antimony	0.39	U	NR	F
7440-38-2	Arsenic	0.30	U	NR	F
7440-39-3	Barium	111			P
7440-41-7	Beryllium	0.35			F
7440-43-9	Cadmium	3.8		N*J	P
7440-70-2	Calcium	35400			P
7440-47-3	Chromium	27.2		*J	P
7440-48-4	Cobalt	18.7			P
7440-50-8	Copper	60.2		N*J	P
7439-89-6	Iron	39500		*J	P
7439-92-1	Lead	1.8		NW*UJ	F
7439-95-4	Magnesium	10800			P
7439-96-5	Manganese	739			P
7439-97-6	Mercury	0.16			CV
7440-02-0	Nickel	18.9		*J	P
7440-09-7	Potassium	2520			P
7782-49-2	Selenium	0.39	U	NWR	F
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	2140			P
7440-28-0	Thallium	0.75	U		F
7440-62-2	Vanadium	165		NJ	P
7440-66-6	Zinc	76.3		E*J	P
57-12-5	Cyanide	1.4	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Date

Kirsten Huie
3-31-95

INORGANIC ANALYSIS DATA SHEET

BS0013

Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): WATER

Lab Sample ID: VVG001

Level (low/med): LOW

Date Received: 02/03/95

% 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	54.2	U		P
7440-36-0	Antimony	0.28	U	N	F
7440-38-2	Arsenic	0.22	U		F
7440-39-3	Barium	1.8	U		P
7440-41-7	Beryllium	0.02	U	N*J	F
7440-43-9	Cadmium	0.62	U		P
7440-70-2	Calcium	11.9	B		P
7440-47-3	Chromium	1.4	B	U	P
7440-48-4	Cobalt	1.9	U		P
7440-50-8	Copper	3.3	U		P
7439-89-6	Iron	6.4	U		P
7439-92-1	Lead	0.14	B	U	F
7439-95-4	Magnesium	5.2	U		P
7439-96-5	Manganese	0.52	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	2.6	U		P
7440-09-7	Potassium	105	U		P
7782-49-2	Selenium	0.28	U		F
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	67.9	U		P
7440-28-0	Thallium	0.54	U	WJ	F
7440-62-2	Vanadium	0.90	U		P
7440-66-6	Zinc	2.4	B		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

F

By

Kirsten Reier

Date

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

C10001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VTF002

Level (low/med): LOW

Date Received: 01/30/95

% Solids: 81.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22200		*J	P
7440-36-0	Antimony	0.42	B	NJ	F
7440-38-2	Arsenic	0.27	B	NR	F
7440-39-3	Barium	119			P
7440-41-7	Beryllium	0.03	B	U	F
7440-43-9	Cadmium	3.5		N*J	P
7440-70-2	Calcium	37500			P
7440-47-3	Chromium	22.6		*J	P
7440-48-4	Cobalt	18.9			P
7440-50-8	Copper	54.8		N*J	P
7439-89-6	Iron	31400		*J	P
7439-92-1	Lead	0.23	B	NW*UJ	F
7439-95-4	Magnesium	9000			P
7439-96-5	Manganese	812			P
7439-97-6	Mercury	0.15			CV
7440-02-0	Nickel	16.2		*J	P
7440-09-7	Potassium	2720			P
7782-49-2	Selenium	0.34	B	NW R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	2430			P
7440-28-0	Thallium	0.66	U		F
7440-62-2	Vanadium	112		NJ	P
7440-66-6	Zinc	5790		E*J	P
57-12-5	Cyanide	1.2	B	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: NO

Comments:

VALIDATEDReviewed By Kristen KuehlDate 3-31-95

1
INORGANIC ANALYSIS DATA SHEET

C11618

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VTF003

Level (low/med): LOW

Date Received: 01/30/95

% Solids: 87.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12900		* J	P
7440-36-0	Antimony	0.32	U	N R	F
7440-38-2	Arsenic	0.25	U	N R	F
7440-39-3	Barium	98.3			P
7440-41-7	Beryllium	0.02	B	U	F
7440-43-9	Cadmium	1.5		N* J	P
7440-70-2	Calcium	7490			P
7440-47-3	Chromium	8.8		* J	P
7440-48-4	Cobalt	11.0	B		P
7440-50-8	Copper	27.9		N* J	P
7439-89-6	Iron	19700		* J	P
7439-92-1	Lead	0.12	B	N* U J	F
7439-95-4	Magnesium	4730			P
7439-96-5	Manganese	672			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	10.4		* J	P
7440-09-7	Potassium	729	B		P
7782-49-2	Selenium	0.32	U	N W R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	1210			P
7440-28-0	Thallium	0.62	U		F
7440-62-2	Vanadium	78.9		N J	P
7440-66-6	Zinc	35.1		E* J	P
57-12-5	Cyanide	1.1	U	N R	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**Reviewed By Winters-ReisDate 3-31-95

1
INORGANIC ANALYSIS DATA SHEET

C11820

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VTF004

Level (low/med): LOW

Date Received: 01/30/95

% Solids: 82.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400		*J	P
7440-36-0	Antimony	0.34	U	N R	F
7440-38-2	Arsenic	0.27	U	NWR	F
7440-39-3	Barium	128			P
7440-41-7	Beryllium	0.15	B	U B	F
7440-43-9	Cadmium	1.6		N*J	P
7440-70-2	Calcium	6680			P
7440-47-3	Chromium	11.1		*J	P
7440-48-4	Cobalt	12.1	B		P
7440-50-8	Copper	35.1		N*J	P
7439-89-6	Iron	21800		*J	P
7439-92-1	Lead	0.66	B	MN*UJ	F
7439-95-4	Magnesium	4790			P
7439-96-5	Manganese	902			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	12.9		*J	P
7440-09-7	Potassium	597	B		P
7782-49-2	Selenium	0.34	U	NWR	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	1050	B		P
7440-28-0	Thallium	0.66	U		F
7440-62-2	Vanadium	93.1		NJ	P
7440-66-6	Zinc	37.1		E*J	P
57-12-5	Cyanide	1.2	U	N R	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

R. J. Meier
 3-31-95

1
INORGANIC ANALYSIS DATA SHEET

C12022

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VTF005

Level (low/med): LOW

Date Received: 01/30/95

% Solids: 85.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20600		*J	P
7440-36-0	Antimony	0.33	U	NR	F
7440-38-2	Arsenic	1.3	B	NOR	F
7440-39-3	Barium	101			P
7440-41-7	Beryllium	0.50			F
7440-43-9	Cadmium	2.1		N*J	P
7440-70-2	Calcium	133000			P
7440-47-3	Chromium	30.1		*J	P
7440-48-4	Cobalt	12.5			P
7440-50-8	Copper	38.4		N*J	P
7439-89-6	Iron	22400		*J	P
7439-92-1	Lead	4.5		NS*J	F
7439-95-4	Magnesium	9290			P
7439-96-5	Manganese	604			P
7439-97-6	Mercury	0.28			CV
7440-02-0	Nickel	21.8		*J	P
7440-09-7	Potassium	3370			P
7782-49-2	Selenium	3.3	U	NR	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	510	B		P
7440-28-0	Thallium	0.63	U		F
7440-62-2	Vanadium	73.8		NJ	P
7440-66-6	Zinc	61.6		E*J	P
57-12-5	Cyanide	1.2	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**Reviewed By *Lester Heier*Date 3-31-95

1
INORGANIC ANALYSIS DATA SHEET

D40001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VTF006

Level (low/med): LOW

Date Received: 01/30/95

% Solids: 70.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25000		*J	P
7440-36-0	Antimony	0.40	U	NR	F
7440-38-2	Arsenic	1.1	B	N	F
7440-39-3	Barium	274			P
7440-41-7	Beryllium	0.44			F
7440-43-9	Cadmium	3.4		N*J	P
7440-70-2	Calcium	65200			P
7440-47-3	Chromium	28.1		*J	P
7440-48-4	Cobalt	20.5			P
7440-50-8	Copper	57.1		N*J	P
7439-89-6	Iron	37300		*J	P
7439-92-1	Lead	3.5		N*J	F
7439-95-4	Magnesium	13900			P
7439-96-5	Manganese	1040			P
7439-97-6	Mercury	0.33			CV
7440-02-0	Nickel	17.6		*J	P
7440-09-7	Potassium	1640			P
7782-49-2	Selenium	4.0	U	NR	F
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	1510			P
7440-28-0	Thallium	0.76	U		F
7440-62-2	Vanadium	155		NJ	P
7440-66-6	Zinc	59.0		E*J	P
57-12-5	Cyanide	1.4	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Date

Kristen Heic
3-31-95

1
INORGANIC ANALYSIS DATA SHEET

D41416

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VTF007

Level (low/med): LOW

Date Received: 01/30/95

% Solids: 86.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18000		*J	P
7440-36-0	Antimony	0.33	U	NR	F
7440-38-2	Arsenic	1.6	U	NR	F
7440-39-3	Barium	44.1	B		P
7440-41-7	Beryllium	0.37			F
7440-43-9	Cadmium	3.1		N*J	P
7440-70-2	Calcium	6450			P
7440-47-3	Chromium	24.1		*J	P
7440-48-4	Cobalt	8.1	B		P
7440-50-8	Copper	39.9		N*J	P
7439-89-6	Iron	31300		*J	P
7439-92-1	Lead	2.0	U	N*J	F
7439-95-4	Magnesium	7700			P
7439-96-5	Manganese	216			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	11.6		*J	P
7440-09-7	Potassium	1190			P
7782-49-2	Selenium	3.3	U	NR	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	1660			P
7440-28-0	Thallium	0.63	U		F
7440-62-2	Vanadium	131		NJ	P
7440-66-6	Zinc	51.2		E*J	P
57-12-5	Cyanide	1.1	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Date

Kirsten Meier
3-31-95

INORGANIC ANALYSIS DATA SHEET

D42022

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VTF008

Level (low/med): LOW

Date Received: 01/30/95

% Solids: 85.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13000		* J	P
7440-36-0	Antimony	0.33	U	N R	F
7440-38-2	Arsenic	0.26	U	N W R	F
7440-39-3	Barium	105			P
7440-41-7	Beryllium	0.24			F
7440-43-9	Cadmium	2.2		N* J	P
7440-70-2	Calcium	6350			P
7440-47-3	Chromium	18.9		* J	P
7440-48-4	Cobalt	15.9			P
7440-50-8	Copper	34.6		N* J	P
7439-89-6	Iron	26800		* J	P
7439-92-1	Lead	1.9		N* J	F
7439-95-4	Magnesium	5140			P
7439-96-5	Manganese	1100			P
7439-97-6	Mercury	0.28			CV
7440-02-0	Nickel	17.1		* J	P
7440-09-7	Potassium	919	B		P
7782-49-2	Selenium	0.33	U	N W R	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	775	B		P
7440-28-0	Thallium	0.63	U		F
7440-62-2	Vanadium	126		N J	P
7440-66-6	Zinc	43.5		E* J	P
57-12-5	Cyanide	1.2	U	N R	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

F21215

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VSR002

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 93.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15500		* J	P
7440-36-0	Antimony	0.30	U	N R	F
7440-38-2	Arsenic	1.7	B	N R	F
7440-39-3	Barium	153			P
7440-41-7	Beryllium	0.36			F
7440-43-9	Cadmium	2.6		N* J	P
7440-70-2	Calcium	9870			P
7440-47-3	Chromium	18.7		* J	P
7440-48-4	Cobalt	16.0			P
7440-50-8	Copper	52.2		N* J	P
7439-89-6	Iron	29500		* J	P
7439-92-1	Lead	3.3		N* J	F
7439-95-4	Magnesium	6200			P
7439-96-5	Manganese	915			P
7439-97-6	Mercury	0.13			CV
7440-02-0	Nickel	15.4		* J	P
7440-09-7	Potassium	1090			P
7782-49-2	Selenium	3.0	U	N R	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	1140			P
7440-28-0	Thallium	0.58	U		F
7440-62-2	Vanadium	144		N J	P
7440-66-6	Zinc	48.5		E* J	P
57-12-5	Cyanide	1.1	U	N R	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date


 3-31-95

1
INORGANIC ANALYSIS DATA SHEET

F21820

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VSR003

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 86.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18600		*J	P
7440-36-0	Antimony	0.33	U	NR	F
7440-38-2	Arsenic	0.26	U	NR	F
7440-39-3	Barium	95.9			P
7440-41-7	Beryllium	0.36			F
7440-43-9	Cadmium	3.5		N*J	P
7440-70-2	Calcium	6480			P
7440-47-3	Chromium	28.3		*J	P
7440-48-4	Cobalt	17.5			P
7440-50-8	Copper	57.3		N*J	P
7439-89-6	Iron	39500		*J	P
7439-92-1	Lead	1.2		NW*UJ	F
7439-95-4	Magnesium	7570			P
7439-96-5	Manganese	646			P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	19.2		*J	P
7440-09-7	Potassium	1050	B		P
7782-49-2	Selenium	0.33	U	NWR	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	1290			P
7440-28-0	Thallium	0.63	U		F
7440-62-2	Vanadium	171		NJ	P
7440-66-6	Zinc	58.5		E*J	P
57-12-5	Cyanide	1.2	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS**VALIDATED**

Reviewed By

Date

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

F30001

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VSR004

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 86.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17300		*J	P
7440-36-0	Antimony	0.32	✓	NR	F
7440-38-2	Arsenic	0.25	✓	NR	F
7440-39-3	Barium	112			P
7440-41-7	Beryllium	0.21	B		F
7440-43-9	Cadmium	6.4		N*J	P
7440-70-2	Calcium	60000			P
7440-47-3	Chromium	30.4		*J	P
7440-48-4	Cobalt	17.6			P
7440-50-8	Copper	141		N*J	P
7439-89-6	Iron	63400		*J	P
7439-92-1	Lead	3.0		NS*J	F
7439-95-4	Magnesium	7480			P
7439-96-5	Manganese	888			P
7439-97-6	Mercury	0.27			CV
7440-02-0	Nickel	26.9		*J	P
7440-09-7	Potassium	2530			P
7782-49-2	Selenium	0.32	✓	NR	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	385	B		P
7440-28-0	Thallium	0.62	U		F
7440-62-2	Vanadium	99.2		NJ	P
7440-66-6	Zinc	479		E*J	P
57-12-5	Cyanide	1.1	✓	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

F31214

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VSR007

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 89.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18800		*J	P
7440-36-0	Antimony	0.31	U	NR	F
7440-38-2	Arsenic	1.2	U	NR	F
7440-39-3	Barium	177			P
7440-41-7	Beryllium	0.36			F
7440-43-9	Cadmium	3.0		N*J	P
7440-70-2	Calcium	25000			P
7440-47-3	Chromium	19.6		*J	P
7440-48-4	Cobalt	17.8			P
7440-50-8	Copper	56.1		N*J	P
7439-89-6	Iron	33900		*J	P
7439-92-1	Lead	3.2		N*J	F
7439-95-4	Magnesium	7870			P
7439-96-5	Manganese	1240			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	17.3		*J	P
7440-09-7	Potassium	1380			P
7782-49-2	Selenium	0.31	U	NWR	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	1450			P
7440-28-0	Thallium	0.61	U		F
7440-62-2	Vanadium	172		NJ	P
7440-66-6	Zinc	60.5		E*J	P
57-12-5	Cyanide	1.1	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:
ROCKS

VALIDATED

Reviewed By

Date

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

F31820

Lab Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): SOIL

Lab Sample ID: VSR009

Level (low/med): LOW

Date Received: 01/27/95

% Solids: 89.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14700		*J	P
7440-36-0	Antimony	0.31	U	NR	F
7440-38-2	Arsenic	0.25	U	NR	F
7440-39-3	Barium	56.3			P
7440-41-7	Beryllium	0.05	B	U	F
7440-43-9	Cadmium	2.9		N*J	P
7440-70-2	Calcium	9520			P
7440-47-3	Chromium	25.3		*J	P
7440-48-4	Cobalt	12.3			P
7440-50-8	Copper	42.0		N*J	P
7439-89-6	Iron	31900		*J	P
7439-92-1	Lead	0.29	B	NW*UJ	F
7439-95-4	Magnesium	6520			P
7439-96-5	Manganese	385			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	13.6		*J	P
7440-09-7	Potassium	855	B		P
7782-49-2	Selenium	0.31	U	NWR	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	731	B		P
7440-28-0	Thallium	0.60	U		F
7440-62-2	Vanadium	151		NJ	P
7440-66-6	Zinc	54.6		E*J	P
57-12-5	Cyanide	1.1	U	NR	AS

Color Before: BROWN

Clarity Before:

Texture: COARSE

Color After: BROWN

Clarity After: CLEAR

Artifacts: YES

Comments:

VALIDATED

Reviewed By

Date

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

S00012

Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): WATER

Lab Sample ID: VSR001

Level (low/med): LCW

Date Received: 01/27/95

% 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	25.1	B	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	80.4	B		P
7440-47-3	Chromium	5.6	B	U	P
7440-48-4	Cobalt	9.5	U		P
7440-50-8	Copper	16.7	U		P
7439-89-6	Iron	36.1	B		P
7439-92-1	Lead	0.50	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	1.4	U		F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U		P
7440-28-0	Thallium	2.7	U	WJ	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	7.6	B		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

3-31-95

1
INORGANIC ANALYSIS DATA SHEET

S00127

Name: PACE

Contract:

Lab Code: GULF

Case No.: HLA

SAS No.:

SDG No.: 095020

Matrix (soil/water): WATER

Lab Sample ID: VTF001

Level (low/med): LOW

Date Received: 01/30/95

% 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	20.9	U	U	P
7440-36-0	Antimony	1.4	U	NW J	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	38.8	U		P
7440-47-3	Chromium	4.7	U	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		P
7439-92-1	Lead	0.50	U		F
7439-95-4	Magnesium	28.0	U	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	1.4	U		F
7440-22-4	Silver	5.1	U		P
7440-23-5	Sodium	339	U		P
7440-28-0	Thallium	2.7	U	WJ	F
7440-62-2	Vanadium	4.5	U		P
7440-66-6	Zinc	13.9	B		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

F

By

Date

Kirsten Meier
3-31-95