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FINAL REMEDIAL INVESTIGATION REPORT FOR SITE 41 OPERABLE UNIT 16 (OU 16) VOLUME 10 OF 11 NAS PENSACOLA FL

8/17/2005

ENSAFE, INC

FINAL REMEDIAL INVESTIGATION REPORT
SITE 41 — OPERABLE UNIT 16 — NAS PENSACOLA WETLANDS

NAVAL AIR STATION
PENSACOLA, FLORIDA

SOUTHNAVFACENGCOM
CONTRACT NUMBER: N62467-89-D-0318

CTO-036

VOLUME X OF XI
APPENDIX I

Prepared for:

NAVFAC
Naval Facilities Engineering Command

Comprehensive Long-Term
Environmental Action Navy
Naval Air Station
Pensacola, Florida

Prepared by:

ENSAFE

EnSafe Inc.
5724 Summer Trees Drive
Memphis, Tennessee 38134
(901) 372-7962

August 17, 2005

FINAL REMEDIAL INVESTIGATION REPORT
SITE 41, NAS PENSACOLA WETLANDS
NAVAL AIR STATION
PENSACOLA, FLORIDA

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The contractor, EnSafe Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0318 are complete, accurate, and comply with all requirements of the contract.

Date: August 17, 2005
Signature: _____
Name: Allison Harris
Title: Task Order Manager

Appendix I

Validation Summary Reports

ENSAFE VALIDATION SUMMARY REPORT

Site Name:	Pensacola Phase III Sampling
CTO and Subtask No.:	0036-00100
Laboratory:	Savannah Laboratories
Sample Delivery Group:	SDG PEN15 Addendum
Method:	Semivolatile Organic Compounds - SW846 Method 8270 Appendix IX Metals - SW-846 Method 6010
Validation Guidance	USEPA Contract Laboratory Program National Functional Organic and Inorganic Data Review, February 1994
Matrix:	Tissue

Data were validated by EnSafe Inc. Ten tissue samples collected between September 2 and 8, 1997 were analyzed for semivolatile organic compounds (SVOCs) and Appendix IX metals by Savannah Laboratories of Savannah, Georgia, and were reported in sample delivery group (SDG) PEN15 Addendum. The data were reported and validated using USEPA definitive data without raw data (formerly USEPA Level III). All samples and analyses discussed in this summary report are listed in Table 1.

Table 1
Sample Summary

Sample ID	Appendix IX Metal	SVOC
041J400601	X	x
041J18B101	x	x
041J330201	x	x
041J640101	x	x
041J640601	x	x
041J750101	x	x
041J400602		x
041J330101		x
040J400601	X	X
040J400602	X	

ORGANIC VALIDATION RESULTS

All samples were received by the laboratory intact and with the proper documentation on September 18, 1997 with intact chains of custody and proper documentation. The following subsections summarize the data validation results. Tentatively identified compounds (TICs) were not reported and are not discussed in this report.

Semivolatile Organic Compound Fraction

1. All gas chromatography/mass spectroscopy tuning ion abundances and frequencies, initial calibration relative response factors (RRFs) and percent relative standard deviations, continuing calibration RRFs, surrogate recoveries, and internal standard retention times were within acceptable limits. There were no target analytes detected in the method blank. There are no field duplicates or field blanks associated with this SDG.

2. Bis(2-chloroethyl ether) had percent differences (%Ds) greater than the control limit of ≤25% for the calibration standards run 09/26/97 22:44 (25.4%) and 09/29/97 08:02. (26.5%) Nondetects of this compound in samples 041J18B101, 041J640101, 041J330201, 041J640601, and 041J750101 were qualified as estimated, "UJ."

3. The internal standard perylene-d12 exceeded the lower area limits for samples 041J18B101, 041J330201, 041J640101, and 041J750101. Nondetects of di-n-butylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene were qualified as estimated, "UJ."

   The internal standard chrysene-d12 exceeded the lower area limits for sample 041J750101. Nondetects of pyrene, butylbenzylphthalate, 3,3'dichlorobenzidine, benzo(a)anthracene, chrysene, and bis(2-ethylhexyl)phthalate were qualified as estimated "UJ."

INORGANIC VALIDATION RESULTS

Metals Fraction

1. All holding times, initial and continuing calibration recoveries, interference check sample recoveries, spike sample recoveries, laboratory duplicate relative percent differences, and laboratory control sample recoveries were within acceptable criteria. There were no field duplicates or field blanks associated with this SDG.

2. Selenium, arsenic, cobalt, silver, and thallium were detected in the preparation blank. Qualifiers were added to the data as outlined in Table 2.

Table 2
Laboratory Blank Contamination

Analyte	Samples Affected	Conc'n Found (mg/kg)	Qualifier Added
selenium	040J400601, 041J18B101, 041J330101, 041J330201, 041J640101, 041J640601, 041J750101	0.230	U
arsenic	040J400601, 040J400602, 041J18B101, 041J330101, 041J330201, 041J640101, 041J640601, 041J750101	-0.376	J(+),UJ (ND)
cobalt	040J400601, 040J400602, 041J18B101, 041J330101, 041J330201, 041J640101, 041J640601, 041J750101	-0.176	J(+),UJ (ND)
silver	040J400601, 040J400602, 041J18B101, 041J330101, 041J330201, 041J640101, 041J640601, 041J750101	-0.242	UJ (ND)
thallium	040J400601, 040J400602, 041J18B101, 041J330101, 041J330201, 041J640101, 041J640601, 041J750101	-0.798	UJ (ND)

NOTES:
J(+),UJ (ND) = Detects and nondetects qualified as estimated
UJ (ND) = There were no detects for this compound, only nondetects were qualified as estimated.

3. Copper, iron, and manganese exceeded the serial dilution %D control limit of 10%. Detections of these elements in all samples were qualified as estimated, "J." Nondetects were accepted without qualification.

4. Sample detections between the contract required detection limit and the instrument detection limit and flagged as "B" by the laboratory, were qualified as estimated "J" by the validator to indicate the sample detection was an estimated value.

PENSACOLA SITE 40
PENSACOLA, SITE 40, PHASE III SAMPLING

METAL								
	SAMPLE ID ------->	040-J-4006-01		040-J-4006-02				
	ORIGINAL ID ----->	040J400601		040J400602				
	LAB SAMPLE ID --->	S775281*1		S775281*2				
	ID FROM REPORT -->	040J400601		040J400602				
	SAMPLE DATE ----->	09/08/97		09/08/97				
	DATE EXTRACTED -->	09/24/97		09/24/97				
	DATE ANALYZED --->	09/26/97		09/26/97				
	MATRIX ---------->	Soil		Soil				
	UNITS ----------->	MG/KG		MG/KG				
CAS #	Parameter	PEN15	VAL	PEN15	VAL			
7439-92-1	Lead	1.5		2.2				
7429-90-5	Aluminum	4.5	U	5.8	J			
7440-36-0	Antimony	0.98	U	0.98	U			
7440-38-2	Arsenic	0.54	J	0.38	J			
7440-47-3	Chromium	0.36		0.43				
7440-48-4	Cobalt	0.13	UJ	0.13	UJ			
7440-50-8	Copper	1.4	J	1.1	J			
7439-89-6	Iron	11.7	J	21.3	J			
7439-96-5	Manganese	2.2	J	7.5	J			
7440-02-0	Nickel	0.27	U	0.27	U			
7782-49-2	Selenium	1.	U	1.4				
7440-22-4	Silver	0.06	UJ	0.06	UJ			
7440-28-0	Thallium	0.39	UJ	0.39	UJ			
7440-62-2	Vanadium	0.19	U	0.19	U			
7440-66-6	Zinc	33.3		27.2				
7440-39-3	Barium	NR		NR				
7440-41-7	Beryllium	NR		NR				
7440-43-9	Cadmium	NR		NR				
7440-70-2	Calcium	NR		NR				
57-12-5	Cyanide (CN)	NR		NR				
7439-95-4	Magnesium	NR		NR				
7439-97-6	Mercury	NR		NR				
7440-09-7	Potassium	NR		NR				
7440-23-5	Sodium	NR		NR				

*** Validation Complete ***

PENSACOLA SITE 40
PENSACOLA, SITE 40, PHASE III SAMPLING

SVOA

SAMPLE ID ------->	040-J-4006-01
ORIGINAL ID ----->	040J400601
LAB SAMPLE ID --->	S775281*1
ID FROM REPORT -->	040J400601
SAMPLE DATE ----->	09/08/97
DATE EXTRACTED -->	09/23/97
DATE ANALYZED --->	09/26/97
MATRIX ---------->	Soil
UNITS ----------->	UG/KG

CAS #	Parameter	PEN15	VAL
108-95-2	Phenol	330.	U
111-44-4	bis(2-Chloroethyl)ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol (o-Cresol)	330.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330.	U
9999900-32-2	3-Methylphenol/4-Methylphenol	330.	U
621-64-7	N-Nitroso-di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	660.	U
87-68-3	Hexachlorobutadiene	330.	U
111-91-1	bis(2-Chloroethoxy)methane	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	330.	U
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	330.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1700.	U
131-11-3	Dimethylphthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U
99-09-2	3-Nitroaniline	1700.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1700.	U
100-02-7	4-Nitrophenol	1700.	U
132-64-9	Dibenzofuran	330.	U

*** Validation Complete ***

PENSACOLA SITE 40
PENSACOLA, SITE 40, PHASE III SAMPLING

SVOA							
	SAMPLE ID ------->	040-J-4006-01					
	ORIGINAL ID ----->	040J400601					
	LAB SAMPLE ID --->	S775281*1					
	ID FROM REPORT -->	040J400601					
	SAMPLE DATE ----->	09/08/97					
	DATE EXTRACTED -->	09/23/97					
	DATE ANALYZED --->	09/26/97					
	MATRIX ---------->	Soil					
	UNITS ----------->	UG/KG					
CAS #	Parameter	PEN15	VAL				
121-14-2	2,4-Dinitrotoluene	330.	U				
84-66-2	Diethylphthalate	330.	U				
7005-72-3	4-Chlorophenylphenyl ether	330.	U				
86-73-7	Fluorene	330.	U				
100-01-6	4-Nitroaniline	1700.	U				
534-52-1	2-Methyl-4,6-Dinitrophenol	1700.	U				
86-30-6	N-Nitrosodiphenylamine	330.	U				
101-55-3	4-Bromophenyl-phenylether	330.	U				
118-74-1	Hexachlorobenzene	330.	U				
87-86-5	Pentachlorophenol	1700.	U				
85-01-8	Phenanthrene	330.	U				
120-12-7	Anthracene	330.	U				
86-74-8	Carbazole	330.	U				
84-74-2	Di-n-butylphthalate	330.	U				
206-44-0	Fluoranthene	330.	U				
129-00-0	Pyrene	330.	U				
85-68-7	Butylbenzylphthalate	330.	U				
91-94-1	3,3'-Dichlorobenzidine	660.	U				
56-55-3	Benzo(a)anthracene	330.	U				
218-01-9	Chrysene	330.	U				
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	330.	U				
117-84-0	Di-n-octylphthalate	330.	U				
205-99-2	Benzo(b)fluoranthene	330.	U				
207-08-9	Benzo(k)fluoranthene	330.	U				
50-32-8	Benzo(a)pyrene	330.	U				
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U				
53-70-3	Dibenz(a,h)anthracene	330.	U				
191-24-2	Benzo(g,h,i)perylene	330.	U				

*** Validation Complete ***

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	030301
Date:	March 12, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	December 4 - 5, 1995
Number of Samples:	4 Aqueous Sample(s) with 0 MS/MSD(s) 10 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Concentration Volatiles, Volatiles, Low Concentration Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig M. Simon
Eugene M. Watson, Vice President

3-13-96
Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1332 · Fax (314) 936-1335

SDG# 030301

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/C	
041W030301	WATER	X				X				X		X	
041W030401	WATER	X				X				X		X	
041TM00801	WATER	X											
041TM00901	WATER	X											
041M030301	SOIL				X				X		X		X
041M030401	SOIL				X				X		X		X
041M030501	SOIL				X				X		X		X
041M030601	SOIL				X				X		X		X
041M030701	SOIL				X				X		X		X
041M04D101	SOIL				X				X		X		X
041M04D201	SOIL				X				X		X		X
041M04D301	SOIL				X				X		X		X
041M04D401	SOIL				X				X		X		X
041M04D501	SOIL				X				X		X		X
Total Billable Samples	(Water/Soil)	4	0	0	10	2	0	0	10	2	10	2	10

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide w/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # 030301

A validation was performed on the Volatile Data from SDG 030301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM774, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W030301	acetone
041W030401	2-butanone
	2-hexanone

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFX	acetone	10	100
	methylene chloride	3	30

Samples	Compound	Qualification
041W030301	acetone	U
041W030401		
041W030301	methylene chloride	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W030301 041W030401	acetone 2-butanone 2-hexanone	+/-	J/R
041W030301 041W030401	acetone	+	U
041W030301	methylene chloride	+	U

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG # 030301

A validation was performed on the Volatile Data from SDG 030301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKCB	Methylene chloride	3J	30
VBLKCC	methylene chloride	1J	10
VBLKCD	methylene chloride	3J	30
VBLKCE	methylene chloride	2J	20

Method Blank (continued)

Samples	Compound	Qualification
041M030601 041M030701 041M04D101 041M04D401 041M04D201	methylene chloride	U
041M030301 041M030401 041M030501 041M04D301 041M04D501	methylene chloride	CRQL

Trip Blank

Associated blank	Compound	Concentration	Action Level
040TM00801	acetone	3B	30

Samples	Compound	Qualification
041M030301 041M030401 041M030501 041M030601	acetone	U

System Performance and Overall Assessment

The overall system performance was fair The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M030601	methylene chloride	+	U
041M030701			
041M04D101			
041M04D401			
041M04D201			
041M030301	methylene chloride	+	CRQL
041M030401			
041M030501			
041M04D301			
041M04D501			
041M030301	acetone	+	U
041M030401			
041M030501			
041M030601			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OlC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 030301

A validation was performed on the Semivolatile Data from SDG 030301. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicate
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ132, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W030301	3-nitroaniline

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W030301	3-nitroaniline	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 030301

A validation was performed on the Semivolatile Data from SDG 03031. The data was evaluated based on the following parameters.

*	•	Data Completeness
	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Holding Times

The following sample exceeded the method analysis holding time criteria of forty (40) days from date of sample extraction. Qualifications are required.

Specific Find:

040M04D401 exceeded holding time by four (4) days. Qualify all positive results as estimated (J).

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Specific Finding:

The continuing calibration, AJ105, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M030401	2,4-dinitrophenol (64.9%)

The continuing calibration, DJ195, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M030501	2,4-dinitrophenol (53.0%)
041M030601	4-nitrophenol (52.5%)
041M30701	4-nitroaniline (56.5%)
041M04D501	carbazole (51.2%)
041M04D301	
041M04D101	
041M04D201	

The continuing calibration, IF878, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041M030301	4-chloroaniline (221.7%)

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKIN	bis(2ethylhexyl)phthalate	33J	330

Samples	Compound	Qualification
041M030301	bis(2ethylhexyl)phthalate	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040M04D401	All analytes	+	J
041M030401	2,4-dinitrophenol (64.9%)	+/-	J/UJ
041M030501 041M030601 041M30701 041M04D501 041M04D301 041M04D101 041M04D201	2,4-dinitrophenol (53.0%) 4-nitrophenol (52.5%) 4-nitroaniline (56.5%) carbazole (51.2%)	+/-	J/UJ
041M030301	4-chloroaniline (221.7%)	+/-	J/R
041M030301	bis(2ethylhexyl)phthalate	+	CRQL

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 030301

A validation was performed on the Pesticide/Aroclor Data from SDG 030301. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC Performance
	•	Calibration
*	•	Blanks
	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	GPC and Florisil Clean-up Procedures
*	•	Field Duplicates
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptably linear for all compounds.

Initial Calibrations, Continued

Specific Findings

The initial calibration of 1/11/96 contained compounds with %RSDs greater than 20%. For the samples and the non-compliant compound listed below, all positive results are qualified as estimated, J, and all non-detect results are qualified as estimated, UJ.

All samples	Alpha-BHC (20.2%/21.0%)
	Delta-BHC (21.2%/21.1%)

Surrogate Recoveries

Several samples exhibited non-compliant TCX and/or DCB recoveries.

Specific Finding

The samples listed below exhibited low TCX and/or DCB recoveries. The positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

Sample ID	Surrogate	% Recovery
041M030301	DCB-1	29%
041M04D101	TCX-1/DCB-2	21%/28%
041M04D201	DCB-1/DCB-2	24%/20%

The sample listed below exhibited a high TCX recovery. The positive results are qualified as estimated, J.

Sample ID	Surrogate	% Recovery
041M04D301	TCX-1	238%

Analyte Identification/Quantitation

Four (4) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M030601	4,4'-DDD
041M04D101	Delta-BHC
041M04D401	4,4'-DDE
	4,4'-DDD
041M04D201	4,4'-DDE
	4,4'-DDD

The positive results reported in all samples which exhibited column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 30% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

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J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
ALL SAMPLES	Alpha-BHC Delta-BHC	+/-	J/UJ
041M030301 041M04D101 041M04D201	ALL	+/-	J/UJ
041M04D301	ALL	+	J
041M030601	4,4'-DDD	+	D
041M04D101 041M04D401	Delta-BHC 4,4'-DDE 4,4'-DDD	+	D
041M04D201	4,4'-DDE 4,4'-DDD	+	D
041M030601DL 041M04D101DL 041M04D401DL 041M04D201DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

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QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 030301

A validation was performed on the Metals Data from SDG 030301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recovery
*	• Matrix Duplicates
*	• Field Duplicates
*	• Laboratory Control Samples
	• Serial Dilutions
	• MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	3.07 mg/kg	no impact
Calcium	6.60 mg/kg	no impact
Copper	0.46 mg/kg	all soil samples below 2.3 mg/kg
Aluminum	29.6 ug/l	no impact

Calcium	44.2 ug/l	no impact
Sodium	107 ug/l	no impact
Thallium	3.52 ug/l	all water samples below 17.6 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Sodium	-7.78 mg/kg	no impact

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Silver (67%) was below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

The Matrix Spike recovery for soils for Selenium was above the upper control limits. All positive results are qualified as estimated, "J".

Laboratory Duplicate Analysis

Specific Finding

The laboratory RPD for Aluminum was not greater than 35% and for Selenium was not greater than 2 times the CRDL will not be qualified.

Serial Dilution

Specific Finding

The Serial Dilution for soils for Manganese was outside the control limits. All positive results are qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041W030401	77
Antimony	041M030301	82
Antimony	041M030701	71

The post digestion spike recovery for GFAA was above the upper control limits. All positive results for the listed samples below are qualified as estimated, "J".

Element	Sample IDs	% recoveries
Antimony	041M030601	129
Antimony	041M04D101	130
Antimony	041M04D401	117

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples below 2.30 mg/kg	Cu.	+	U
all water samples below 17.6 ug/l	Tl.		
all soil samples	Ag.	+/U	J/UJ
all soil samples	Se.	+	J
all soil samples	Mn.	+	J
041W030401, 041M030301, AND 041M030701.	Sb.	+/U	J/UJ
041M030601, 041M04D101 AND 041M04D401.	Sb.	+	J
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	041M10
Date:	February 14, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	NAS Pensacola; Site 40 & 41
Date Sampled:	November 27, 1995
Number of Samples:	4 Aqueous Sample(s) with 0 MS/MSD(s) 12 Non-aqueous Sample(s) with 1 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Volatiles, Volatiles, Low Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig M. Swyka

Eugene M. Watson, Vice President

3-4-96

Date

6716 Mexico Road · St. Peters, MO 63376
(314) 928-9533 · (314) 278-1828 · Fax (314) 278-2709

SDG# 041M10

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/C	
040TM01601	WATER	X											
041W130101	WATER	X				X				X		X	
041W5A0501	WATER	X				X				X		X	
041TM00401	WATER	X											
040MZ31301	SOIL				X				X		X		X
040MZ31501	SOIL				X				X		X		X
040MZ31901	SOIL				X				X		X		X
040MZ32001	SOIL				X				X		X		X
040MZ32101	SOIL				X				X		X		X
040MZ32201	SOIL				X				X		X		X
040MZ32301	SOIL				X				X		X		X
040NZ32301	SOIL				X				X		X		X
040MZ32401	SOIL				X				X		X		X
041M10A301	SOIL				X				X		X		X
041M130101	SOIL				X				X		X		X
041M5A0501	SOIL				X				X		X		X
Total Billable Samples (Water/Soil)		4	0	0	12	2	0	0	12	2	12	2	12

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG # 041M10

A validation was performed on the Volatile Data from SDG 041M10, low concentration. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM505, contained compounds with %Ds greater than 25%, but less than 50%, and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041W130101	acetone
041W5A0501	2-butanone
040TM01601	
041TM00401	

The continuing calibration, FM295, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

040TM01601	methylene chloride
041TM00401	

Method Blank

Associated blank	Compound	Concentration
VBLKFQ	acetone	5

Samples	Compound	Qualification
041W130101	acetone	U
041W5A0501		

Trip Blank

Associated blank	Compound	Concentration
041TM00401	methylene chloride	8

Samples	Compound	Qualification
041W130101 041W5A0501	methylene chloride	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W130101 041W5A0501 040TM01601 041TM00401	acetone 2-butanone	+/-	J/R
040TM01601 041TM00401	methylene chloride	+	J
041W130101 041W5A0501	acetone	+	U
041W130101 041W5A0501	methylene chloride	+	U

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # 041M10

A validation was performed on the Volatile Data from SDG 041M10. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated(UJ).

041M5A0501RE	chlorobenzene-d_5

Internal Standards (continued)

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated(UJ).

040MZ31901	chlorobenzene-d_5
041M5A0501	bromochloromethane
041MZ31901RE	1,4-difluorobenzene
	chlorobenzene-d_5

Method Blank

Associated blank	Compound	Concentration
VBLKCW	methylene chloride	2J
VBLKCX	methylene chloride	4J
VBLKCY	methylene chloride	4J
VBLKCA	methylene chloride	2J

Samples	Compound	Qualification
040MZ31501 040MZ32301 040M32001 040M32201 040MZ32301	methylene chloride	CRQL
040MZ32101 041M10A301 041M130101 041M5A501RE 040M32401 040MZ31901 040MZ31901RE	methylene chloride	U

Trip Blank

Associated blank	Compound	Concentration
040TM01601	methylene chloride	7
	Acetone	23
041TM00401	acetone	10

Samples	Compound	Qualification
040MZ32201 040MZ32401	acetone	CRQL
040MZ32301 040NZ32301 040MZ31901 040MZ31901RE 040MZ32001 041M10A301 041M130101 041M5A0501 041M5A0501RE	acetone	U
040MZ31301	methylene chloride	CRQL

Compound Identification /Quantitation

Reject samples 041M5A0501 and 040MZ31901RE, in favor of 041M5A0501RE and 040MZ31901, due to non compliant internal standard area recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ31901	All associated analytes chlorobenzene-d_5	+/-	J/UJ
040MZ31501 040MZ32301 040M32001 040M32201 040MZ32301	methylene chloride	+	CRQL
040MZ32101 041M10A301 041M130101 041M5A501RE 040M32401 040MZ31901	methylene chloride	+	U
040MZ32201 040MZ32401	acetone	+	CRQL
040MZ32301 040NZ32301 040MZ31901 040MZ32001 041M10A301 041M130101 041M5A0501RE	acetone	+	U
040MZ31301	methylene chloride	+	CRQL
041M5A0501 040MZ31901RE	All analytes	+/-	R

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 041M10

A validation was performed on the Semivolatile Data from SDG 041M10, low concentration. The data was evaluated based on the following parameters.

*	• Data Completeness
	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Holding Times

The following water sample, 041W130101, exceeded the method holding time of 7 days by 10 days. Qualify all positive results as estimated (J) and all non detects as estimated (UJ).

Continuing Calibrations

The continuing calibrations that were analyzed all of the criteria and non criteria compounds met requirements for RRFs. Qualifications are required for compounds with non compliant %Ds.

Continuing Standards (continued)

Specific Finding:

The continuing calibration, DJ132, contained compounds with %Ds greater than 25% D but less than 50% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041W130101	3-nitroaniline

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that none of the data requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W130101	All analytes	+/-	J/UJ
041W130101	3-nitroaniline	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 041M10

A validation was performed on the Semivolatile Data from SDG 041M10. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing Calibrations

The continuing calibrations that were analyzed all of the criteria and non criteria compounds did not met requirements for RRFs and %D. Qualifications are required.

Continuing Standards (continued)

Specific Finding:

The continuing calibration, DI973, contained compounds with %Ds greater than 50% D but less than 90% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041MZ32401	carbazole

The continuing calibration, DI973, contained compounds with %Ds greater than 25% D but less than 50% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J).

041MZ32401	fluorene
	benzo(b)fluoranthene

The continuing calibration, JF804, contained compounds with %Ds greater than 50% D but less than 90% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M10A301	di-n-octylphthalate
041M130101	
041M5A0501	
040MZ31501	
040MZ31901	
040MZ32001	
040MZ32101	
040MZ32201	
040MZ32301	
040NZ32301	

Continuing Standards (continued)

Specific Finding:

The continuing calibration, JF804, contained compounds with %Ds greater than 25% D but less than 50% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J).

040MZ31501	bis(2-ethylhexyl)phthalate
040MZ31901	
040MZ32001	
040MZ32101	
040MZ32201	
040MZ32301	
040NZ32301	
041M10A301	
041M130101	
041M5A0501	

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that none of the data requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041MZ32401	carbazole	+/-	J/UJ
041MZ32401	fluorene benzo(b)fluoranthene	+	J
041M10A301 041M130101 041M5A0501 040MZ31501 040MZ31901 040MZ32001 040MZ32101 040MZ32201 040MZ32301 040NZ32301	di-n-octylphthalate	+/-	J/UJ
040MZ31501 040MZ31901 040MZ32001 040MZ32101 040MZ32201 040MZ32301 040NZ32301 041M10A301 041M130101 041M5A0501	bis(2-ethylhexyl)phthalate	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results this report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 041M10

A validation was performed on the Pesticide/Aroclor Data from SDG 041M10. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC Performance
*	•	Calibration
*	•	Blanks
	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	GPC and Florisil Clean-up Procedures
	•	Field Duplicates
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Surrogate Recoveries

Nine (9) samples required qualification due to non-compliant surrogate recoveries. One (1) of the samples exhibited recoveries below 10%.

Specific Findings

The following sample exhibited surrogate recoveries below 10%. All positive results are qualified as estimated, J, and all non-detect results are rejected, R.

041W130101

Surrogate Recoveries, continued

Specific Findings, continued

The following samples exhibited TCMX recoveries below the QC limit. All positive and non-detect results reported in the sample are qualified as estimated, J/UJ.

040MZ31301
040MZ32001
040MZ32101
041MZ32201
041MZ32401
040NZ32301
041M130101
041M5A0501

Field Duplicates

The field duplicate pair of sample 040MZ32301/040NZ32301 exhibited non-compliant precision results for the two (2) compounds reported above the compound CRQLs.

Specific Finding

The noted compounds in the following field duplicate pair exhibited non-compliant field duplicate precision. The reported positive results are qualified as estimated, J.

040MZ32301	4,4'-DDE
040NZ32301	AR1260

Compound Identification/Quantitation

Several reported results exhibited P flags due to column quantitation %Ds greater than 25%. Single component compounds in samples with reported aroclors should be considered suspect. The Form Is submitted by the laboratory indicated incorrect Concentrated Final Volumes for all samples. The laboratory indicated that the software limitation would not accommodate the correct final volume. The samples were to be calculated based on a final volume of 1.0 ml. Based on this information, calculation verification was possible. Supporting documentation explaining the discrepancy has been received. One sample required dilution to accurately quantitate target compounds.

Compound Identification, continued

Specific Findings

All positive results exhibiting P flags are qualified as estimated, J, due to column quantitation %Ds greater than 25%.

For the following sample, the compounds AR1260 and 4,4'-DDE are reported from the dilution analysis. All other compounds in the dilution analysis are rejected, UR.

041M5A0501

Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W130101	All compounds	+/-	J/R
040MZ31301 040MZ32001 040MZ32101 041MZ32201 041MZ32401 040NZ32301 041M130101 041M5A0501	All compounds	+/-	J/UJ
040MZ32301 040NZ32301	4,4'-DDE AR1260	+	J
041M5A0501	AR1260 4,4'-DDE	+	R
041M5A0501DL	All except D flagged corrsponding results	+/-	UR
All	All P flagged results	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 041M10

A validation was performed on the Metals Data from SDG 041M10. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
	•	Matrix Spike Recovery
	•	Matrix Duplicates
	•	Field Duplicates
*	•	Laboratory Control Samples
*	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Calcium	3.06 mg/kg	no impact
Thallium	3.42 ug/l	no impact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Sodium	-21.0 mg/kg	no impact
Beryllium	-1.33 ug/l	all water samples
Iron	-6.16 ug/l	no impact
Potassium	-144. ug/l	no impact
Sodium	-81.1 ug/l	no impact

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

Tha Matrix Spike recovery for soils for Antimony was below 30%. All non-detect results are rejected and all positive results are qualified as estimated, "J".

The Matrix Spike recoveries for soils for Selenium, Thallium and Silver were below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Duplicate Analysis

Specific Finding

The Duplicate analyses for soils for Calcium and Lead were outside the control limits. All positive results are qualified as estimated, "J". The RPDs for Aluminum and Copper were below 35% and will not be qualified. The field duplicate for Calcium was greater than 50%. All positive results are qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	040MZ31501	84
Antimony	040MZ31901	52
Antimony	040MZ32001	66
Antimony	040MZ32101	71

Antimony	041MZ32201	67
Antimony	041MZ32301	62
Antimony	041NZ32301	70

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all water samples	Be.	+/U	J/UJ
all soil samples	Sb.	+	J
		U	R
all soil samples	Se, Ag and Tl.	+/U	J/UJ
all soil samples	Ca and Pb.	+	J
040MZ31501, 901, 32001, 32101, 201, 301 and NZ32301.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	5A0101
Date:	February 14, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	NAS Pensacola; Site 41
Date Sampled:	November 16, 1995
Number of Samples:	8 Aqueous Sample(s) with 1 MS/MSD(s) 17 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Volatiles, Volatiles, Low Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig M. Sexton
Eugene M. Watson, Vice President

3-4-96
Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1332 · Fax (314) 936-1335

SDG# 5A0101

Samples and Fractions Reviewed

Sample Identifications • Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/CN	
041W061001	WATER	X				X				X		X	
041W5A0101	WATER	X				X				X		X	
041W5A0201	WATER	X				X				X		X	
041W5A0401	WATER	X				X				X		X	
041W5A0701	WATER	X				X				X		X	
041M060501	SOIL				X				X		X		X
041M060601	SOIL				X				X		X		X
041M061001	SOIL				X				X				X
041M061101	SOIL				X				X		X		X
041M5A0101	SOIL				X				X		X		X
041M5A0201	SOIL				X				X		X		X
041M5A0301	SOIL				X				X		X		X
041M5A0401	SOIL				X				X		X		X
041M5A0701	SOIL				X				X		X		X
041M641001	SOIL				X				X		X		X
041M641101	SOIL				X				X		X		X
041M641301	SOIL				X				X		X		X
041M641401	SOIL				X				X		X		X
041M641601	SOIL				X				X		X		X
041M641701	SOIL				X				X		X		X
041M642001	SOIL				X				X		X		X
041M642101	SOIL				X				X		X		X
041TM00201	WATER			X									
041TM00202	WATER			X									
041TM00203	WATER			X									
Total Billable Samples (Water/Soil)		5	0	3	17	5	0	0	17	5	16	5	17

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG # 5A0101

A validation was performed on the Volatile Data from SDG 5A0101, low concentration. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM362, contained compounds with %Ds greater than 25%, but less than 50%, and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041W5A0101	acetone
041W5A0201	2-butanone
041W5A0401	
041W5A0701	
041W061001	

Method Blank

Associated blank	Compound	Concentration
VBLKFG	acetone	7

Samples	Compound	Qualification
041W061001	acetone	U
041W5A0101		
041W5A0201		
041W5A0401		
041W5A0701		

Trip Blank

Associated blank	Compound	Concentration
041TM00203	methylene chloride	10

Samples	Compound	Qualification
041W061001	methylene chloride	U
041W5A0101		

Trip Blank (continued)

Associated blank	Compound	Concentration
041TM00203	methylene chloride	10

Samples	Compound	Qualification
041W5A0201 041W5A0401 041W5A0701	methylene chloride	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W5A0101	acetone	+/-	J/R
041W5A0201	2-butanone		
041W5A0401			
041W5A0701			
041W061001			
041W061001	acetone	+	U
041W5A0101			
041W5A0201			
041W5A0401			
041W5A0701			
041W061001	methylene chloride	+	U
041W5A0101			
041W5A0201			
041W5A0401			
041W5A0701			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # 5A0101

A validation was performed on the Volatile Data from SDG 5A0101. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within continuing calibration criteria. All RRFs were within calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, BT652, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

041M5A0101	methylene chloride
041M641401	
041M641601	
041M641701	
041M642001	

Method Blank

Associated blank	Compound	Concentration
VBLKBY	methylene chloride	12
VBLKCQ	methylene chloride	10
VBLKCR	methylene chloride	15
VBLKCS	methylene chloride	13

Samples	Compound	Qualification
041M5A0201	methylene chloride	CRQL
041M5A0301		
041M5A0401		
041M5A0701		
041M641001		
041M641101		
041M060501		
041M060601		
041M061101DL		
041M5A0101DL		

Method Blank (continued)

Samples	Compound	Qualification
041M061101 041M641301 041M642101 041M061001	methylene chloride	U

Compound Identification /Quantitation

Reject E-flagged results for samples, 041M5A0101 and 041M061101, in favor of D-flagged results in diluted samples, 041M5A0101DL and 041M061101DL.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M5A0101 041M641401 041M641601 041M641701 041M642001	methylene chloride	+	J
041M5A0201 041M5A0301 041M5A0401 041M5A0701 041M641001 041M641101 041M060501 041M060601 041M061101DL 041M5A0101DL	methylene chloride	+	CRQL
041M061101 041M641301 041M642101 041M061001	methylene chloride	+	U
041M5A0101 041M061101	All E-flagged results	+	R
041M5A0101DL 041M061101DL	All analytes except D-flagged results	+	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 5A0101

A validation was performed on the Semivolatile Data from SDG 5A0101, low concentration. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that none of the data requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 5A0101

A validation was performed on the Semivolatile Data from SDG 5A0101. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing Calibrations

The continuing calibrations that were analyzed all of the criteria and non criteria compounds did not met requirements for RRFs and %D. Qualifications are required.

Continuing Standards (continued)

Specific Finding:

The continuing calibration, AI739, contained compounds with %Ds greater than 50% D but less than 90% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M642101	4-chloroaniline
041M5A0201	
041M5A0301	
041M641401	
041M5A0101	
041M641601	
041M640101	

The continuing calibration, IF423, contained compounds with %Ds greater than 50% D but less than 90% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M5A0701	hexachlorocyclopentadiene
	2,4-dinitrophenol
	4-nitroaniline
	3,3'-dichlorobenzidine

The continuing calibration, IF423, contained compounds with %Ds greater than 25% D and RRFs less than 0.050. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041M5A0701	2,2'-oxybis(1-chloropropane)
	3-nitroaniline

Method Blank

Associated blank	Compound	Concentration
SBLKAI	bis(2-ethylhexyl)phthalate	82J
SBLKJF	bis(2-ethylhexyl)phthalate	140J

Samples	Compound	Qualification
041M5A0101 041M5A0201 041M5A0301 041M5A0401 041M641401 041M641601 041M642101 041M060501 041M060601 041M061001 041M641701 041M642001	bis(2-ethylhexyl)phthalate	CRQL
041M640101 041M061101 041M641101 041M641301	bis(2-ethylhexyl)phthalate	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that none of the data requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M642101	4-chloroaniline	+/-	J/UJ
041M5A0201			
041M5A0301			
041M641401			
041M5A0101			
041M641601			
041M640101			
041M5A0701	hexachlorocyclopentadiene 2,4-dinitrophenol 4-nitroaniline 3,3'-dichlorobenzidine	+/-	J/UJ
041M5A0701	2,2'-oxybis(1-chloropropane) 3-nitroaniline	+/-	J/R
041M5A0101	bis(2-ethylhexyl)phthalate	+	CRQL
041M5A0201			
041M5A0301			
041M5A0401			
041M641401			
041M641601			
041M642101			
041M060501			
041M060601			
041M061001			
041M641701			
041M642001			
041M640101	bis(2-ethylhexyl)phthalate	+	U
041M061101			
041M641101			
041M641301			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results this report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 5A0101

A validation was performed on the Pesticide/Aroclor Data from SDG 5A0101. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Method Blanks

One (1) method blank exhibited contamination for two (2) target compounds.

	PBLK02
α-BHC	0.11 μg/Kg
Endosulfan I	0.13 μg/Kg

Method Blanks, continued

Specific Finding

Samples	Compound	Qualification
041M060501 041M060601 041M5A0701 041M641101 041M641701 041M642001 041M642101	α-BHC	U
041M5A0201 041M5A0401 041M641601 041M641701 041M642001 041M642101	endosulfan I	U

Surrogate Recoveries

Five (5) samples required qualification due to non-compliant surrogate recoveries.

Specific Findings

The following sample exhibited a TCMX recovery below the QC limit. All positive and non-detect results reported in the sample are qualified as estimated, J/UJ.

041M5A0101
041M5A0201
041M5A0301
041M5A0401
041M641301

Compound Identification/Quantitation

One (1) sample required dilution to accurately quantitate target compounds. Several reported results exhibited P flags due to column quantitation %Ds greater than 25%. Single component compounds in samples with reported aroclors should be considered suspect. The Form Is submitted by the laboratory indicated incorrect Concentrated Final Volumes for all samples. The laboratory indicated that the software limitation would not accommodate the correct final volume. The samples were to be calculated based on a final volume of 1.0 ml. Based on this information, calculation verification was possible. Supporting documentation explaining the discrepancy has been received.

Specific Findings

All positive results exhibiting P flags are qualified as estimated, J, due to column quantitation %Ds greater than 25%.

For the following sample, the E flagged results are rejected in favor of the D flagged results reported from the dilution analysis. In the dilution analysis all other results are rejected, UR, in favor of the results reported from the undiluted analysis.

041M60601

Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M060501 041M060601 041M5A0701 041M641101 041M641701 041M642001 041M642101	α-BHC	+B	U
041M5A0201 041M5A0401 041M641601 041M641701 041M642001 041M642101	endosulfan I	+B	U
041M5A0101 041M5A0201 041M5A0301 041M5A0401 041M641301	All Compounds	+/-	J/UJ
041M60601	All E flagged results	+E	R
041M60601DL	All except corresponding D flagged results	+/-	UR
All	All P flagged results	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 5A0101

A validation was performed on the Metals Data from SDG 5A0101. The data was evaluated based on the following parameters.

*	Data Completeness
*	Holding Times
*	Calibrations
	Blanks
*	Interferences
	Matrix Spike Recovery
*	Matrix Duplicates
*	Field Duplicates
*	Laboratory Control Samples
	Serial Dilutions
	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Barium	0.14 mg/kg	041M642101
Calcium	17.4 mg/kg	no impact
Copper	0.56 mg/kg	041M061001
Iron	3.96 mg/kg	no impact
Lead	0.13 mg/kg	no impact

Zinc	0.62 mg/kg	no impact
Aluminum	23.4 ug/l	no impact
Barium	1.19 ug/l	no impact
Calcium	134. ug/l	no impact
Copper	6.86 ug/l	all water samples
Iron	22.1 ug/l	no impact
Manganese	1.09 ug/l	no impact
Sodium	76.1 ug/l	no impact
Vanadium	3.38 ug/l	all water samples
Zinc	11.4 ug/l	all water samples

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Cobalt	-0.49 mg/kg	all soil samples
Cobalt	-5.88 ug/l	all water samples

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for waters for Antimony was below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

The Matrix Spike recovery for waters for Lead was above the upper control limits. All positive results are qualified as estimated, "J".

Serial Dilution

Specific Finding

The Serial Dilution for waters for Iron and Magnesium were outside the control limits. All positive results are qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041W5A0101	70
Antimony	041W5A0401	72
Antimony	041W5A0701	77
Antimony	041W061001	66
Antimony	041M641001	68
Antimony	041M41101	67
Antimony	041M5A0201	25
Antimony	041M5A0701	16
Antimony	041M641301	48
Antimony	041M642001	49
Antimony	041M642101	53
Antimony	041M060501	60
Antimony	041M060601	40
Antimony	041M641401	63
Antimony	041M061101	61
Antimony	041M5A0401	67

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
041M642101	Ba.	+	U
041M061001	Cu.		
all water samples	Cu, V and Zn.		
all soil and water samples	Co.	+/U	J/UJ
all water samples	Sb.	+/U	J/UJ
all water samples	Pb.	+	J
all water samples	Fe and Mg.	+	J
all samples	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	63A401
Date:	March 29, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	January 17 - 18, 1996
Number of Samples:	7 Aqueous Sample(s) with 0 MS/MSD(s) 9 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Semivolatiles, Low Concentration Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig M. Swan

Eugene M. Watson, Vice President

4-1-96

Date

4127 Plaza 94 South St Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# 63A401

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		SV		LSV		P/P		TAL/CN	
041M010101	SOIL		X				X				X		X
041M010201	SOIL		X				X				X		X
041M010301	SOIL		X				X				X		X
041M010401	SOIL		X				X				X		X
041M63A401	SOIL		X				X				X		X
041M63A501	SOIL		X				X				X		X
041M63B101	SOIL		X				X				X		X
041M63B201	SOIL		X				X				X		X
041M63B301	SOIL		X				X				X		X
041W010301	WATER			X				X		X		X	
041W190101	WATER			X				X		X		X	
041W190301	WATER			X				X		X		X	
041W63A201	WATER			X				X		X		X	
010W63B201	WATER			X				X		X		X	
041TM01701	WATER			X									
041TM01801	WATER			X									
Total Billable Samples (Water/Soil)		0	9	7	0	0	9	5	0	5	9	5	9

VOA = CLP Volatiles
LVOA = CLP Low Concentration Volatiles
SV = CLP Semivolatiles
LSV = CLP Low Concentration Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # 63A401

A validation was performed on the Volatile Data from SDG 63A401. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, BU497, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041M63A401	acetone (61.9%)
040M63A501	

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated (UJ).

041M010201RE	1,4-difluorobenzene chlorobenzene-d_5
041M010301	chlorobenzene-d_5
041M010101RE	

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKBZ	methylene chloride	3J	30
VBLKGK	methylene chloride	2J	20
	Acetone	4J	40

Samples	Compound	Qualification
041M010301	methylene chloride	CRQL
041M010401		
041M63B101		
041M63B201		
041M63B301		
041M010101RE		
041M010201RE		
041M010101RE	acetone	U

Trip Blank

Associated blank	Compound	Concentration	Action Level
041TM01701	acetone	14	140
041TM01801	methylene chloride	3	3J
	Acetone	46	460

Trip Blank (continued)

Samples	Compound	Qualification
041M010301 041M010401 041M63B201 041M63B301	acetone	U
041M63A401 041M63A501	acetone	CRQL
041M63A401 041M63A501	methylene chloride	CRQL

Compound Identification /Quantitation

Reject samples 041M010101, 041M010201, and 041M010301RE, in favor of 041M010101RE, 041M01201RE, and 041M010301, due to non compliant internal standard area recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M63A401 040M63A501	acetone	+/-	J/UJ
041M010201RE	All associated analytes 1,4-difluorobenzene chlorobenzene-d_5	+/-	J/UJ
041M010301 041M010101RE	chlorobenzene-d_5		
041M010301 041M010401 041M63B101 041M63B201 041M63B301 041M010101RE 041M010201RE	methylene chloride	+	CRQL
041M010101RE 041M010301 041M010401 041M63B201 041M63B301	acetone	+	U
041M63A401 041M63A501	acetone	+	CRQL
041M63A401 041M63A501	methylene chloride	+	CRQL
041M010101 041M010201 041M010301RE	all analytes	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # 63A401

A validation was performed on the Volatile Data from SDG 63A401. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FN448, contained compounds with %Ds that were greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W63A201	chloromethane (-58.2)
041W63B201	
041W010301	

The continuing calibration, FN448, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W63A201	acetone (47.4)
041W63B201	2-butanone
041W010301	

The continuing calibration, FN469, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W190301	acetone (47.4)
	2-butanone

The continuing calibration, FN492, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W190101	acetone (57.9)
	2-butanone

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFM	acetone	6	60
VBLKFN	acetone	5	50
VBLKFO	acetone	7	70

Samples	Compound	Qualification
041W010301	acetone	U
041W63A201		
041W63B201		
041W190301		
041W190101		

Trip Blank

Associated blank	Compound	Conc.	Action Level
041TM01701	methylene chloride	4	40
	acetone	14	140

Samples	Compound	Qualification
041W010301	methylene chloride	U
041W63A201		
041W63B201		
041W190301		
041W190101		

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W63A201 041W63B201 041W010301	chloromethane (-58.2)	+/-	J/UJ
041W63A201 041W63B201 041W010301	acetone (47.4) 2-butanone	+/-	J/R
041W190301	acetone (47.4) 2-butanone	+/-	J/R
041W190101	acetone (57.9) 2-butanone	+/-	J/R
041W010301 041W63A201 041W63B201 041W190301 041W190101	acetone	+	U
041W010301 041W63A201 041W63B201 041W190301 041W190101	methylene chloride	+	U

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 63A401

A validation was performed on the Semivolatile Data from SDG 63A401. The data was evaluated based on the following parameters.

* • Data Completeness
* • Holding Times
* • GC/MS Tuning
* • Calibrations
* • Internal Standard Performance
* • Blanks
* • Surrogate Recoveries
* • Laboratory Control Sample
* • Field Duplicates
* • Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that none of the data requires qualification.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 63A0401

A validation was performed on the Semivolatile Data from SDG 63A0401. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 63A401

A validation was performed on the Pesticide/Aroclor Data from SDG 63A401. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Surrogate Recoveries

Six (6) samples exhibited non-compliant TCX and/or DCB recoveries.

Surrogate Recoveries, Continued

Specific Finding

The samples listed below exhibited low TCX recoveries. The positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

Sample ID	Surrogate	% Recovery
041M010101	TCX-1	22%
041M010201	TCX-1	13%
	TCX-2	20%
041M010301	TCX-1	21%
041M63A401	TCX-1	26%

The samples listed below did not exhibit a DCB recovery. The positive results are qualified as estimated, J, and the non-detect results are rejected, R.

Sample ID	Surrogate	% Recovery
041M010401	DCB-1	0%
	DCB-2	166%
041M63B101	TCX-1	24%
	DCB-1	0%

Analyte Identification/Quantitation

Two (2) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Analyte Identification/Quantitation, Continued

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M010301	Aroclor 1260 4,4'-DDD Gamma-Chlordane
041M010401	Aroclor 1260 Alpha-Chlordane 4,4'-DDE 4,4'-DDD 4,4'-DDT Gamma-Chlordane

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 20% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M010101 041M010201 041M010301 041M63A401	ALL	+/-	J/UJ
041M010401 041M63B101	ALL	+/-	J/R
041M010301	Aroclor 1260 4,4'-DDD Gamma-Chlordane	+	D
041M010401	Aroclor 1260 Alpha-Chlordane 4,4'-DDE 4,4'-DDD 4,4'-DDT Gamma-Chlordane	+	D
041M010301DL 041M010401DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 63A401

A validation was performed on the Metals Data from SDG 63A401. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recovery
	• Matrix Duplicates
*	• Field Duplicates
*	• Laboratory Control Samples
*	• Serial Dilutions
	• MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	14.4 mg/kg	no impact
Calcium	1.90 mg/kg	no impact
Iron	3.90 mg/kg	no impact
Magnesium	2.23 mg/kg	no impact
Sodium	3.64 mg/kg	all soil samples below 18.2 mg/kg

Aluminum	27.2 ug/l	all water samples below 136 ug/l
Sodium	57.6 ug/l	noimpact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Antimony (54%) was below the lower control limits (<75% but >30%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

Laboratory Duplicate Analysis

Specific Finding

The Duplicate analyses for Aluminum (49%) and Calcium (90%) were outside the control limits of 35%. All positive results are qualified as estimated, 'J". The RPD for Iron (22%) was below 35% and will not be qualified.

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M63A401	67
Antimony	041M63A501	83
Antimony	041M63B201	41
Antimony	041M63B301	81
Antimony	041M010101	57
Antimony	041W63A201	82
Antimony	041W010301	61
Antimony	041W190301	42
Antimony	041M63B101	47
Antimony	041M190101	39

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 18.2 mg/kg	Na.	+	U
all water samples below 136 ug/l	Al.		
all soil samples	Sb.	+/U	J/UJ
all soil samples	Al and Ca.	+	J
041M63S401, 63A501, 63B201, 63B301, 010101, 63A201, 010301, 190301,63B101 and W190101.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	640801
Date:	April 10, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	NAS Pensacola
Date Sampled:	February 1 - 9, 1996
Number of Samples:	1 Aqueous Sample(s) with 0 MS/MSD(s) 5 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively with Region IV Modifications
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Concentration Volatiles, Volatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Searfoss
for Eugene M. Watson, Vice President

5-3-96
Date

4127 Plaza 94 South St. Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# 640801

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		SV		P/P		TAL/CN	
041TM02401	WATER	X									
041M640101	SOIL				X		X		X		X
041M640401	SOIL				X		X		X		X
041M640801	SOIL				X		X		X		X
041M641801	SOIL				X		X		X		X
041M641901	SOIL				X		X		X		X
Total Billable Samples	(Water/Soil)	1	0	0	5	0	5	0	5	0	5

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG #640801

A validation was performed on the Volatile Data from SDG 640801. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Samples
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The data reviewer estimates that none of the data requires qualification.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG #640801

A validation was performed on the Volatile Data from SDG 640801. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, GD599, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M641901RE	chloroethane (52.4%)

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria. Qualifications are required.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated (UJ).

041M641901RE	chlorobenzene-d_5
041M64901	1,4-difluorobenzene chlorobenzene-d_5

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKGS	acetone	4J	40

Method Blank (continued)

Samples	Compound	Qualification
041M640801	acetone	CRQL

Trip Blank

Associated blank	Compound	Concentration	Action Level
041TM02401	methylene chloride	4	40
	Acetone	9	90

Samples	Compound	Qualification
041M640801 041M641801 041M641901	methylene chloride	CRQL
041M640101	acetone	U

Compound Identification /Quantitation

Reject sample 041M641901, in favor of the reanalysis, due to non compliant internal standard area recoveries.

System Performance and Overall Assessment

The overall system performance was fair The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M641901RE	chloroethane	+/-	J/UJ
041M641901RE	All associated analytes chlorobenzene-d_5	+/-	J/UJ
041M64901	1,4-difluorobenzene chlorobenzene-d_5		
041M640801	acetone	+	CRQL
041M640801 041M641801 041M641901	methylene chloride	+	CRQL
041M640101	acetone	+	U
041M641901	all results	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 640801

A validation was performed on the Semivolatile Data from SDG 640801. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, JG481, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

041M640801	pyrene (-31.8)
	butylbenzylphthalate (-30.2)
	bis(2-ethylhexyl)phthalate (-29.4)

The continuing calibration, JG481, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041M640801	di-n-octylphthalate (-73.0)

The continuing calibration, JG502, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

041M641901	butylbenzylphthalate (-29.0)
041M641801	bis(2-ethylhexyl)phthalate (-39.1)

The continuing calibration, JG534, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

041M640401	pyrene (-30.7)
041M640101	

The continuing calibration, JG534, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041M640401	2,2'-oxybis(1-chloropropane) (-58.6)
041M640101	

Method Blanks

Associated blank	Compound	Conc.	Action Level
SBLKJU	bis(2-ethylhexyl) phthalate	93J	930

Samples	Compound	Qualification
041M640101	bis(2-ethylhexyl)	CRQL
041M640401	phthalate	

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M640801	pyrene (-31.8) butylbenzylphthalate (-30.2) bis(2-ethylhexyl)phthalate (-29.4)	+	J
041M640801	di-n-octylphthalate (-73.0)	+/-	J/UJ
041M641901 041M641801	butylbenzylphthalate (-29.0) bis(2-ethylhexyl)phthalate (-39.1)	+	J
041M640401 041M640101	pyrene (-30.7)	+	J
041M640401	2,2'-oxybis- (1-chloropropane) (-58.6)	+/-	J/UJ
041M640101 041M640101 041M640401	bis(2-ethylhexyl) phthalate	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 640801

A validation was performed on the Pesticide/Aroclor Data from SDG 640801. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptably linear for all compounds.

Initial Calibrations, Continued

Specific Findings

The initial calibration of 2/20/96 contained a compound with a %RSD greater than 20%. For the samples and the non-compliant compound listed below, all positive results are qualified as estimated, J, and all non-detect results are qualified as estimated, UJ.

All samples	Endosulfan II (39.3%)

Surrogate Recoveries

One (1) sample exhibited a non-compliant DCB recovery.

Specific Finding

The sample listed below exhibited a high DCB recovery. The positive results are qualified as estimated, J.

Sample ID	Surrogate	% Recovery
041M640101	DCB-1	475%

Analyte Identification/Quantitation

One (1) sample required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

For the following sample and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M640101	Endrin
	4,4'-DDD
	4,4'-DDT

Analyte Identification/Quantitation, Continued

Specific Findings, Continued

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 30% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
All samples	Endosulfan II	+/-	J/UJ
041M640101	ALL	+	J
041M640101	Endrin 4,4'-DDD 4,4'-DDT	+	D
041M640101DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 640801

A validation was performed on the Metals Data from SDG 640801. The data was evaluated based on the following parameters.

*	Data Completeness
*	Holding Times
*	Calibrations
	Blanks
*	Interferences
	Matrix Spike Recovery
*	Matrix Duplicates
*	Field Duplicates
*	Laboratory Control Samples
*	Serial Dilutions
	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	2.68 mg/kg	no impact
Calcium	0.76 mg/kg	no impact
Copper	0.60 mg/kg	all soil samples below 3.0 mg/kg
Lead	0.20 mg/kg	no impact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited more contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Arsenic	-0.20 mg/kg	all soil samples below 2.0 mg/kg
Sodium	-4.71 mg/kg	all soil samples below 47.1 mg/kg

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Antimony (9%) was below 30%. All non-detect results are rejected and all positive results are qualfied as estimated, "J".

The Matrix Spike recovery for Thallium (73%) was below the lower control limits (<85% but >10%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits (<85% BUT >10%). All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M640101	66
Antimony	041M640401	11
Antimony	041M640801	65
Antimony	041M641801	48
Antimony	041M641901	59

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples below 3.0 mg/kg	Cu.	+	U
All soil samples below 2.0 mg/kg	As.	+/U	J/UJ
All soil samples below 47.1 mg/kg	Na.		
All soil samples	Sb.	+	J
		U	R
All soil samples	Tl.	+/U	J/UJ
041M640101, 40401, 40801, 411801 and 41901.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	EM0040
Date:	March 12, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	November 30 - December 1, 1995
Number of Samples:	7 Aqueous Sample(s) with 1 MS/MSD(s) 10 Non-aqueous Sample(s) with 1 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Concentration Volatiles, Volatiles, Low Concentration Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Jefferson

Eugene M. Watson, Vice President

3-13-96

Date

4127 Plaza 94 South St. Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# EM0040

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/C	
040EM00401	WATER	X				X				X		X	
040FM00401	WATER	X				X				X		X	
040TM01901	WATER	X											
041W030101	WATER	X				X				X		X	
041R030101	WATER	X				X				X		X	
041W030201	WATER	X				X				X		X	
041TM00701	WATER	X											
040MZ30401	SOIL				X				X		X		X
040MZ30601	SOIL				X				X		X		X
040MZ30801	SOIL				X				X		X		X
040MZ31401	SOIL				X				X		X		X
040MZ31701	SOIL				X				X		X		X
040MZ41801	SOIL				X				X		X		X
040MZ42401	SOIL				X				X		X		X
041M030101	SOIL				X				X		X		X
041N030101	SOIL				X				X		X		X
041M030201	SOIL				X				X		X		X
Total Billable Samples	(Water/Soil)	7	0	0	10	5	0	0	10	5	10	5	10

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide w/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EM0040

A validation was performed on the Volatile Data from SDG EM0040. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Samples
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM602, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041R030101	acetone
	2-butanone

The continuing calibration, FM622, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W030101	acetone
041W030201	2-butanone
	2-hexanone

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFW	acetone	6	60

Samples	Compound	Qualification
041W030101	acetone	U
041W030201		
041R030101		

Trip Blanks

Associated blank	Compound	Conc.	Action Level
041TM00701	methylene chloride	6	60
	acetone	17	170

Samples	Compound	Qualification
041W030201	methylene chloride	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041R030101	acetone 2-butanone	+/-	J/R
041W030101 041W030201	acetone 2-butanone 2-hexanone	+/-	J/R
041W030101 041W030201 041R030101	acetone	+	U
041W030201	methylene chloride	+	U

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG #EM0040

A validation was performed on the Volatile Data from SDG EM0040. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
	• Internal Standard Performance
	• Blanks
	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated(UJ).

041M030201	chlorobenzene-d_5

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKCY	Methylene chloride	4J	40
VBLKCZ	methylene chloride	2J	20
VBLKCA	methylene chloride	2J	20

Samples	Compound	Qualification
040MZ30601	methylene chloride	CRQL
040MZ30801		
040MZ30401		
040MZ31401		
040MZ31701		
040MZ31801		
040MZ41201		
041M030101		
041M030201		

Trip Blank

Associated blank	Compound	Concentration	Action Level
040TM01901	acetone	26B	260
	Methylene chloride	2	20

Samples	Compound	Qualification
041M030101	acetone	U
041NZ030101		
041M030201		
040MZ30401		
040MZ31801		

Trip Blank (continued)

Samples	Compound	Qualification
040MZ30801 040MZ31401 040MZ31701	acetone	CRQL
041N030101	methylene chloride	CRQL

Surrogates

All of the surrogate recoveries for these samples were not within QA/QC limits.

Specific Finding:

Sample listed below exhibited high recoveries for toluene-d_8. Qualify all positive results as estimated (J).

041M030201

Compound Identification /Quantitation

Reject sample 041M030201RE, in favor of the initial analysis, due to non compliant surrogate recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M030201	All associated analytes chlorobenzene-d_5	+/-	J/UJ
040MZ30601 040MZ30801 040MZ30401 040MZ31401 040MZ31701 040MZ31801 040MZ41201 041M030101 041M030201	methylene chloride	+	CRQL
041M030101 041NZ030101 041M030201 040MZ30401 040MZ31801	acetone	+	U
040MZ30801 040MZ31401 040MZ31701	acetone	+	CRQL
041N030101	methylene chloride	+	CRQL
041M030201	all analytes	+	J
041M030201RE	all analytes	+/-	R

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OIC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM0040

A validation was performed on the Semivolatile Data from SDG EM0040. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Method Blanks

Associated blank	Compound	Conc.	Action Level
041EM00201	bis(2-ethylhexyl) phthalate	2J	20

Samples	Compound	Qualification
041R030101	bis(-ethylhexyl)phthalate	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041R030101	bis(-ethylhexyl)phthalate	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM0040

A validation was performed on the Semivolatile Data from SDG EM0040. The data was evaluated based on the following parameters.

*	• Data Completeness
	• Holding Times
*	• GC/MS Tuning
	• Calibrations
	• Internal Standard Performance
	• Blanks
	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Holding Times

The following samples had extractions that exceeded the method criteria of fourteen (14) days from date sampled. Samples exceeded the holding time by thirteen (13) and fifteen (15) days. Qualifications are required.

Specific Find:

040MZ30601 exceeded holding time by fifteen (15) days and sample 040MZ30801 exceeded holding time by thirteen (13) days. Qualify all positive results as estimated (J) and non detects as estimated (UJ)

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Specific Finding:

The continuing calibration, DJ216, contained compounds with %Ds greater than 25% an less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

041N030101	pyrene (37.9%)
	Chrysene (27.0%)
	Benzo(k)fluoranthene (33.6%)

The continuing calibration, DJ216, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041N030101	4-chloroaniline (54.9%)
	3-nitroaniline (78.8%)
	2,4-dinitrophenol (51.2%)
	4-nitroaniline (74.1%)
	Bis(2-ethylhexyl)phthalate (55.9%)
	Di-n-octyl phthalate (54.2%)

The continuing calibration, IF760, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ30401	hexachlorocyclopentadiene (50.6%)
041M030101	

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF760, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

040MZ30401 4-chloroaniline (218.2%)
041M030101

The continuing calibration, IF723, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041M030201 4-chloroaniline (230.1%)

The continuing calibration, IF780, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ31401 hexachlorocyclopentadiene (68.4%)
040MZ31701

The continuing calibration, IF723, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

040MZ31401 4-chloroaniline (190.9%)
040MZ31701

The continuing calibration, AJ074, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ41801 4,6-dinitro-2-methylphenol (63.2%)

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF723, contained compounds with RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

040MZ41801 2,4-dinitrophenol (0.034)
040MZ42401

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated(UJ).

040MZ31401 perylene-d_{12}
040MZ31701

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKII	bis(2ethylhexyl)phthalate	45J	450
SBLKAM	bis(2ethylhexyl)phthalate	48J	480
SBLKDL	bis(2ethylhexyl)phthalate	37J	370
SBLKJO	bis(2ethylhexyl)phthalate	90J	900

Method Blanks (continued)

Samples	Compound	Qualification
040MZ31401 040MZ31701 041M030101 040MZ42401 040MZ41801 041N030101	bis(2ethylhexyl)phthalate	CRQL
040MZ30801	bis(2ethylhexyl)phthalate	U

Field Blanks

Associated blank	Compound	Concentration	Action Level
040FM00401	bis(2ethylhexyl)phthalate	1J	10

Samples	Compound	Qualification
040MZ30601	bis(2ethylhexyl)phthalate	CRQL

Surrogates

All of the surrogate recoveries for these samples were not within QA/QC limits.

Specific Finding:

Sample listed below exhibited low recoveries for 2-fluorophenol and 2,4,6-tribromophenol. Qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041N030101 (15%, 18%)

Compound Identification /Quantitation

Specific Finding:

Reject samples 040MZ31701RE and 040MZ31401RE, in favor of the initial analysis, due to non compliant internal standard areas.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ30601 040MZ30801	All analytes	+/-	J/UJ
041N030101	pyrene (37.9%) Chrysene (27.0%) Benzo(k)fluoranthene (33.6%)	+	J
041N030101	4-chloroaniline (54.9%) 3-nitroaniline (78.8%) 2,4-dinitrophenol (51.2%) 4-nitroaniline (74.1%) Bis(2-ethylhexyl)phthalate (55.9%) Di-n-octyl phthalate (54.2%)	+/-	J/UJ
040MZ30401 041M030101	hexachlorocyclopentadiene (50.6%)	+/-	J/UJ
040MZ30401 041M030101	4-chloroaniline (218.2%)	+/-	J/R
041M030201	4-chloroaniline (230.1%)	+/-	J/R
040MZ31401 040MZ31701	hexachlorocyclopentadiene (68.4%)	+/-	J/UJ
040MZ31401 040MZ31701	4-chloroaniline (190.9%)	+/-	J/R
040MZ41801	4,6-dinitro-2-methylphenol (63.2%)	+/-	J/UJ
040MZ41801 040MZ42401	2,4-dinitrophenol (0.034)	+/-	J/R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

Page 2

SAMPLE ID	ANALYTE ID	DL	QL
	All associated analytes	+/-	J/UJ
040MZ31401	perylene-d_{12}		
040MZ31701			
040MZ31401	bis(2ethylhexyl)phthalate	+	CRQL
040MZ31701			
041M030101			
040MZ42401			
040MZ41801			
041N030101			
040MZ30801	bis(2ethylhexyl)phthalate	+	U
040MZ30601	bis(2ethylhexyl)phthalate	+	CRQL
041N030101	All analytes	+/-	J/UJ
040MZ31701RE	All analytes	+/-	R
040MZ31401RE			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM0040

A validation was performed on the Pesticide/Aroclor Data from SDG EM0040. The data was evaluated based on the following parameters:

*	• Data Completeness
	• Holding Times
*	• GC Performance
	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

The analysis holding times were exceeded for many samples.

Holding Times, Continued

Specific Findings

The following samples exceeded the analysis holding time by one (1) to four (4) days. It is the professional opinion of the data validator that the positive results should be qualified as estimated, J.

040MZ30401
040MZ30401DL
040MZ30601
040MZ30801
040MZ31401
040MZ31701
040MZ41801
041M030101
041N030101
041M030101DL
041N030101DL
041M030201
041W030201
041M030201DL

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptably linear for all compounds.

Specific Findings

The initial calibration of 1/11/96 contained compounds with %RSDs greater than 20%. For the samples and the non-compliant compound listed below, all positive results are qualified as estimated, J, and all non-detect results are qualified as estimated, UJ.

All samples	Alpha-BHC (20.2%/21.0%)
	Delta-BHC (21.2%/21.1%)

Surrogate Recoveries

Several samples exhibited non-compliant TCX and/or DCB recoveries.

Specific Finding

The sample listed below exhibited a TCX recovery below 10%. The positive results are qualified as estimated, J, and the non-detect results are rejected, R.

Sample ID	Surrogate	% Recovery
041W030201	TCX-1	8%

The sample listed below exhibited a high DCB recovery. The positive results are qualified as estimated, J.

Sample ID	Surrogate	% Recovery
040MZ30401	DCB-1	282%

Field Duplicates

The field duplicate pair of samples 041M030101 and 041N030101 exhibited positive results and non-compliant RPDs for several target compounds. Three (3) compounds required qualification due to poor duplicate precision.

Specific Finding

The field duplicate pair of samples 041M030101 and 041N030101 exhibited positive results and non-compliant RPDs for three (3) compounds. For the compounds listed below, the positive results are qualified as estimated, J, due to poor duplicate precision.

041M030101	Delta-BHC (72%)
041N030101	4,4'-DDE (67%)
	4,4'-DDT (110%)

Analyte Identification/Quantitation

Four (4) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

040MZ30401	Dieldrin
	Alpha Chlordane
041M030101	4,4'-DDE
041N030101	4,4'-DDD
	4,4'-DDT
041M030201	Aroclor 1260
	4,4'-DDD

The positive results reported in all samples which exhibited column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 30% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ30401 040MZ30401DL 040MZ30601 040MZ30801 040MZ31401 040MZ31701 040MZ41801 041M030101 041N030101 041M030101DL 041N030101DL 041M030201 041W030201 041M030201DL	ALL	+	J
All samples	Alpha-BHC Delta-BHC	+/-	J/UJ
041W030201	ALL	+/-	J/R
040MZ30401	ALL	+	J
041M030101 041N030101	Delta-BHC 4,4'-DDE 4,4'-DDT	+	J
040MZ30401	Dieldrin Alpha Chlordane	+	D
041M030101 041N030101	4,4'-DDE 4,4'-DDD 4,4'-DDT	+	D
041M030201	Aroclor 1260 4,4'-DDD	+	D

SUMMARY OF DATA QUALIFICATIONS, Continued

SAMPLE ID	ANALYTE ID	DL	QL
040MZ30401DL 041M030101DL 041N030101DL 041M030201DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM0040

A validation was performed on the Metals Data from SDG EM0040. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
	•	Matrix Spike Recovery
*	•	Matrix Duplicates
	•	Field Duplicates
*	•	Laboratory Control Samples
	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Calcium	6.25 mg/kg	no impact
Iron	9.25 mg/kg	no impact
Lead	0.11 mg/kg	all soil samples below 0.55 mg/kg
Iron	4.28 ug/l	no impact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Barium	-0.13 mg/kg	all soil samples below 1.3 mg/kg
Copper	-0.49 mg/kg	all soil samples below 4.9 mg/kg
Potassium	-20.3 mg/kg	all soil samples below 203 mg/kg
Silver	-0.42 mg/kg	all soil samples below 4.2 mg/kg
Barium	-1.81 ug/l	all water samples below 18.1 ug/l
Potassium	-152 ug/l	all water samples below 1520 ug/l
Selenium	-3.26 ug/l	all water samples below 32.6 ug/l
Zinc	-5.32 ug/l	all water samples below 53.2 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recoveries for soils for Antimony (52%), Cadmium (74%), Selenium (74%), Silver (64%) and Thallium (65%) and for waters for Antimony (65%) were below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Field Duplicate Analysis

Specific Finding

The field duplicate analyses for soils for Aluminum, Iron, Magnesium, Manganese, Vanadium and Zinc were above 50% and will be qualified as estimated, "J".

Serial Dilution

Specific Finding

The Serial Dilutions for soils for Lead and Calcium were outside the control limits. All positive results are qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041R030101	61
Antimony	041W030201	65
Antimony	040MZ30601	79
Antimony	041M030201	53
Antimony	040MZ30801	83

The post digestion spike recovery for GFAA was above the upper control limits. All positive results for the listed samples below are qualified as estimated, "J".

Element	Sample IDs	% recoveries
Antimony	040EM00401	122
Antimony	040MZ30401	125

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples below 0.55 mg/kg	Pb.	+	U
all soil samples below 1.3 mg/kg	Ba.	+/U	J/UJ
all soil samples below 4.9 mg/kg	Cu.		
all soil samples below 203 mg/kg	K.		
all soil samples below 4.2 mg/kg	Ag.		
all water samples below 18.1 ug/l	Ba.		
all water samples below 1520 ug/l	K.		
all water samples below 32.6 ug/l	Se.		
all water samples below 53.2 ug/l	Zn.		
allsoil samples	Sb, Cd, Se, Ag and Tl.	+/U	J/UJ
all water samples	Sb.		
all soil samples	Al, Fe, Mg, Mn, V and Zn.	+	J
all soil samples	Pb and Ca.	+	J
041R030101, 041W030201, 040MZ30601, 040MZ31401, 041M030201 and 040MZ30801.	Sb.	+/U	J/UJ
040EM00401 and 040MZ30401.	Sb.	+	J
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	EM005
Date:	March 29, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	January 15 - 18, 1996
Number of Samples:	7 Aqueous Sample(s) with 0 MS/MSD(s) 13 Non-aqueous Sample(s) with 1 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Semivolatiles, Low Concentration Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Simpson
Eugene M. Watson, Vice President

4-2-96
Date

4127 Plaza 94 South St. Charles, MO 63304
(314) [illegible] Fax (314) 936-1335

SDG# EM005

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		SV		LSV		P/P		TAL/CN	
041M170101	SOIL		X				X				X		X
041M170201	SOIL		X				X				X		X
041M170301	SOIL		X				X				X		X
041M19A101	SOIL		X				X				X		X
041M19A201	SOIL		X				X				X		X
041M19B101	SOIL		X				X				X		X
041C490101	SOIL		X				X				X		X
041M490101	SOIL		X				X				X		X
041M490201	SOIL		X				X				X		X
041M490301	SOIL		X				X				X		X
041M63A101	SOIL		X				X				X		X
041M63A201	SOIL		X				X				X		X
041M63A301	SOIL		X				X				X		X
041W04D101	WATER			X				X		X		X	
041W04D401	WATER			X				X		X		X	
041W170101	WATER			X				X		X		X	
041EM00501	WATER			X				X		X		X	
041FM00501	WATER			X				X		X		X	
040TM01501	WATER			X									
041TM01601	WATER			X									
Total Billable Samples (Water/Soil)		0	13	7	0	0	13	5	0	5	13	5	13

VOA = CLP Volatiles
LVOA = CLP Low Concentration Volatiles
SV = CLP Semivolatiles
LSV = CLP Low Concentration Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries. GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG #EM005

A validation was performed on the Volatile Data from SDG EM005. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, BU497, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041M63A101 acetone (61.9%)

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated (UJ).

041M63A301 chlorobenzene-d_5

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKCZ	bromomethane	3J	15
	Methylene chloride	1J	10
	4-methyl-2-pentanone	5J	25
	2-hexanone	5J	25
VBLKCA	acetone	6J	60
	Bromomethane	3J	15

Method Blank (continued)

Associated blank	Compound	Concentration	Action Level
VBLKBZ	methylene chloride	3J	30

Samples	Compound	Qualification
041C490101 041M170101 041M170201 041M170301 041M490101 041M490201 041M490301	bromomethane	CRQL
041C490101 041M170101 041M170201 041M19B101 041M490101 041M490201 041M63A301	methylene chloride	CRQL
041M170101	4-methyl-2-pentanone	CRQL
041M170101	2-hexanone	CRQL
041M19A101 041M490301	acetone	U
041M19A201	acetone	CRQL

Trip Blank

Associated blank	Compound	Concentration	Action Level
041TM01601	acetone	28	280
041TM01801	methylene chloride	3	30

Samples	Compound	Qualification
041M170201 041M63A101 041M63A201	acetone	CRQL
041M170301 041M19B101 041C490101 041M490201	acetone	U
041M19A101 041M19A201 041M490301 041M63A101 041M63A201	methylene chloride	CRQL

Compound Identification /Quantitation

Reject sample 041M63A301RE. in favor of the initial analysis, due to non compliant internal standard area recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M63A101	acetone	+/-	J/UJ
041M63A301	All associated analytes chlorobenzene-d_5	+/-	J/UJ
041C490101 041M170101 041M170201 041M170301 041M490101 041M490201 041M490301	bromomethane	+	CRQL
041C490101 041M170101 041M170201 041M19B101 041M490101 041M490201 041M63A301	methylene chloride	+	CRQL
041M170101	4-methyl-2-pentanone	+	CRQL
041M170101	2-hexanone	+	CRQL
041M19A101 041M490301	acetone	+	U
041M19A201 041M170201 041M63A101 041M63A201	acetone	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M170301 041M19B101 041C490101 041M490201	acetone	+	U
041M19A101 041M19A201 041M490301 041M63A101 041M63A201	methylene chloride	+	CRQL
041M63A301RE	all analytes	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EM005

A validation was performed on the Volatile Data from SDG EM005. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, EN139, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W04D401DL	acetone
	2-butanone
	1,2-dibromo-3-chloropropane

The continuing calibration, FN414, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W04D101	acetone (55.3)
041W04D401	2-butanone

The continuing calibration, FN433, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W170101	acetone (55.3)
	2-butanone

The continuing calibration, FN571, contained compounds with %Ds that were greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W170101DL	chloromethane (63.9)

The continuing calibration, FN571, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W170101DL	acetone (65.8)
	2-butanone (26.9)
	2-hexanone (40.3)

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFL	acetone	3	30
VBLKFJ	acetone	6	60

Samples	Compound	Qualification
041W04D101	acetone	U
041W04D401		
041W170101		

Rinseate Blank

Associated blank	Compound	Conc.	Action Level
041EM00501	acetone	23	230
	2-butanone	2J	20

Samples	Compound	Qualification
041W170101	2-butanone	CRQL

Compound Identification/Quantitation

Specific Finding:

For sample 041W170101 and 041W04D401 reject the E-flagged results in favor of the results from the diluted samples 041W170101DL and 041W04D401DL.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W04D401DL	acetone 2-butanone 1,2-dibromo-3-chloropropane	+/-	J/R
041W04D101 041W04D401	acetone (55.3) 2-butanone	+/-	J/R
041W170101	acetone (55.3) 2-butanone	+/-	J/R
041W170101DL	chloromethane (63.9)	+/-	J/UJ
041W170101DL	acetone (65.8) 2-butanone (26.9) 2-hexanone (40.3)	+/-	J/R
041W04D101 041W04D401 041W170101	acetone	+	U
041W170101	2-butanone	+	CRQL
041W170101 041W04D401	E-Flagged results	+	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM005

A validation was performed on the Semivolatile Data from SDG EM005. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ559, contained compounds with %Ds greater than 50% an less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M170301	2,4-dinitrophenol (58.2%)
041M170201	4,6-dinitro-2-methylphenol (59.7%)
041C490101	
041M19A101	
041M19A201	
041M63A201	
041M19B101	
041M490101	
041M490201	
041M490301	
041M63A101	

The continuing calibration, JG243, contained compounds with %Ds greater than 50% an less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M170101	4-chloroaniline (58.0%)
041M63A301	

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKDJ	bis(2-ethylhexyl)phthalate	33J	330
SBLKJK	bis(2-ethylhexyl)phthalate	71J	710

Samples	Compound	Qualification
041C490101	bis(2-ethylhexyl)phthalate	CRQL
041M170301		
041M19A101		
041M19A201		
041M19B101		
041M490201		
041M490301		
041M63A101		
041M63A201		
041M170101		
041M63A301		

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M170301	2,4-dinitrophenol	+/-	J/UJ
041M170201	4,6-dinitro-2-methylphenol		
041C490101			
041M19A101			
041M19A201			
041M63A201			
041M19B101			
041M490101			
041M490201			
041M490301			
041M63A101			
041M170101	4-chloroaniline	+/-	J/UJ
041M63A301			
041C490101	bis(2-ethylhexyl)phthalate	+	CRQL
041M170301			
041M19A101			
041M19A201			
041M19B101			
041M490201			
041M490301			
041M63A101			
041M63A201			
041M170101			
041M63A301			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM005

A validation was performed on the Semivolatile Data from SDG EM005. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ601, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W04D401	hexachlorocyclopentadiene (54.5)
041W04D101	
041W170101	

Method Blanks

Associated blank	Compound	Conc.	Action Level
041EM00501	bis(2-ethylhexyl) phthalate	2J	20

Samples	Compound	Qualification
041W04D401	bis(2-ethylhexyl)	CRQL
041W170101	phthalate	

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W04D401 041W04D101 041W170101	hexachlorocyclopentadiene (54.5)	+/-	J/UJ
041W04D401 041W170101	bis(2-ethylhexyl) phthalate	+	CRQL

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM005

A validation was performed on the Pesticide/Aroclor Data from SDG EM005. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC Performance
	•	Calibration
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	GPC and Florisil Clean-up Procedures
	•	Field Duplicates
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptably linear for all compounds.

Initial Calibrations, Continued

Specific Findings

The initial calibration of 1/20/96 contained a compound with a %RSD greater than 20%. For the samples and the non-compliant compound listed below, all positive results are qualified as estimated, J, and all non-detect results are qualified as estimated, UJ.

All samples	Alpha-BHC (20.6%)

Field Duplicates

The field duplicate pair of samples 041M490101 and 041C490101 exhibited positive results for three (3) compounds. One (1) compound exhibited a non-compliant RPD.

Specific Findings

The field duplicate pair of samples 040MZ21801 and 040NZ21801 exhibited positive results and a non-compliant RPD for one (1) compound. For the non-compliant compound listed below, the positive results are qualified as estimated, J.

041M490101 041C490101	4,4'-DDD (63%)

Analyte Identification/Quantitation

Five (5) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Analyte Identification/Quantitation, Continued

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M19A101	Heptachlor Epoxide
041C490101 041M490101 041M490201	4,4'-DDD
041M63A301	Aroclor 1260 4,4'-DDD

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 20% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
All samples	Alpha-BHC	+/-	J/UJ
041M490101 041C490101	4,4'-DDD	+	J
041M19A101	Heptachlor Epoxide	+	D
041C490101 041M490101 041M490201	4,4'-DDD	+	D
041M63A301	Aroclor 1260 4,4'-DDD	+	D
041M19A101DL 041C490101DL 041M490101DL 041M490201DL 041M63A301DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM005

A validation was performed on the Metals Data from SDG EM005. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recovery
*	• Matrix Duplicates
*	• Field Duplicates
*	• Laboratory Control Samples
*	• Serial Dilutions
	• MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	6.26 mg/kg	no impact
Cadmium	0.23 mg/kg	all soil samples below 1.15 mg/kg
Calcium	3.83 mg/kg	no impact
Iron	2.50 mg/kg	no impact
Magnesium	3.85 mg/kg	no impact

Aluminum	23.9 ug/l	all water samples below 120 ug/l
Cadmium	2.78 ug/l	all water samples below 13.9 ug/l
Manganese	1.05 ug/l	no impact
Sodium	66.2 ug/l	no impact

The field and equipment blank exhibited contamination for the following elements.

Barium	4.0 ug/l	all water non QC samples below 20.0 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Antimony	-0.36 mg/kg	all soil samples below 3.6 mg/kg

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recoveries for soils for Antimony (55%) and Selenium (67%) were below the lower control limits (<75% but >30%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M170201	68
Antimony	041M170301	65
Antimony	041C490101	49
Antimony	041M19A101	84
Antimony	041M19B101	57
Antimony	041M490101	61
Antimony	041M490201	73

Antimony	041M490301	70
Antimony	041M63A201	75
Antimony	041M63A101	68
Antimony	041W04D101	62
Antimony	041W04D401	70
Antimony	041W170101	74

The post digestion spike recovery for GFAA was above the upper control limits. All positive results for the listed samples below are qualified as estimated, "J".

Element	Sample IDs	% recoveries
Antimony	041M63A301	130

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 1.15 mg/kg	Cd.	+	U
all water samples below 120 ug/l	Al.		
all water samples below 13.9 ug/l	Cd.		
allwater samples below 20.0 ug/l	Ba.		
all soil samples below 3.6 mg/kg	Sb.	+/U	J/UJ
all soil samples	Sb and Se.	+/U	J/UJ
014M170201, 70301, 041C490101, 041M19A101, 19B101, 490101, 490201, 490301, 63A201, 63A101, 041W04D101, 04D401 and 170101.	Sb.	+/U	J/UJ
041M63S201.	Sb.	+	J
All "B" results	all analytes	B	J

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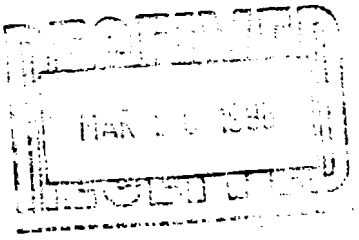

Data Validation Report

SDG#:	EM0050
Date:	March 12, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	December 6 - 7, 1995
Number of Samples:	7 Aqueous Sample(s) with 0 MS/MSD(s) 13 Non-aqueous Sample(s) with 1 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Concentration Volatiles, Volatiles, Low Concentration Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig H. Swanson — 3-25-96

Eugene M. Watson, Vice President — Date

4127 Plaza 94 South St Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# EM0050

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/C	
040EM00501	WATER	X				X				X		X	
040FM00501	WATER	X				X				X		X	
041W150101	WATER	X				X				X		X	
041W150201	WATER	X				X				X		X	
041EM00301	WATER	X				X				X		X	
041FM00301	WATER	X				X				X		X	
041TM01001	WATER	X											
040MZ52101	SOIL				X				X		X		X
040MZ52201	SOIL				X				X		X		X
040MZ52301	SOIL				X				X		X		X
040MZ52601	SOIL				X				X		X		X
040MZ52801	SOIL				X				X		X		X
040MZ52901	SOIL				X				X		X		X
040MZ53001	SOIL				X				X		X		X
040NZ53001	SOIL				X				X		X		X
040MZ53201	SOIL				X				X		X		X
041M150101	SOIL				X				X		X		X
041M150201	SOIL				X				X		X		X
041M150301	SOIL				X				X		X		X
041M150401	SOIL				X				X		X		X
Total Billable Samples (Water/Soil)		7	0	0	13	6	0	0	13	6	13	6	13

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide w/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EM0050

A validation was performed on the Volatile Data from SDG EM0050. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, GD003, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041M150301	2-butanone (64.4%)
040MZ52101	
040MZ52201	
040MZ52301	
040MZ52601	
040MZ52801	

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated (UJ).

041M150101RE	1,4-difluorobenzene
	chlorobenzene-d_5

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKGV	methylene chloride	4J	40
	Acetone	5J	50
VBLKBL	methylene chloride	10	100

Samples	Compound	Qualification
040MZ52101	methylene chloride	U
040MZ52201		
040MZ52301		
040MZ52601		
040MZ52801		
041M150101		
041M150301		
040MZ53201		
040MZ52201	acetone	U

Compound Identification /Quantitation

Reject sample 041M150101, in favor of reanalysis, due to non compliant surrogate recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M150301 040MZ52101 040MZ52201 040MZ52301 040MZ52601 040MZ52801	2-butanone	+/-	J/UJ
041M150101RE	All associated analytes 1,4-difluorobenzene chlorobenzene-d_5	+/-	J/UJ
040MZ52101 040MZ52201 040MZ52301 040MZ52601 040MZ52801 041M150101 041M150301 040MZ53201	methylene chloride	+	U
040MZ52201	acetone	+	U
041M150101	all analytes	+/-	R

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QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EM0050

A validation was performed on the Volatile Data from SDG EM0050. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM737, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W150101	acetone

The continuing calibration, FM881, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W150201	acetone
	2-butanone
	2-hexanone

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFE	acetone	9	90
VBLKFM	acetone	11	110
	methylene chloride	3	30

Samples	Compound	Qualification
041W150101	acetone	U
041W150201		
041W150201	methylene chloride	U

Trip Blanks

Associated blank	Compound	Conc.	Action Level
041TM01001	methylene chloride	4	40
	2-butanone	1J	10

Samples	Compound	Qualification
041W150101	methylene chloride	U
041W150101	2-butanone	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W150101	acetone	+/-	J/R
041W150201	acetone 2-butanone 2-hexanone	+/-	J/R
041W150101 041W150201	acetone	+	U
041W150201	methylene chloride	+	U
041W150101	methylene chloride	U	
041W150101	2-butanone	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM0050

A validation was performed on the Semivolatile Data from SDG EM0050. The data was evaluated based on the following parameters.

*	• Data Completeness
	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Holding Times

The following sample had extractions that exceeded the method criteria of fourteen (14) days from date sampled. Qualifications are required

Specific Find:

040MZ53201 exceeded holding time by nine (9) days. Qualify all positive results as estimated (J) and non detects as estimated (UJ).

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Specific Finding:

The continuing calibration, AJ074, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ52201	4,6-dinitro-2-methylphenol (63.2%)
040MZ52901	
040MZ53001	

The continuing calibration, AJ074, contained compounds with RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

040MZ52201	2,4-dinitrophenol (0.034)
040MZ52901	
040MZ53001	

The continuing calibration, AJ105, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ52801	2,4-dinitrophenol (64.9%)
040MZ52601	
041M150301	

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF809, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ53001	hexachlorocyclopentadiene (57.6%)
040MZ50101	
040MZ52301	
041M150201	
041M150401	

The continuing calibration, IF809, contained compounds with RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

040MZ53001	4-chloroaniline (191.6%)
040MZ50101	
040MZ52301	
041M150201	
041M150401	

The continuing calibration, IF833, contained compounds with RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

040MZ52101	4-chloroaniline (219.6%)

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKAR	bis(2ethylhexyl)phthalate	61J	610

Samples	Compound	Qualification
040MZ52201	bis(2ethylhexyl)phthalate	CRQL
040MZ52601		
040MZ52801		
040MZ52901		
040MZ53001		
041M150301		

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ53201	All analytes	+/-	J/UJ
040MZ52201 040MZ52901 040MZ53001	4,6-dinitro-2-methylphenol (63.2%)	+/-	J/UJ
040MZ52201 040MZ52901 040MZ53001	2,4-dinitrophenol (0.034)	+/-	J/R
040MZ52801 040MZ52601 041M150301	2,4-dinitrophenol (64.9%)	+/-	J/UJ
040MZ53001 040MZ50101 040MZ52301 041M150201 041M150401	hexachlorocyclopentadiene (57.6%)	+/-	J/UJ
040MZ53001 040MZ50101 040MZ52301 041M150201 041M150401	4-chloroaniline (191.6%)	+/-	J/R
040MZ52101	4-chloroaniline (219.6%)	+/-	J/R
040MZ52201 040MZ52601 040MZ52801 040MZ52901 040MZ53001 041M150301	bis(2ethylhexyl)phthalate	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OlC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM0050

A validation was performed on the Semivolatile Data from SDG EM0050. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicate
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Method Blanks

Associated blank	Compound	Conc.	Action Level
041FM00301	bis(2-ethylhexyl) phthalate	1J	10

Samples	Compound	Qualification
041W150101	bis(-ethylhexyl)phthalate	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W150101	bis(-ethylhexyl)phthalate	+	U

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM0050

A validation was performed on the Pesticide/Aroclor Data from SDG EM0050. The data was evaluated based on the following parameters:

*	•	Data Completeness
	•	Holding Times
*	•	GC Performance
	•	Calibration
*	•	Blanks
	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	GPC and Florisil Clean-up Procedures
*	•	Field Duplicates
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

The analysis holding times were exceeded for many samples.

Holding Times, Continued

Specific Findings

The following samples exceeded the analysis holding time by three (3) to four (4) days. It is the professional opinion of the data validator that the positive results should be qualified as estimated, J.

040MZ52101
040MZ52201
040MZ52301
040MZ52601
040MZ52901
040MZ53001
040NZ53001
040MZ53201
041M150101
041W150101
041M150101DL
041M150201
041M150201DL
041M150301
041M150301DL
041M150401

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptably linear for all compounds.

Specific Findings

The initial calibration of 1/20/96 contained compounds with %RSDs greater than 20%. For the samples and the non-compliant compound listed below, all positive results are qualified as estimated, J, and all non-detect results are qualified as estimated, UJ.

All samples	Alpha-BHC (20.6%)

Surrogate Recoveries

One (1) sample exhibited a non-compliant TCX recovery.

Specific Finding

The sample listed below exhibited a high TCX recovery. The positive results are qualified as estimated, J.

Sample ID	Surrogate	% Recovery
041M150301	TCX-2	385%

Analyte Identification/Quantitation

Three (3) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M150101	4,4'-DDE
041M150201	4,4'-DDD
041M150301	

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 30% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

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J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ52101	ALL	+	J
040MZ52201			
040MZ52301			
040MZ52601			
040MZ52901			
040MZ53001			
040NZ53001			
040MZ53201			
041M150101			
041W150101			
041M150101DL			
041M150201			
041M150201DL			
041M150301			
041M150301DL			
041M150401			
All samples	Alpha-BHC	+/-	J/UJ
041M150301	ALL	+	J
041M150101	4,4'-DDE	+	D
041M150201	4,4'-DDD		
041M150301			
041M150101DL	ALL OTHERS	+/-	UR
041M150201DL			
041M150301DL			
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM0050

A validation was performed on the Metals Data from SDG EM0050. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
	•	Matrix Spike Recovery
	•	Matrix Duplicates
	•	Field Duplicates
*	•	Laboratory Control Samples
*	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Antimony	0.53 mg/kg	all soil samples below 2.65 mg/kg
Calcium	2.45 mg/kg	no impact
Iron	2.64 mg/kg	no impact
Antimony	2.44 ug/l	no impact

Calcium	11.9 ug/l	no impact
Iron	8.04 ug/l	no impact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Chromium	-0.86 mg/kg	all soil samples below 8.6 mg/kg
Copper	-0.56 mg/kg	all soil samples below 5.6 mg/kg
Manganese	-0.12 mg/kg	all soil samples below 1.2 mg/kg
Silver	-0.86 mg/kg	all soil samples below 8.6 mg/kg
Sodium	-16.3 mg/kg	no impact
Vanadium	-0.23 mg/kg	all soil samples below 2.3 mg/kg
Arsenic	-2.02 ug/l	no impact

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Antimony (72%) was were below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Field and Laboratory Duplicate Analysis

Specific Finding

The duplicate analyses for Calcium and Chromium were outside teh control limits of 35%. All positive results are qualified as estimated, "J". The field duplicate analysis for soils for Calcium was above 50% and will be qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	040EM00501	70
Antimony	041W150201	41
Antimony	041M150101	58
Antimony	041M150401	40
Antimony	040M152101	68
Antimony	040M155201	48
Antimony	040M152301	73
Antimony	040M152801	77
Antimony	040M152901	55
Antimony	041M153001	48
Antimony	041M153201	64
Antimony	041W150101	21
Antimony	040NZ53001	61

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples below 2.65 mg/kg	Sb.	+	U
all soil samples below 8.6 mg/kg	Cr.	+/U	J/UJ
all soil samples below 5.6 mg/kg	Cu.		
all soil samples below 1.2 mg/kg	Mn.		
all soil samples below 8.6 mg/kg	Ag.		
all soil samples below 2.3 mg/kg	V.		
all soil samples	Sb.	+/U	J/UJ
all soil samples	Ca and Cr.	+	J
040EM00501, 041W150201, 0401150101, 041M150401, 041M152101, 01M1522201, 041M152301, 041M152801, 041M152901, 040M153001, 040M153201, 041W150101 AND 040NZ53001.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	EM0060
Date:	March 29, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	January 25 - 26, 1996
Number of Samples:	4 Aqueous Sample(s) with 0 MS/MSD(s) 2 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Semivolatiles, Low Concentration Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig K. Lenyon

Eugene W. Watson, Vice President

4-2-96

Date

4127 Plaza 94 South St. Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# EM0060

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		SV		LSV		P/P		TAL/CN	
041M790101	SOIL		X			X					X		X
041M790301	SOIL		X			X					X		X
041EM00601	WATER			X				X		X		X	
040FM00601	WATER			X				X		X		X	
041TM02201	WATER			X									
041TM02301	WATER			X									
Total Billable Samples (Water/Soil)		0	2	4	0	2	0	2	0	2	2	2	2

VOA = CLP Volatiles
LVOA = CLP Low Concentration Volatiles
SV = CLP Semivolatiles
LSV = CLP Low Concentration Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EM0060

A validation was performed on the Volatile Data from SDG EM0060. The data was evaluated based on the following parameters.

*	Data Completeness
*	Holding Times
*	GC/MS Tuning
*	Calibrations
*	Internal Standard Performance
	Blanks
*	Surrogate Recoveries
*	Laboratory Control Samples
*	Field Duplicates
*	Compound Identification /Quantitation

* - All criteria were met for this parameter

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Trip Blank

Associated blank	Compound	Concentration	Action Level
041TM02301	acetone	21	210

Samples	Compound	Qualification
041M790101	acetone	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M790101	acetone	+	U

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EM0060

A validation was performed on the Volatile Data from SDG EM0060. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Samples
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

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The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM0060

A validation was performed on the Semivolatile Data from SDG EM0060. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IG222, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041M790101	4-chloroaniline (230.1%)
041M790301	

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKIA	bis(2-ethylhexyl)phthalate	53J	530

Samples	Compound	Qualification
041M790101	bis(2-ethylhexyl)phthalate	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M790101 041M790301	4-chloroaniline	+/-	J/R
041M790101	bis(2-ethylhexyl)phthalate	CRQL	

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM0060

A validation was performed on the Semivolatile Data from SDG EM0060. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicate
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM0060

A validation was performed on the Pesticide/Aroclor Data from SDG EM0060. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Analyte Identification/Quantitation

One (1) sample required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Analyte Identification/Quantitation, Continued

Specific Findings

For the following sample and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M790101	Alpha Chlordane
	4,4'-DDD

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 20% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M790101	Alpha Chlordane 4,4'-DDD	+	D
041M790101DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM0060

A validation was performed on the Metals Data from SDG EM0060. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
*	•	Matrix Spike Recovery
*	•	Matrix Duplicates
*	•	Field Duplicates
*	•	Laboratory Control Samples
*	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	9.38 mg/kg	no impact
Calcium	26.8 mg/kg	all soil samples below 134 mg/kg
Iron	6.19 mg/kg	no impact
Magnesium	2.35 mg/kg	no impact
Manganese	0.13 mg/kg	no impact

Sodium	11.5 mg/kg	all soil samples below 57.5 mg/kg
Zinc	1.05 mg/kg	all soil samples below 5.25 mg/kg

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Arsenic	-0.25 mg/kg	all soil samples below 2.5 mg/kg

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M790301	76

The post digestion spike recovery for GFAA was above the upper control limits. All positive results for the listed samples below are qualified as estimated, "J".

Element	Sample IDs	% recoveries
Antimony	041MZ90101	146

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 134 mg/kg	Ca.	+	U
all soil samples below 57.5 mg/kg	Na.		
all soil samples below 5.25 mg/kg	Zn.		
all soil samples below 2.5 mg/kg	As.	+/U	J/UJ
041M790301.	Sb.	+/U	J/UJ
041M790101.	Sb.	+	J
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

RECEIVED

Data Validation Report

SDG#:	EMD060
Date:	March 22, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	December 13 - 15, 1995
Number of Samples:	9 Aqueous Sample(s) with 0 MS/MSD(s) 12 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Semivolatiles, Low Concentration Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig M. Swanson
Eugene M. Watson, Vice President

3-25-96
Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1332 · Fax (314) 936-1335

SDG# EMD060

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		SV		LSV		P/P		TAL/CN	
040EM00601	WATER	X				X				X		X	
040FM00601	WATER	X				X				X		X	
040MZ24101	SOIL		X				X				X		X
040MZ24201	SOIL		X				X				X		X
040MZ274401	SOIL		X				X				X		X
040MZ24501	SOIL		X				X				X		X
040MZ24601	SOIL		X				X				X		X
040MZ24701	SOIL		X				X				X		X
040MZ24801	SOIL		X				X				X		X
040MZ24901	SOIL		X				X				X		X
041M18A101	SOIL		X				X				X		X
041M18A201	SOIL		X				X				X		X
041M18A301	SOIL		X				X				X		X
041M18B101	SOIL		X				X				X		X
040TM02601	WATER			X									
041W18A201	WATER			X				X		X		X	
041W18B101	WATER			X				X		X		X	
041EM00401	WATER			X				X		X		X	
041FM00401	WATER			X				X		X		X	
041TM01301	WATER			X									
041TM01401	WATER			X									
Total Billable Samples	(Water/Soil)	2	12	7	0	2	12	4	0	6	12	6	12

VOA = CLP Volatiles
LVOA = CLP Low Concentrtion Volatiles
SV = CLP Semivolatiles
LSV = CLP Low Concentration Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/cyanide

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

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SDG # EMD060

A validation was performed on the Volatile Data from SDG EMD060. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibration
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
	• Internal Standard Performance
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Continuing Calibrations

The continuing calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %Ds. The average RRF requirements were met for all continuing calibration standards.

Continuing Calibrations, continued
Specific Findings

The continuing calibration standard, BU156, contained compounds with %Ds greater than 25% but less than 50%. For the samples and noncompliant compounds listed below, the positive results are qualified as estimated, J.

041M18A301 041M18B101	acetone (25.7%)
041M18A301 041M18B101	2-butanone (33.0%)
040MZ24201 040MZ24801	methylene chloride (33.4%)

Field QC Blanks

Contamination for methylene chloride was detected in the field QC blanks. The end-user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.

	040EM00601	040FM00601
methylene chloride	58 µg/L	56 µg/L

Field QC Blanks, continued

	Samples	Contaminant	Action Levels	Qualification
040EM00601	040MZ24201 040MZ24501 040MZ24701RE 040MZ24801 040MZ24901	methylene chloride	580 µg/Kg	CRQL
	041M18A101RE			U

Internal Standard Areas

Three (3) samples exhibited noncompliant IS EICP area recoveries.

Specific Findings

The following samples exhibited noncompliant internal standard area recoveries. All associated positive and non-detect results are qualified as estimated, J/UJ.

040MZ24701 041M18A301 040MZ24701RE 041M18A101RE	chlorobenzene-d_5
040M18A101	1,4-difluorobenzene chlorobenzene-d_5
041M18A301RE	All internal standards

Compound Quantitation

Specific Finding

The samples noted below are rejected, UR, in favor of the initial or RE analysis of the sample. The reviewer chose the analysis exhibiting the best IS area recoveries.

041M18A101
040MZ24701RE
041M18A301RE

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

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UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M18A301 041M18B101	acetone	+	J
041M18A301 041M18B101	2-butanone	+	J
040MZ24201 040MZ24801	methylene chloride	+	J
040MZ24201 040MZ24501 040MZ24701RE 040MZ24801 040MZ24901	methylene chloride	+	CRQL
041M18A101RE	methylene chloride	+	U
040MZ24701 041M18A301 040MZ24701RE 041M18A101RE	All associated with chlorobenzene-d_5	+/-	J/UJ
040M18A101	All associated with 1,4-difluorobenzene chlorobenzene-d_5	+/-	J/UJ
041M18A301RE	All associated with All internal standards	+/-	J/UJ

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M18A101	ALL	+/-	UR
040MZ24701RE			
041M18A301RE			

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\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EMD060

A validation was performed on the Volatile Data from SDG EMD060. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Samples
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FN006, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W18A201	acetone
041W18B101	2-butanone

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFQ	acetone	8	80

Samples	Compound	Qualification
041W18A201	acetone	U
041W18B101		

Trip Blanks

Associated blank	Compound	Conc.	Action Level
041TM01401	methylene chloride	5B	50

Samples	Compound	Qualification
041W18A201	methylene chloride	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W18A201 041W18B101	acetone 2-butanone	+/-	J/R
041W18A201 041W18B101	acetone	+	U
041W18A201	methylene chloride	+	CRQL

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EMD060

A validation was performed on the Semivolatile Data from SDG EMD060. The data was evaluated based on the following parameters.

*	• Data Completeness
	• Holding Times
*	• GC/MS Tuning
	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Holding Times

The following samples had extractions that exceeded the method criteria of fourteen (14) days from date sampled. Qualifications are required

Specific Find:

040MZ24401 and 040MZ24501 exceeded holding time by twenty-three (23) days. Qualify all positive results as estimated (J) and non detects as rejected (R).

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Specific Finding:

The continuing calibration, AJ317, contained compounds with %Ds greater than 50% an less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ24501	2,4-dinitrophenol (61.6%)

The continuing calibration, DJ491, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ24701	3-nitroaniline (58.3%)
	2,4-dinitrophenol (59.7%)

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated (UJ).

041M18A201	perylene-d_{12}

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKDZ	bis(2ethylhexyl)phthalate	61J	610
SBLKAQ	bis(2ethylhexyl)phthalate	86J	860

Samples	Compound	Qualification
040MZ24101	bis(2ethylhexyl)phthalate	CRQL
040MZ24601		
040MZ24701		
040MZ24801		
040MZ24901		
041M18A101		
041M18A201		
041M18A301		
041M18B101		
040MZ24401		
040MZ24501		

Rinseate Blanks

Associated blank	Compound	Concentration	Action Level
040EM00601	diethylphthalate	3J	30

Samples	Compound	Qualification
041M18A101	diethylphthalate	CRQL

Compound Identification /Quantitation

Specific Finding:

Reject sample 041M18A201RE, in favor of the initial analysis, due to non compliant internal standard area recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ24401 040MZ24501	all analytes	+/-	J/R
040MZ24501	2,4-dinitrophenol	+/-	J/UJ
040MZ24701	3-nitroaniline 2,4-dinitrophenol	+/-	J/UJ
041M18A201	All associated analytes perylene-d_{12}	+/-	J/UJ
040MZ24101 040MZ24601 040MZ24701 040MZ24801 040MZ24901 041M18A101 041M18A201 041M18A301 041M18B101 040MZ24401 040MZ24501	bis(2ethylhexyl)phthalate	+	CRQL
041M18A101	diethylphthalate	+	CRQL
041M18A201RE	all analytes	+/-	R

* DL denotes the Form 1 qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EMD060

A validation was performed on the Semivolatile Data from SDG EMD060. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicate
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Field Blanks

Associated blank	Compound	Conc.	Action Level
041FM00401	bis(2-ethylhexyl) phthalate	9J	90

Samples	Compound	Qualification
041W18A201	bis(2-ethylhexyl) phthalate	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W18A201	bis(2-ethylhexyl) phthalate	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EMD060

A validation was performed on the Pesticide/Aroclor Data from SDG EMD060. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC Performance
	•	Calibration
*	•	Blanks
	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	GPC and Florisil Clean-up Procedures
*	•	Field Duplicates
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptably linear for all compounds.

Initial Calibrations, Continued

Specific Findings

The initial calibration of 1/20/96 contained compounds with %RSDs greater than 20%. For the samples and the non-compliant compound listed below, all positive results are qualified as estimated, J, and all non-detect results are qualified as estimated, UJ.

040MZ24201	Alpha-BHC (20.6%)
040MZ24601	
040MZ24901	
040MZ24801	
041M18A301	
040MZ24501	
040MZ24101	
040MZ24401	
040MZ24701	
041M18A201	
041M18B101	
041M18A101DL	
041M18A201DL	
041M18A101	
041M18B101DL	

Surrogate Recoveries

Several samples exhibited non-compliant TCX and/or DCB recoveries.

Specific Finding

One (1) sample exhibited a high TCX recovery. For the samples listed below, the positive results are qualified as estimated, J.

Sample ID	Surrogate	% Recovery
040MZ24101	TCX-2	170%

Surrogate Recoveries, Continued

Specific Finding, Continued

Three (3) samples exhibited low TCX or DCB recoveries. For the samples listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

Sample ID	Surrogate	% Recovery
040MZ24401	TCX-1	14%
040EM00601	DCB-1	25%
041FM00401	TCX-1	29%

Two (2) samples exhibited TCX recoveries below 10%. For the samples listed below, the positive results are qualified as estimated, J, and the non-detect results are rejected, R.

Sample ID	Surrogate	% Recovery
041EM00401	TCX-1	3%
	TCX-2	4%
040MZ24201	TCX-1	9%
	TCX-2	25%
	DCB-1	21%
	DCB-2	17%

Analyte Identification/Quantitation

Three (3) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Analyte Identification/Quantitations, Continued

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M18A101	4,4'-DDD
041M18A201	4,4'-DDE
	4,4'-DDT
041M18B101	4,4'-DDT

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 30% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ24201 040MZ24601 040MZ24901 040MZ24801 041M18A301 040MZ24501 040MZ24101 040MZ24401 040MZ24701 041M18A201 041M18B101 041M18A101DL 041M18A201DL 041M18A101 041M18B101DL	Alpha-BHC	+/-	J/UJ
040MZ24101	ALL	+	J
040MZ24401 040EM00601 041FM00401	ALL	+/-	J/UJ
041EM00401 040MZ24201	ALL	+/-	J/R
041M18A101 041M18A201	4,4'-DDD 4,4'-DDE 4,4'-DDT	+	D
041M18B101	4,4'-DDT	+	D
041M18A101DL 041M18A201DL 041M18B101DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

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QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EMD060

A validation was performed on the Metals Data from SDG EMD060. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
	•	Matrix Spike Recovery
*	•	Matrix Duplicates
*	•	Field Duplicates
*	•	Laboratory Control Samples
*	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	10.1 mg/kg	no impact
Barium	0.21 mg/kg	all soil samples below 1.05 mg/kg
Calcium	14.6 mg/kg	no impact
Iron	5.74 mg/kg	no impact
Lead	0.48 mg/kg	all soil samples below 2.4 mg/kg

Magnesium	4.11 mg/kg	no impact
Potassium	15.4 mg/kg	all soil samples below 77.0 mg/kg
Silver	0.45 mg/kg	no impact
Sodium	6.48 mg/kg	no impact
Zinc	0.82 mg/kg	all soil samples below 4.1 mg/kg
Calcium	117.0 ug/l	no impact
Iron	13.7 ug/l	no impact
Sodium	118.0 ug/l	no impact

The field and equipment blank exhibited contamination for the following elements.

Arsenic	2.1 ug/l	all water non QC samples below 10.5 ug/l
Barium	4.8 ug/l	all water non QC samples below 24.0 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Thallium	-0.35 mg/kg	all soil samples below 3.5 mg/kg
Antimony	-2.2 ug/l	all water non QC samples below 22.0 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Antimony (45%) was below the lower control limits (<75% but >30%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

The Matrix Spike recovery for Mercury (172%) was abvoe the upper control limits (>125%). All positive results are qualified as estimated, "J".

Laboratory Duplicate Analysis

Specific Finding

The duplicate analysis for Mercury was less than 2 times the CRDL. No qualification is necessary.

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M18B101	77
Antimony	041W18A301	52
Antimony	040MZ24101	76
Antimony	040MZ24201	56
Antimony	040MZ24401	54
Antimony	040MZ24801	60
Antimony	040MZ24901	63
Antimony	041M18A101	45
Antimony	040MZ24601	78
Antimony	041M18A201	80
Antimony	041W18B101	41
Antimony	041W18A201	42

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 1.05 mg/kg	Ba.	+	U
all soil samples below 2.4 mg/kg	Pb.		
all soil samples below 77.0 mg/kg	K.		
all soil samples below 4.1 mg/kg	Zn.		
all water samples below 10.5 ug/l	As.		
all water samples below 24.0 ug/l	Ba.		
all soil samples below 3.5 mg/kg	Tl.	+/U	J/UJ
all water sdamples below 22.0 ug/l	Sb.		
all soil samples	Sb.	+/U	J/UJ
all soil samples	Hg.	+	J
041M18B101, 041M18A301, 040MZ24101, 040MZ24201, 040MZ24401, 040MZ24801, 040MZ24901, 041M18A101, 040MZ24601, 041M18A201, 041W18B101 AND 041W18A201.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	EW0010
Date:	March 12, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	December 7 - 11, 1995
Number of Samples:	6 Aqueous Sample(s) with 0 MS/MSD(s) 8 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Concentration Volatiles, Volatiles, Low Concentration Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig H. Swan — 3-13-96

Eugene M. Watson, Vice President — Date

4127 Plaza 44 South, St. Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# EW0010

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/C	
040TM02301	WATER	X											
040TM02401	WATER	X											
041W160101	WATER	X				X				X		X	
041W160201	WATER	X				X				X		X	
041TM01101	WATER	X											
041EW00101	WATER	X											
040M251501	SOIL				X				X		X		X
040MZ51701	SOIL				X				X		X		X
040MZ51801	SOIL				X				X		X		X
040MZ51901	SOIL				X				X		X		X
040MZ52001	SOIL				X				X		X		X
041M160101	SOIL				X				X		X		X
041M160201	SOIL				X				X		X		X
041M160301	SOIL				X				X		X		X
Total Billable Samples	(Water/Soil)	6	0	0	8	2	0	0	8	2	8	2	8

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide w/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # EM0010

A validation was performed on the Volatile Data from SDG EM0010. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM774, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W160101	acetone
041W160201	2-butanone
	2-hexanone

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFH	acetone	7	70
	methylene chloride	2	20

Samples	Compound	Qualification
041W160101	acetone	U
041W160201		
041W160101	methylene chloride	U
041W160201		

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W160101 041W160201	acetone 2-butanone 2-hexanone	+/-	J/R
041W160101 041W160201	acetone	+	U
041W160101 041W160201	methylene chloride	+	U

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QL denotes the qualifier used by the data validation firm
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\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. .

SDG # EW0010

A validation was performed on the Volatile Data from SDG EW0010. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Samples
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, BT957, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M160101	acetone (72.0%)
040MZ51501	
040MZ51701	
040MZ51901	
040MZ52001	

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKBN	Methylene chloride	2J	20

Samples	Compound	Qualification
040MZ51501	methylene chloride	CRQL
040MZ51701		
040MZ51901		
040MZ52001		
041M160101		

Trip Blank

Associated blank	Compound	Concentration	Action Level
040TM02401	acetone	25B	250
041TM01101	methlyene chloride	4B	40
	Acetone	11B	110

Trip Blank (continued)

Samples	Compound	Qualification
040MZ51801 041M160201 041M160301	acetone	U
041M160201	methlyene chloride	U

System Performance and Overall Assessment

The overall system performance was fair. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M160101 040MZ51501 040MZ51701 040MZ51901 040MZ52001	acetone (72.0%)	+/-	J/UJ
040MZ51501 040MZ51701 040MZ51901 040MZ52001 041M160101	methylene chloride	+	CRQL
040MZ51801 041M160201 041M160301	acetone	+	U
041M160201	methlyene chloride	+	U

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OIC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EM0010

A validation was performed on the Semivolatile Data from SDG EM0010. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicate
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ174, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W160201	4-chloroaniline (51.9)
	butylbenzylphthalate (50.6)
	3,3'-dichlorobenzidine (52.9)

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W160201	4-chloroaniline (51.9) butylbenzylphthalate (50.6) 3,3'-dichlorobenzidine (52.9)	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # EW0010

A validation was performed on the Semivolatile Data from SDG EW0010. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF833, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041MZ160101	hexachlorocyclopentadiene (63.6%)
041MZ160201	
041MZ160301	
040MZ51501	

The continuing calibration, IF833, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041MZ160101	4-chloroaniline (219.6%)
041MZ160201	
041MZ160301	
040MZ51501	

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041MZ160101 041MZ160201 041MZ160301 040MZ51501	hexachlorocyclopentadiene (63.6%)	+/-	J/UJ
041MZ160101 041MZ160201 041MZ160301 040MZ51501	4-chloroaniline (219.6%)	+/-	J/R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EM0010

A validation was performed on the Pesticide/Aroclor Data from SDG EM0010. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Surrogate Recoveries

Six (6) samples exhibited non-compliant TCX recoveries.

Surrogate Recoveries, Continued

Specific Finding

The samples listed below exhibited high TCX recoveries. The positive results are qualified as estimated, J.

Sample ID	Surrogate	% Recovery
040MZ51501	TCX-2	163%
040MZ51701	TCX-2	246%
040MZ51801	TCX-2	160%
040MZ52001	TCX-2	176%
041M160101	TCX-2	255%
041M160201	TCX-2	298%

Analyte Identification/Quantitation

Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 30% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ51501 040MZ51701 040MZ51801 040MZ52001 041M160101 041M160201	ALL	+	J
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EW0010

A validation was performed on the Metals Data from SDG EW0010. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
	•	Matrix Spike Recovery
*	•	Matrix Duplicates
*	•	Field Duplicates
*	•	Laboratory Control Samples
*	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	9.97 mg/kg	no impact
Barium	0.13 mg/kg	all soils samples below 0.65 mg/kg
Calcium	7.31 mg/kg	no impact
Iron	22.5 mg/kg	all soil samples below 112.5 mg/kg
Lead	0.18 mg/kg	all soil samples below 0.90 mg/kg

Aluminum	35.2 ug/l	all water samples below 176 ug/l
Calcium	96.5 ug/l	no impact
Iron	16.9 ug/l	no impact
Lead	1.37 ug/l	no impact
Sodium	138 ug/l	no impact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Antimony	-0.60 mg/kg	all soil samples below 6.0 mg/kg
Antimony	-3.58 ug/l	all water samples below 35.8 ug/l
Potassium	-113 ug/l	no impact

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Antimony (27%) was below 30%. All non-detect results are rejected and all positive results are qualified as estimated, "J".

Laboratory Duplicate Analysis

Specific Finding

The RPD for Iron was below 35%. No qualification is required.

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M160201	40
Antimony	041M160301	69

Antimony	041M151901	40
Antimony	041M151701	67
Antimony	041M151801	67
Antimony	041M152001	70
Antimony	041M160101	57

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples below 0.65 mg/kg	Ba.	+	U
all soil samples below 112 mg/kg	Fe.		
all soil samples below 0.90 mg/kg	Pb.		
all water samples below 176 ug/l	Al.		
all soil samples below 6.0 mg/kg	Sb.	+/U	J/UJ
all water samples below 35.8 ug/l	Sb.		
all soil samples	Sb.	+	J
		U	R
04QM160201, 041M160301, 041M151901, 041M151701, 041M151801, 041M152001 AND 041M160101	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	M00901
Date:	March 29, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	January 19 - 22, 1996
Number of Samples:	14 Aqueous Sample(s) with 1 MS/MSD(s) 5 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Semivolatiles, Low Concentration Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig M. Watson

Eugene M. Watson, Vice President

4-2-96

Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1332 · Fax (314) 936-1335

SDG# M00901

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		SV		LSV		P/P		TAL/CN	
RABM000101	SOIL		X				X				X		X
RABM000201	SOIL		X				X				X		X
RABM000301	SOIL		X				X				X		X
041M480101	SOIL		X				X				X		X
041N480101	SOIL		X				X				X		X
040EM00901	WATER			X		X				X		X	
040FM00901	WATER			X		X				X		X	
040TM03501	WATER			X									
RABW000101	WATER			X				X		X		X	
RABW000201	WATER			X				X		X		X	
RABW000301	WATER			X				X		X		X	
041W480101	WATER			X				X		X		X	
041R480101	WATER			X				X		X		X	
041W490301	WATER			X				X		X		X	
041TM01901	WATER			X									
041WW10101	WATER			X				X		X		X	
041WW10201	WATER			X				X		X		X	
041WW10301	WATER			X				X		X		X	
041W490101	WATER			X				X		X		X	
Total Billable Samples (Water/Soil)		0	5	14	0	2	5	10	0	12	5	12	5

VOA = CLP Volatiles
LVOA = CLP Low Concentration Volatiles
SV = CLP Semivolatiles
LSV = CLP Low Concentration Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # M00901

A validation was performed on the Volatile Data from SDG M00901. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Samples
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKCB	acetone	4J	40
	Methylene chloride	2J	20

Samples	Compound	Qualification
RABM000101 RABM000201 RABM000301	methylene chloride	CRQL
RABM000201	acetone	U

Trip Blank

Associated blank	Compound	Concentration	Action Level
040TM03501	acetone	59	590
	Methylene chloride	3	30

Samples	Compound	Qualification
041M480101 041N480101	acetone	U
041N480101	methylene chloride	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
RABM000101 RABM000201 RABM000301	methylene chloride	+	CRQL
RABM000201 041M480101 041N480101	acetone	+	U
041N480101	methylene chloride	+	CRQL

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # M00901

A validation was performed on the Volatile Data from SDG M00901. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, EN139, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

RABW000201	acetone
RABW000301	2-butanone
	1,2-dibromo-3-chloropropane

The continuing calibration, FN531, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

RABW000101	acetone
	2-butanone

The continuing calibration, FN571, contained compounds with %Ds that were greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W490101	chloromethane (63.9)
041W490301	
041WW10101	
041WW10201	

The continuing calibration, FN571, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W490101	acetone (65.8)
041W490301	2-butanone (26.9)
041WW10101	2-hexanone (40.3)
041WW10201	

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FN591, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041WW10201DL	acetone (63.2)
041WW10301	2-butanone

The continuing calibration, FN610, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W480101	acetone (63.2)
2-butanone	

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFQ	acetone	6	60
VBLKFU	acetone	6	6

Samples	Compound	Qualification
RABW000101	acetone	U
041W480101		

Trip Blanks

Associated blank	Compound	Conc.	Action Level
040TM03501	methylene chloride	3	30
	acetone	59	590

Samples	Compound	Qualification
RABW000101	methylene chloride	U
RABW000201		
RABW000301		

Trip Blanks

Associated blank	Compound	Conc.	Action Level
040TM03501	methylene chloride	3	30
	acetone	59	590
041TM01901	methylene chloride	1	10
	acetone	72	720

Samples	Compound	Qualification
041W480101	methylene chloride	U
041W490101		
041W490301		
041WW10101		
041WW10201		
041WW10201DL		
RABW000201	acetone	U
RABW000301		
041W490301		
041WW10201		
041WW10201DL		
041WW10301		

Compound Identification/Quantitation

Specific Finding:

For sample 041WW10201, reject the E-flagged results in favor of the results from the diluted samples 041WW10201DL.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
RABW000201 RABW000301	acetone 2-butanone 1,2-dibromo-3-chloropropane	+/-	J/R
RABW000101	acetone 2-butanone	+/-	J/R
041W490101 041W490301 041WW10101 041WW10201	chloromethane (63.9)	+/-	J/UJ
041W490101 041W490301 041WW10101 041WW10201	acetone (65.8) 2-butanone (26.9) 2-hexanone (40.3)	+/-	J/R
041WW10201DL 041WW10301	acetone (63.2) 2-butanone	+/-	J/R
041W480101	acetone (63.2) 2-butanone	+/-	J/R
RABW000101 041W480101	acetone	+	U
RABW000101 RABW000201 RABW000301	methylene chloride	+	U

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W480101	methylene chloride	+	U
041W490101			
041W490301			
041WW10101			
041WW10201			
041WW10201DL			
RABW000201	acetone	+	U
RABW000301			
041W490301			
041WW10201			
041WW10201DL			
041WW10301			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # M00901

A validation was performed on the Semivolatile Data from SDG M00901. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ674, contained compounds with %Ds greater than 50% an less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

RABM000101	2,4-dinitrophenol (74.6%)
041M480101	
041N480101	
RABM000201	

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
RABM000101 041M480101 041N480101 RABM000201	2,4-dinitrophenol	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # M00901

A validation was performed on the Semivolatile Data from SDG M00901, the sample data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicate
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ602, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041WW10101	hexachlorocyclopentadiene (54.5)
041W490101	

The continuing calibration, DJ715, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

RABW000201	hexachlorocyclopentadiene (60.8)
RABW000301	
041W480101	
RABW000101	
041WW10301	
041W490301	
041WW10201	

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041WW10101 041W490101	hexachlorocyclopentadiene (54.5)	+/-	J/UJ
RABW000201 RABW000301 041W480101 RABW000101 041WW10301 041W490301 041WW10201	hexachlorocyclopentadiene (60.8)	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M00901

A validation was performed on the Pesticide/Aroclor Data from SDG M00901. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Surrogate Recoveries

One (1) sample exhibited a non-compliant DCB recovery.

Surrogate Recoveries, Continued

Specific Finding

The sample listed below exhibited a low DCB recovery. The positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

Sample ID	Surrogate	% Recovery
041WW10201	DCB-2	29%

Field Duplicates

The field duplicate pair of samples 41M480101 and 41N480101 exhibited positive results for several compounds. Three (3) compounds exhibited non-compliant RPDs.

Specific Findings

The field duplicate pair of samples 41M480101 and 41N480101 exhibited positive results and non-compliant RPDs for three (3) compounds. For the non-compliant compounds listed below, the positive results are qualified as estimated, J.

041M480101	4,4'-DDE (61%)
041N480101	4,4'-DDD (60%)
	4,4'-DDT (53%)

Analyte Identification/Quantitation

Four (4) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Analyte Identification/Quantitation, Continued

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

RABM000101	4,4'-DDD
	4,4'-DDT
RABM000201	4,4'-DDE
041M480101	4,4'-DDD
041N480101	

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 20% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041WW10201	ALL	+/-	J/UJ
041M480101 041N480101	4,4'-DDE 4,4'-DDD 4,4'-DDT	+	J
RABM000101	4,4'-DDD 4,4'-DDT	+	D
RABM000201 041M480101 041N480101	4,4'-DDE 4,4'-DDD	+	D
RABM000101DL RABM000201DL 041M480101DL 041N480101DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M00901

A validation was performed on the Metals Data from SDG M00901. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
*	•	Matrix Spike Recovery
	•	Matrix Duplicates
*	•	Field Duplicates
*	•	Laboratory Control Samples
	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	14.2 mg/kg	no impact
Calcium	3.01 mg/kg	no impact
Lead	0.28 mg/kg	all soil samples below 1.4 mg/kg
Sodium	71.4 mg/kg	all soil samples below 357 mg/kg
Zinc	0.95 mg/kg	all soil samples below 4.75 mg/kg

Aluminum	21.4 ug/l	no impact
Arsenic	3.28 ug/l	all water samples below 16.4 ug/l
Calcium	26.1 ug/l	no impact
Magnesium	22.7 ug/l	no impact
Sodium	889 ug/l	all water samples below 4445 ug/l

The field and equipment blank exhibited contamination for the following elements.

Aluminum	315 ug/l	all water samples below 1575 ug/l
Arsenic	3.9 ug/l	all water samples below 19.5 ug/l
Barium	5.1 ug/l	all water samples below 25.5 ug/l
Calcium	163 ug/l	no impact
Mercury	0.18 mg/kg	all water samples below 0.9 ug/l
Sodium	949 ug/l	all water samples below 4745 ug/l
Zinc	42.7 ug/l	all water samples below 214 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Thallium	0.5 mg/kg	all soil samples below 5.0 mg/kg
Cobalt	-2.23 ug/l	all water samples below 23.3 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Duplicate Analysis

Specific Finding

The Duplicate analysis for waters for Aluminum was outside the control limits (>20%). All positive results are qualified as estimated, "J".

Serial Dilution

Specific Finding

The Serial Dilution for waters for Calcium and Magnesium were outside the control limits (10%). All positive results are qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041WW10101	79
Antimony	041WW10301	69
Antimony	RABM000101	67
Antimony	RABM000301	77
Antimony	041M480101	68
Antimony	RABW000301	54
Antimony	041W480101	64

The post digestion spike recovery for GFAA was above the upper control limits. All positive results for the listed samples below are qualified as estimated, "J".

Element	Sample IDs	% recoveries
Antimony	041N480101	116

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 1.4 mg/kg	Pb.	+	U
all soil samples below 357 mg/kg	Na.		
all soil samples below 4.75 mg/kg	Zn.		
all water samples below 16.4 ug/l	As.		
all water samples below 4445 ug/l	Na.		
all water samples below 1575 ug/l	Al.		
all water samples below 19.5 ug/l	As.		
all water samples below 25.5 ug/l	Ba.		
all water samples below 0.9 ug/l	Hg.		
all water samples below 4745 ug/l	Na.		
all water samples below 214 ug/l	Zn.		
all water samples	Al.	+	J
all water samples	Ca and Mg.	+	J
041WW10101, WW10301, RABM000101, 301, 041M480101, RABW000301 AND 041W480101.	Sb.	+/U	J/UJ
041N480101.	Sb.	+	J
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	M06010
Date:	February 14, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	NAS Pensacola; Site 41
Date Sampled:	November 15, 1995
Number of Samples:	1 Aqueous Sample(s) with 0 MS/MSD(s) 19 Non-aqueous Sample(s) with 2 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scofield — 3-7-96

Eugene M. Watson, Vice President — Date

6716 Mexico Road St Peters, MO 63376
(314) 928-9533 (314) 278-1828 Fax (314) 278-2709

SDG# M06010

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

Ensafe ID	Matrix	VOA		SV		P/P		TAL/C	
041M060101	SOIL		X		X		X		X
041M060201	SOIL		X		X		X		X
041M060301	SOIL		X		X		X		X
041M060401	SOIL		X		X		X		X
041N060401	SOIL		X		X		X		X
041M250101	SOIL		X		X		X		X
041M250201	SOIL		X		X		X		X
041M250301	SOIL		X		X		X		X
041N250301	SOIL		X		X		X		X
041M270101	SOIL		X		X		X		X
041M270201	SOIL		X		X		X		X
041M640201	SOIL		X		X		X		X
041M640301	SOIL		X		X		X		X
041M640501	SOIL		X		X		X		X
041M640601	SOIL		X		X		X		X
041M640701	SOIL		X		X		X		X
041M640901	SOIL		X		X		X		X
041M641201	SOIL		X		X		X		X
041M641501	SOIL		X		X		X		X
041TM00101	WATER	X							
Total Billable Samples (Water/Soil)		1	19	0	19	0	19	0	19

VOA = CLP Volatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and are based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M06010

A validation was performed on the Volatile Data from SDG MO6010. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibration
	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
	•	Internal Standard Performance
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Continuing Calibrations

The continuing calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %Ds. The average RRF requirements were met for all continuing calibration standards.

Continuing Calibrations, continued

Specific Findings

The continuing calibration standard, BT611 contained compounds with %Ds greater than 50% but less than 90%. For the samples and noncompliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041M640301	2-hexanone
041M640501	
041M641201	

The continuing calibration standard, CP944 contained compounds with %Ds greater than 25% but less than 50%. For the samples and noncompliant compounds listed below, the positive results are qualified as estimated, J.

041M250301	acetone
041M640301RE	
041M640701	
041M640901	
041M641501	

Method Blanks

Contamination for methylene chloride was detected in eight (8) of the nine (9) method blanks.

	VBLKHR	VBLKBU	VBLKCM	VBLKBW
methylene chloride	3 µg/Kg	8 µg/Kg	5 µg/Kg	7 µg/Kg

	VBLKCN	VBLKCO	VBLKHX	VBLKBZ
methylene chloride	3 µg/Kg	8 µg/Kg	220 µg/Kg	4 µg/Kg

Method Blanks, continued

Specific Finding

Samples	Contaminant	Qualification
041M060201 041M060301 041M270101 041M060401 041N060401 041M250201 041M250201RE 041M270101RE 041M270201 041M640301RE 041M640901 041NZ50301 041M640201 041M060101 041M640601	methylene chloride	U
041M250101 041M250301 041M640701 041M641501	methylene chloride	CRQL

Field QC Blanks

Contamination for methylene chloride or acetone was detected in the two (2) trip blanks.

	041TM00102	041TM00101
methylene chloride	-------	8 µg/L
acetone	6 µg/L	--------

Field QC Blanks, continued

Specific Finding

	Samples	Contaminant	Qualification
041TM00102	041N250301 041M270201	acetone	U
	041M270101RE	acetone	CRQL
041TM00101	041M641201	methylene chloride	U
	041M640301 041M640501	methylene chloride	CRQL

Internal Standard Areas

Several samples exhibited noncompliant IS EICP area recoveries.

Specific Findings

The following samples exhibited noncompliant internal standard area recoveries. All associated positive and non-detect results are qualified as estimated, J/UJ.

041M250201 041M640301RE	chlorobenzene-d_5
041M250201RE	1,4-difluorobenzene
041M270101RE 041M270101 041M640301	chlorobenzene-d_5

Compound Quantitation

Specific Finding

The sample noted below is rejected, UR, in favor of the RE or initial analysis of the sample.

041M250201RE
041M270101RE
041M640301

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M640301 041M640501 041M641201	2-hexanone	+/-	J/UJ
041M250301 041M640301RE 041M640701 041M640901 041M641501	acetone	+	J
041M060201 041M060301 041M270101 041M060401 041N060401 041M250201 041M250201RE 041M270101RE 041M270201 041M640301RE 041M640901 041NZ50301 041M640201 041M060101 041M640601	methylene chloride	+B	U
041M250101 041M250301 041M640701 041M641501	methylene chloride	+B	CRQL
041N250301 041M270201	acetone	+	U
041M270101RE	acetone	+	CRQL
041M641201	methylene chloride	+	U

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M640301 041M640501	methylene chloride	+	CRQL
041M250201 041M640301RE	chlorobenzene-d_5	+/-	J/UJ
041M250201RE 041M270101RE 041M270101 041M640301	1,4-difluorobenzene chlorobenzene-d_5	+/-	J/UJ
041M250201RE 041M270101RE 041M640301	All compounds	+/-	UR

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLC01.8, 3/90 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M06010

A validation was performed on the Semivolatile Data from SDG M06010. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibration
	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Internal Standard Performance
*	•	Compound Identification
*	•	Compound Quantitation

* - All criteria were met for this parameter.

Continuing Calibrations

The continuing calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %Ds. All average RRF requirements were not met.

Continuing Calibrations, continued

Specific Findings

The continuing calibration standard, DI748 contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041M641201	3,3'-dichlorobenzidine
041M640901	bis(2-ethylhexyl)phthalate
	Di-n-octylphthalate

The continuing calibration standard, IF240 contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041M060201	2,2'-oxybis(1-chloropropane)
041M060301	4-nitrophenol
041M250101	
041M250201	
041M250301	

The continuing calibration standard, IF258 contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are rejected, R.

041M060101	2,2'-oxybis(1-chloropropane)
041M060401	

The continuing calibration standard, IF348 contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041M641501	4-chloroaniline
	4-nitroaniline
	Carbazole

Continuing Calibrations, continued

Specific Findings .

The continuing calibration standard, IF348 contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are rejected, R.

041M641501 2,2'-oxybis(1-chloropropane)
3-nitroaniline (RRF 0.012)

The continuing calibration standard, IF423 contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041M640601 hexachlorocyclopentadiene
2,4-dinitrophenol
4-nitroaniline
3,3'-dichlorobenzidine

The continuing calibration standard, IF348 contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are rejected, R.

041M640601 2,2'-oxybis(1-chloropropane)
3-nitroaniline (RRF 0.012)

Method Blanks

The six (6) method blanks exhibited contamination for bis(2-ethylhexyl)phthalate and/or di-n-butylphthalate.

	SBLKJW	SBLKJY	SBLKIV	SBLKIC
bis(2-ethylhexyl)phthalate	82 µg/Kg	120 µg/Kg	120 µg/Kg	110 µg/Kg
di-n-butylphthalate	------	------	------	39 µg/Kg

Method Blanks, continued

	SBLKDL	SBLKAI
bis(2-ethylhexyl)phthalate	130 µg/Kg	100 µg/Kg
di-n-butylphthalate	34 µg/Kg	———

Specific Finding

Samples	Contaminant	Qualification
041M270101	bis(2-ethylhexyl)phthalate	CRQL
041M270201		
041M640301		
041M640701		
041N060401		
041N250301		
041M640601		
041M641501		
041M640901		
041M641201		
041M640201		
041M060101		
041M060201		
041M060401		
041M250101		
041M250201		
041M250301		
041M640301	bis(2-ethylhexyl)phthalate	U
041M640501		
041M060301		
041M641501	di-n-butylphthalate	CRQL
041M640901		
041M641201		

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M641201 041M640901	3,3'-dichlorobenzidine bis(2-ethylhexyl)phthalate Di-n-octylphthalate	+/-	J/UJ
041M060201 041M060301 041M250101 041M250201 041M250301	2,2'-oxybis(1-chloropropane) 4-nitrophenol	+/-	J/UJ
041M060101 041M060401	2,2'-oxybis(1-chloropropane)	+/-	J/R
041M641501	4-chloroaniline 4-nitroaniline Carbazole	+/-	J/UJ
041M641501	2,2'-oxybis(1-chloropropane) 3-nitroaniline (RRF 0.012)	+/-	J/R
041M640601	hexachlorocyclopentadiene 2,4-dinitrophenol 4-nitroaniline 3,3'-dichlorobenzidine	+/-	J/UJ
041M640601	2,2'-oxybis(1-chloropropane) 3-nitroaniline (RRF 0.012)	+/-	J/R

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M270101	bis(2-ethylhexyl)phthalate	+B	CRQL
041M270201			
041M640301			
041M640701			
041N060401			
041N250301			
041M640601			
041M641501			
041M640901			
041M641201			
041M640201			
041M060101			
041M060201			
041M060401			
041M250101			
041M250201			
041M250301			
041M640301	bis(2-ethylhexyl)phthalate	+B	U
041M640501			
041M060301			
041M641501	di-n-butylphthalate	+B	CRQL
041M640901			
041M641201			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results this report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M06010

A validation was performed on the Pesticide/Aroclor Data from SDG M06010. The data was evaluated based on the following parameters:

*	• Data Completeness
	• Holding Times
*	• GC Performance
	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

One (1) sample required qualifications due to exceeded holding times.

Specific Finding

The following sample was extracted fourteen (14) days outside the extraction holding time. All positive and non-detect results are qualified as estimated, J/UJ.

041M250201

Initial Calibrations

The initial calibrations analyzed for these samples were not all within the 20% RSD criteria.

Specific Finding

The initial calibration analyzed on 12/02/95 exhibited a non-compliant RPD for two (2) compounds. Reported results for the noted compounds in the following samples are qualified as estimated, J/UJ.

041M250101	α-BHC (20.7/23.8)
041M270101	4,4'-DDT (21.1)
041M270201	
041M641501	
041M640501DL	
041M060101DL	

Surrogate Recoveries

Three (3) samples required qualification due to non-compliant surrogate recoveries.

Specific Findings

The following samples exhibited TCMX recoveries below the QC limit. All positive and non-detect results reported in the sample are qualified as estimated, J/UJ.

Samples	Surrogate	% Recoveries
041M060201	Tetrachloro-m-xylene	23%
041M270101		29%
041M641501		26%

Compound Identification/Quantitation

Several reported results exhibited P flags due to column quantitation %Ds greater than 25%. Single component compounds in samples with reported aroclors should be considered suspect. The Form Is submitted by the laboratory indicated incorrect Concentrated Final Volumes for all samples. The laboratory indicated that the software limitation would not accommodate the correct final volume. The samples were to be calculated based on a final volume of 1.0 ml. Based on this information, calculation verification was possible. Supporting documentation

Compound Identification, continued

explaining the discrepancy has been received. Several samples required dilution to accurately quantitate detected target compounds. Sample 041M060101DL was reported incorrectly on the Form Is and on the spreadsheet deliverables. The laboratory calculated the results in this sample based on a dilution factor of 10. However, the actual dilution factor for the sample analysis was 100. Therefore, the laboratory has resubmitted a corrected Form I to the validator reflecting corrected dilution factor and results for sample 041M060101DL. The results on the spreadsheet were changed by the validator. A copy of the resubmitted Form I is contained in the validation worksheets of this report. One (1) compound in one (1) sample was reported slightly above the calibration range. However, the compound was not detected in the dilution analysis of the sample. Therefore, the compound was qualified as estimated in the lessor dilution analysis of the sample.

Specific Findings

For the following samples and noted compounds, the results are rejected, UR, and replaced with the corresponding D flagged result from the dilution analysis. All other results from the dilution analysis are rejected, UR, in favor of the results from the undiluted analysis of the sample.

041M060301	4,4'-DDE
	4,4'-DDD
	4,4'-DDT
041M640201	AR1254
	4,4'-DDE
	4,4'-DDD
041M640501	4,4'-DDE
041M640701	4,4'-DDD
041M060101	4,4'-DDD
	4,4'-DDT

The noted compound in the following sample is qualified as estimated, J, because it is above the calibration range.

041M640501	4,4'-DDD

Compound Identification, continued

Specific Findings, continued

All positive results exhibiting P flags are qualified as estimated, J, due to column quantitation %Ds greater than 25%.

Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M250101 041M270101 041M270201 041M641501 041M640501DL 041M060101DL 041N641501	α-BHC 4,4'-DDT	+/-	J/UJ
041M060201 041M270101 041M641501	All compounds	+/-	J/UJ
041M060301	4,4'-DDE 4,4'-DDD 4,4'-DDT	+	UR
041M640201	AR1254 4,4'-DDE 4,4'-DDD	+	UR
041M640501	4,4'-DDE	+	UR
041M640701	4,4'-DDD	+	UR
041M060101	4,4'-DDD 4,4'-DDT	+	UR
041M060301DL 041M640201DL 041M640501DL 041M640701DL 041M060101DL	All except corresponding D flagged results	+/-	UR
041M640501	4,4'-DDD		

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
All	All P flagged results	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M06010

A validation was performed on the Metals Data from SDG M06010. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recovery
	• Matrix Duplicates
	• Field Duplicates
*	• Laboratory Control Samples
*	• Serial Dilutions
	• MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	6.08 mg/kg	no impact
Calcium	4.58 mg/kg	no impact
Iron	4.17 mg/kg	no impact
Lead	0.27 mg/kg	no impact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Antimony was below 30%. All non-detect results are rejected and all positive results are qualified as estimated, "J".

The Matrix Spike recoveries for soils for Copper and Silver were below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

The Matrix Spike recovery for soils for Selenium was above the upper control limits. All positive results are qualified as estimated, "J".

Duplicate Analysis

Specific Finding

The Duplicate analyses for Calcium, Lead and Zinc were outside the control limits. All positive results are qualified as estimated, "J". The RPDs for Aluminum, Cadmium, Chromium and Iron were not greater than 35% and will not be qualified. The field duplicate RPDs for Aluminum, Calcium, Iron and Sodium were greater than 50%. All positive results are qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M060101	59
Antimony	041M060201	48
Antimony	041M060301	55
Antimony	041M060401	69
Antimony	041M250301	58
Antimony	041M250201	42
Antimony	041M270201	55
Antimony	041M270101	70

Antimony	041M060401	69
Antimony	041M640201	54
Antimony	041M640301	71
Antimony	041M640601	59
Antimony	041M640501	79
Antimony	041M640701	46
Antimony	041M640901	55
Antimony	041M641201	59
Antimony	041M641501	67

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples	Sb.	+	J
		U	R
all soil samples	Pb and Ag.	+/U	J/UJ
all soil samples	Se.	+	J
all soil samples	Pb, Ca, Zn, Al, Fe and Na.	+	J
041M060101, 201, 301, 401, 250301, 201, 270201, 101, 640601, 201, 301, 501, 701 901, 641201 and 501.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	M06070
Date:	February 14, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	NAS Pensacola; Site 41
Date Sampled:	November 13 - 15, 1995
Number of Samples:	13 Aqueous Sample(s) with 0 MS/MSD(s) 9 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Low Concentration Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig H. Steffan

Eugene M. Watson, Vice President

3-7-96

Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1332 · Fax (314) 936-1335

SDG# M06070

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		LSV		SV		P/P		TAL/CN	
041W060301	WATER			X		X				X		X	
041M060701	SOIL		X						X		X		X
041W060701	WATER			X		X				X		X	
041M060801	SOIL		X						X		X		X
041M060901	SOIL		X						X		X		X
041W250101	WATER			X		X				X		X	
041W250301	WATER			X		X				X		X	
041R250301	WATER			X		X				X		X	
041W270201	WATER			X		X				X		X	
041M320101	SOIL		X						X		X		X
041W320101	WATER			X		X				X		X	
041M320201	SOIL		X						X		X		X
041M320301	SOIL		X						X		X		X
041W320301	WATER			X		X				X		X	
041M330101	SOIL		X						X		X		X
041W330101	WATER			X		X				X		X	
041M330201	SOIL		X						X		X		X
041M330301	SOIL		X						X		X		X
041W330301	WATER			X		X				X		X	
041EM00101	WATER			X		X				X		X	
041FM00101	WATER			X		X				X		X	
041TM00102	WATER			X									
Total Billable Samples (Water/Soil)		0	9	13	0	12	0	0	9	12	9	12	9

VOA = CLP Volatiles
LVOA = CLP Low Concentration Volatiles
LSV = CLP Low Concentration Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG # M06070

A validation was performed on the Volatile Data from SDG M06070. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated(UJ).

041M320201	1,4-difluorobenzene
	chlorobenzene-d_5

Internal Standards (continued)

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated(UJ).

041M320201RE	bromochloromethane 1,4-difluorobenzene chlorobenzene-d_5

Method Blank

Associated blank	Compound	Concentration
VBLKCK	Methylene chloride	7
VBLKCL	methylene chloride	3J
VBLKCM	methylene chloride	5J
VBLKCO	methylene chloride	8J

Samples	Compound	Qualification
041M060901 041M320201 041M320201RE 041M060701 041M320101 041M330101 041M330201	methylene chloride	U
041M060801 041M060901DL 041M320301 041M330301	methylene chloride	CRQL

Trip Blank

Associated blank	Compound	Concentration
041TM00102	acetone	6B

Samples	Compound	Qualification
041M060701 041M320101 041M330301	acetone	U

Compound Identification /Quantitation

Reject E-flagged results for samples 041M060901, in favor of the diluted sample.

Reject 041M320201RE, in favor of the initial analysis, due to non compliant internal standard area recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M320201	All associated analytes 1,4-difluorobenzene chlorobenzene-d_5	+/-	J/UJ
041M320201RE	bromochloromethane 1,4-difluorobenzene chlorobenzene-d_5		
041M060901 041M320201 041M320201RE 041M060701 041M320101 041M330101 041M330201	methylene chloride	+	U
041M060801 041M060901DL 041M320301 041M330301	methylene chloride	+	CRQL
041M060701 041M320101 041M330301	acetone	+	U
041M060901	All E-flagged results	+	R
041M060901DL	All analytes except D-flagged results	+/-	R
041M320201RE	All analytes	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG # M06070

A validation was performed on the Volatile Data from SDG M06070, low concentration. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM272, contained compounds with %Ds greater than 25%, but less than 50%, and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041W060701	acetone
041W320101	2-butanone

The continuing calibration, FM295, contained compounds with %Ds greater than 25%, but less than 50%, and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041W320301	acetone
041EM00101	2-butanone
041FM00101	
041W330101	
041W330301	
041R250301	
041W060301	
041W250101	
041W250301	
041W270201	

The continuing calibration, FM295, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041W320301	methylene chloride
041EM00101	
041FM00101	
041W330101	
041W330301	
041R250301	
041W060301	

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM295, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041W250101	methylene chloride
041W250301	
041W270201	

The continuing calibration, FM3645, contained compounds with RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041TM00102	acetone
	2-butanone

Method Blank

Associated blank	Compound	Concentration
VBLKFC	acetone	9
	Methylene chloride	1
VBLKFD	acetone	7

Samples	Compound	Qualification
041W060701	acetone	U
041W320101		
041R250301		
041W250101		
041W250301		
041W270201		
041W320301		
041W330101		
041W330301		
041W320101	methylene chloride	U

Rinseate Blank

Associated blank	Compound	Concentration
041EM00101	methylene chloride	1

Samples	Compound	Qualification
041W060301 041W250101 041W270201 041W330101 041W330301	methylene chloride	U

Compound Identification /Quantitation

Reject E-flagged results for samples 041R250301 and 041W250301, in favor of the diluted samples, 041R250301DL and 041W250301DL, D-flagged results.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W060701 041W320101	acetone 2-butanone	+/-	J/R
041W320301 041EM00101 041FM00101 041W330101 041W330301 041R250301 041W060301 041W250101 041W250301 041W270201	acetone 2-butanone	+/-	J/R
041W320301 041EM00101 041FM00101 041W330101 041W330301 041R250301 041W060301 041W250101 041W250301 041W270201	methylene chloride	+/-	J/UJ
041TM00102	acetone 2-butanone	+/-	J/R
041W060701 041W320101 041R250301 041W250101 041W250301	acetone	+	U

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W270201 041W320301 041W330101 041W330301	acetone	+	U
041W320101 041W060301 041W270201 041W330101 041W330301	methylene chloride	+	U
041R250301 041W250301	All E-flagged results	+	R
041R250301DL 041W250301DL	All analytes except D-flagged results	+	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # M06070

A validation was performed on the Semivolatile Data from SDG M06070, low concentration. The data was evaluated based on the following parameters.

*	•	Data Completeness
	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Holding Times

All extraction holding times for all samples were not met for all samples per the SOW and National Functional Guidelines. Qualifications are required.

Specific Finding:

The following samples extraction date exceeded the required hold time of twenty seven (27) days by twenty two (22) days. Qualify all positive results as estimated (J) and non detects as reject (R).

041W250101
041R250301
041W270201

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria.

Specific Finding:

The continuing calibration, DI842, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041W060301	4-nitrophenol
041W250301	

The continuing calibration, DJ132, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041W250101	3-nitroaniline
041W270201	

The continuing calibration,DJ154, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041R250301	4-chloroaniline
	3-nitroaniline
	3,3'-dichlorobenzidine

Field Blanks

Associated blank	Compound	Concentration
041FM00101	bis(2ethylhexyl)phthalate	10

Samples	Compound	Qualification
041W330301	bis(2ethylhexyl)phthalate	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W250101 041R250301 041W270201	all analytes	+/-	J/R
041W060301 041W250301	4-nitrophenol	+/-	J/UJ
041W250101 041W270201	3-nitroaniline	+/-	J/UJ
041R250301	4-chloroaniline 3-nitroaniline 3,3'-dichlorobenzidine	+/-	J/UJ
041W330301	bis(2ethylhexyl)phthalate	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # M06070

A validation was performed on the Semivolatile Data from SDG M06070. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Contractual Non compliance

The analysis of samples 041M060701 and 041M330101 exhibited low internal standard area recoveries. No reanalysis of these samples were performed, as required by method EPA CLP3/90 section 8.1 page D-52/SV

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF348, contained compounds with %Ds greater than 90% and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

SBLKIF	2,2'-oxybis(1-chloropropane)
041M060801	3-nitroaniline

The continuing calibration, IF348, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

SBLKIF	4-chloroaniline
041M060801	4-nitroaniline
	Carbazole

The continuing calibration, IF462, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

SBLKIN	2,2'-oxybis(1-chloropropane)
041M320301	

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated(UJ).

041M060701	perylene-d12
041M330101	

Method Blanks

Associated blank	Compound	Concentration
SBLKJY	bis(2ethylhexyl)phthalate	120J
SBLKIF	di-n-butylphthalate	21J
	bis(2ethylhexyl)phthalate	75J
SBLKJK	bis(2ethylhexyl)phthalate	69J
SBLKIN	bis(2ethylhexyl)phthalate	33J

Samples	Compound	Qualification
041M060701 041M060901 041M330301 041M320301	bis(2ethylhexyl)phthalate	CRQL
041M060801	bis(2ethylhexyl)phthalate	U
041M060801	di-n-butylphthalate	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 10% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M060801	2,2'-oxybis(1-chloropropane) 3-nitroaniline	+/-	J/R
041M060801	4-chloroaniline 4-nitroaniline Carbazole	+/-	J/UJ
041M320301	2,2'-oxybis(1-chloropropane)	+/-	J/UJ
041M060701 041M330101	All associated analytes perylene-d_{12}	+/-	J/UJ
041M060701 041M060901 041M330301 041M320301	bis(2ethylhexyl)phthalate	+	CRQL
041M060801	bis(2ethylhexyl)phthalate	+	U
041M060801	di-n-butylphthalate	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results this report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M06070

A validation was performed on the Pesticide/Aroclor Data from SDG M06070. The data was evaluated based on the following parameters:

*	•	Data Completeness
	•	Holding Times
*	•	GC Performance
	•	Calibration
*	•	Blanks
	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	GPC and Florisil Clean-up Procedures
*	•	Field Duplicates
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

One (1) sample required qualification for exceeded holding times.

Specific Finding

The following sample's extraction holding time was exceeded by eight (8) days. All positive and non-detect results are qualified as estimated, J/UJ.

041M060701

Initial Calibrations

The initial calibrations analyzed for these samples were not all within the 20% RSD criteria.

Specific Finding

The initial calibration analyzed on 11/28/95 exhibited a non-compliant RPD for two (2) compounds. Reported results for the noted compounds in the following samples are qualified as estimated, J/UJ.

041W060701	α-BHC
041W320101	δ-BHC
041W320301	
041EM00101	
041FM00101	
041W330101	
041W330301	
041R250301	
041W060301	
041W250301	
041M060901	
041M320101	
041M320301	
041M330101	
041W250101	
041W270201	
041M330201	
041M330301	
041M060801	
041M060801DL	

The initial calibration analyzed on 12/02/95 exhibited a non-compliant RPD for two (2) compounds. Reported results for the noted compounds in the following samples are qualified as estimated, J/UJ.

041M060701	α-BHC
	4,4'-DDT

Surrogate Recoveries

Three (3) samples required qualification due to non-compliant surrogate recoveries.

Specific Findings

The following samples exhibited a TCMX recovery below the QC limit. All positive and non-detect results reported in the sample are qualified as estimated, J/UJ.

041M320201
041M320301
041M330101

Compound Identification/Quantitation

One (1) sample required dilution to accurately quantitate target compounds. Several reported results exhibited P flags due to column quantitation %Ds greater than 25%. Single component compounds in samples with reported aroclors should be considered suspect. The Form Is submitted by the laboratory indicated incorrect Concentrated Final Volumes for all samples. The laboratory indicated that the software limitation would not accommodate the correct final volume. The samples were to be calculated based on a final volume of 1.0 ml. Based on this information, calculation verification was possible. Supporting documentation explaining the discrepancy has been received.

Specific Findings

All positive results exhibiting P flags are qualified as estimated, J, due to column quantitation %Ds greater than 25%.

For the following sample, the noted compounds are rejected in favor of the D flagged results reported from the dilution analysis. In the dilution analysis all other results are rejected, UR, in favor of the results reported from the undiluted analysis.

041M060801	4,4'-DDE
	4,4'-DDD

Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M060701	All compounds	+/-	J/UJ
041W060701 041W320101 041W320301 041EM00101 041FM00101 041W330101 041W330301 041R250301 041W060301 041W250301 041M060901 041M320101 041M320301 041M330101 041W250101 041W270201 041M330201 041M330301 041M060801 041M060801DL	α-BHC δ-BHC	+/-	J/UJ
041M060701	α-BHC 4,4'-DDT	+/-	J/UJ
041M320201 041M320301 041M330101	All compounds	+/-	J/UJ
041M060801	4,4'-DDE 4,4'-DDD	+	R
041M060801DL	All but corresponding D flagged results	+/-	UR

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
All	All P flagged results	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M06070

A validation was performed on the Metals Data from SDG M06070. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
*	•	Matrix Spike Recovery
*	•	Matrix Duplicates
*	•	Field Duplicates
*	•	Laboratory Control Samples
*	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	3.41 mg/kg	no impact
Iron	0.39 mg/kg	no impact
Lead	0.21 mg/kg	no impact
Zinc	0.71 mg/kg	041M330301.
Calcium	17.3 ug/l	no impact

Sodium	153. ug/l	no impact

The field and equipment blanks exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	40.4 ug/l	all water samples
Barium	3.0 ug/l	all water samples
Zinc	47.9 ug/l	all water samples

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041W060301	73
Antimony	041W060701	61
Antimony	041W250101	44
Antimony	041R250301	59
Antimony	041W270201	45
Antimony	041W320101	58
Antimony	041M320301	71
Antimony	041M330101	45
Antimony	041M330201	50
Antimony	041M330301	62
Antimony	041M060801	67
Antimony	041M060901	64
Antimony	041M320101	67
Antimony	041W330301	77

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
041M330301.	Zn.	+	U
all water samples	Al, Ba and Zn.		
041W060301, 701, 041W250101, 041R250301, 041W270201, 041W320101, 041M320201, 041M330101, 041M 330201, 041M330301, 041M 060801, 041M060901, 041M320101 AND 041W330301.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	M52A10
Date:	March 29, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	January 23 -24, 1996
Number of Samples:	8 Aqueous Sample(s) with 0 MS/MSD(s) 11 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Semivolatiles, Low Concentration Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig H. Sculfort
Eugene W. Watson, Vice President

4-2-96
Date

4127 Plaza 94 South St Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# M52A10

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		SV		LSV		P/P		TAL/CN	
041M52A101	SOIL		X				X				X		X
041M52D101	SOIL		X				X				X		X
041M52E101	SOIL		X				X				X		X
041M52E201	SOIL		X				X				X		X
041M52E301	SOIL		X				X				X		X
041M56A101	SOIL		X				X				X		X
041M580101	SOIL		X				X				X		X
041M63B401	SOIL		X				X				X		X
041MW20101	SOIL		X				X				X		X
041MW20201	SOIL		X				X				X		X
041MW20301	SOIL		X				X				X		X
041W52A101	WATER			X				X		X		X	
041W52E301	WATER			X				X		X		X	
041W56A101	WATER			X				X		X		X	
041W580101	WATER			X				X		X		X	
041W63B401	WATER			X				X		X		X	
041TM02001	WATER			X									
041TM02101	WATER			X									
041WW20201	WATER			X				X		X		X	
Total Billable Samples (Water/Soil)		0	11	8	0	0	11	6	0	6	11	6	11

VOA = CLP Volatiles
LVOA = CLP Low Concentration Volatiles
SV = CLP Semivolatiles
LSV = CLP Low Concentration Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG #M52A10

A validation was performed on the Volatile Data from SDG M52A10. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria.

Specific Finding:

The Samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated (UJ).

041M52A101RE	chlorobenzene-d_5
041M52E201	

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKGN	methylene chloride	3J	30

Samples	Compound	Qualification
041MW20301	methylene chloride	CRQL

Trip Blank

Associated blank	Compound	Concentration	Action Level
041TM02001	acetone	33	330
	Methylene chloride	3J	30

Samples	Compound	Qualification
041M52A101RE	methylene chloride	CRQL
041M52E201		
041M52E301		
041M56A101		
041M580101		
041M63B401		
041M52D101	acetone	U
041M52E101		
041M52E201		
041M52E301		
041M56A101		
041MW20101		
041MW20201		

Compound Identification /Quantitation

Reject samples 041M52A101 and 041M52E201RE, in favor of 041M52A101RE and 041M52E201, due to non compliant surrogate recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M52A101RE 041M52E201	All associated analytes chlorobenzene-d_5	+/-	J/UJ
041MW20301 041M52E201 041M52E301 041M56A101 041M580101 041M63B401 041M52A101RE	methylene chloride	+	CRQL
041M52D101 041M52E101 041M52E201 041M52E301 041M56A101 041MW20101 041MW20201	acetone	+	U
041M52A101 041M52E201RE	all analytes	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # M52A10

A validation was performed on the Volatile Data from SDG M52A10. The data was evaluated based on the following parameters.

*	Data Completeness
*	Holding Times
*	GC/MS Tuning
	Calibrations
*	Internal Standard Performance
	Blanks
*	Surrogate Recoveries
*	Laboratory Control Samples
*	Field Duplicates
*	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration,FN610, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W52A101	acetone (65.8)
041W52E301	2-butanone
041W63B401	
041WW20201	
041W56A101	
041W580101	

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFU	acetone	6	60

Samples	Compound	Qualification
041W52A101	acetone	CRQL
041W52E301	acetone	U
041W56A101		
041W580101		
041W63B401		
041WW20201		

Trip Blanks

Associated blank	Compound	Conc.	Action Level
041TM02101	methylene chloride	3	30
	acetone	33	330

Samples	Compound	Qualification
041W52A101	methylene chloride	U
041W52E301		

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W52A101 041W52E301 041W63B401 041WW20201 041W56A101 041W580101	acetone (65.8) 2-butanone	+/-	J/R
041W52A101	acetone	+	CRQL
041W52E301 041W56A101 041W580101 041W63B401 041WW20201	acetone	+	U
041W52A101 041W52E301	methylene chloride	+	U

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # M52A10

A validation was performed on the Semivolatile Data from SDG M52A10. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, JG447, contained compounds with %Ds greater than 50% an less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041MZ20101	2,2'-oxybis(1-chloropropane) (57.9%)
041M52A101	

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041MZ20101 041M52A101	2,2'-oxybis(1-chloropropane)	+/-	J/UJ

* DL denotes the Form 1 qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # M52A10

A validation was performed on the Semivolatile Data from SDG M52A10. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ659, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W63B401	hexachlorocyclopentadiene (60.8)

The continuing calibration, DJ715, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041WW20201	hexachlorocyclopentadiene (67.5)

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W63B401	hexachlorocyclopentadiene (60.8)	+/-	J/UJ
041WW20201	hexachlorocyclopentadiene (67.5)	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M52A10

A validation was performed on the Pesticide/Aroclor Data from SDG M52A10. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Surrogate Recoveries

Three (3) samples exhibited non-compliant TCX and/or DCB recoveries.

Surrogate Recoveries, Continued

Specific Finding

The samples listed below exhibited low TCX and/or DCB recoveries. The positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

Sample ID	Surrogate	% Recovery
041W52E301	DCB-1	24%
	DCB-2	21%
041W56A101	TCX-1	21%
	TCX-2	21%
	DCB-1	21%
	DCB-2	18%
041WW20201	DCB-1	21%
	DCB-2	15%

Analyte Identification/Quantitation

Three (3) samples required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

For the following samples and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M52E101	4,4'-DDE
041M56A101	4,4'-DDD
041MW20101	4,4'-DDD

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 20% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W52E301 041W56A101 041WW20201	ALL	+/-	J/UJ
041M52E101 041M56A101	4,4'-DDE 4,4'-DDD	+	D
041MW20101	4,4'-DDD	+	D
041M52E101DL 041M56A101DL 041MW20101DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # M52A10

A validation was performed on the Metals Data from SDG M52A10. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	Calibrations
	•	Blanks
*	•	Interferences
	•	Matrix Spike Recovery
*	•	Matrix Duplicates
*	•	Field Duplicates
*	•	Laboratory Control Samples
*	•	Serial Dilutions
	•	MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	2.94 mg/kg	no impact
Calcium	10.6 mg/kg	no impact
Iron	1.95 mg/kg	no impact
Sodium	4.65 mg/kg	all soil samples below 23.3 mg/kg
Aluminum	22.6 ug/l	no impact

Calcium	126 ug/l	no impact
Iron	19.4 ug/l	all water samples below 97 ug/l
Magnesium	23.8 ug/l	no impact
Manganese	1.34 ug/l	all water samples below 6.7 ug/l
Sodium	118 ug/l	no impact

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Antimony	-0.21 mg/kg	all soil samples below 2.1 mg/kg
Antimony	-2.52 ug/l	all water samples below 25.2 ug/l
Cadmium	-2.01 ug/l	all water samples below 20.1 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recoveries for soils for Antimony (43%) and Selenium (47%) were below the lower control limits (<75% but >30%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041M52A101	69
Antimony	041M52D101	62
Antimony	041M52E101	74
Antimony	041M52E201	71
Antimony	041M56A101	44
Antimony	041M58A101	50
Antimony	041MW20201	82
Antimony	041W52S101	61

Antimony	041W63B401	48
Antimony	041WW20201	58
Antimony	041W56A101	58
Antimony	041W580101	46
Antimony	041M52E201	62

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 23.3 mg/kg	Na.	+	U
all water samples below 97 ug/l	Fe.		
all water samples below 6.7 ug/l	Mn.		
all soil samples bellow 2.1 mg/kg	Sb.	+/U	J/UJ
all water samples below 25.2 ug/l	Sb.		
all water samples below 20.1 ug/l	Cd.		
all soil samples	Sb and Se.	+/U	J/UJ
041M52A101, 52D101, 52E101, 52E301, 56A101, 580101, W20201, 52A101, W63B401, WW20201, W56A101, W580101 and 52E201.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

VALIDATA

Chemical Services, Inc.

P. O. Box 930422, Norcross, GA 30093

(770) 923-3890
(770) 923-8769 (Fax)

EnSafe/Allen & Hoshall
5720 Summer Trees Drive, Suite 8
Memphis, TN 38134
Attn: Drew Cowan

5/15/96

Dear Mr. Cowan:

Please find enclosed data validation narratives, flagged Form I's and qualified electronic data for SDGs Z13601 and Z30201.

We are pleased to be of service to EnSafe/Allen & Hoshall. Please call me at (770) 923-3890 if you have any questions.

Sincerely,

Kevin C. Harmon
Client Services Director

VALIDATA

Chemical Services, Inc.

P. O. Box 930422, Norcross, GA 30093

(770) 923-3890
(770) 923-8769 (Fax)

DATA VALIDATION SUMMARY REPORT

COMPANY:	Ensafe/Allen & Hoshall
SITE NAME:	NAS Pensacola, Sites 40 and 41
PROJECT NUMBER:	8500.14
CONTRACTED LAB:	Ceimic Corporation
QA/QC LEVEL:	EPA Level IV
EPA METHOD:	SOW ILM03.0
VALIDATION GUIDELINES:	*USEPA CLP National Functional Guidelines for Inorganic Data Review*, 1994
SAMPLE MATRIX:	Sediment
TYPE OF ANALYSIS:	Total Metals
SDG NUMBER:	Z13601 (Level IV)

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Total Metals
040MZ13001	960182-02	Sediment	X
040MZ13601	960182-01	Sediment	X
040MZ21501	960182-05	Sediment	X
040MZ21801	960182-14	Sediment	X
040MZ22001	960182-07	Sediment	X
040MZ22201	960182-06	Sediment	X
040MZ22501	960182-11	Sediment	X
040MZ22601	960182-09	Sediment	X
040MZ22801	960182-10	Sediment	X
040MZ23101	960182-13	Sediment	X
040MZ23601	960182-12	Sediment	X
040MZ24401	960182-15	Sediment	X
040MZ24701	960182-16	Sediment	X
040MZ40501	960182-03	Sediment	X
040MZ51301	960182-08	Sediment	X
041M030401	960182-19	Sediment	X
041M030501	960182-20	Sediment	X
041M04D201	960182-18	Sediment	X
041M160201	960182-17	Sediment	X
040M63A301	960182-04	Sediment	X

Data Qualifier Definitions

J	-	The association numerical value is an estimated quantity.
R	-	The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
U	-	The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
UJ	-	The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

Client Sample #	Lab Sample #	Matrix	Total Metals
040MZ13001RE/D*	960182-02D	Sediment	+
040MZ13001S	960182-02S	Sediment	+

* = Reanalysis and Laboratory Duplicate samples are one and the same.
+ = Non-billable Quality Control Sample

RE/D* = MATRIX DUPLICATE, S = MATRIX SPIKE

DATA REVIEWER(S): Marvin L. Smith, Jean M. Delashmit

RELEASE SIGNATURE:

DATA QUALIFICATION SUMMARY

Ceimic Corporation - Z13601, Level IV CLP Inorganics

SAMPLES: 040MZ13001, 040MZ13601, 040MZ21501, 040MZ21801, 040MZ22001, 040MZ22201, 040MZ22501, 040MZ22601, 040MZ22801, 040MZ23101, 040MZ23601, 040MZ24401, 040MZ24701, 040MZ40501, 040MZ51301, 041M030401, 041M030501, 041M04D201, 041M160201, 041M63A301, 040MZ13001RE/D*, 040MZ13001S

TOTAL METALS

I.) Holding Times:

The holding times from sampling date to analysis date were 78 to 129 days for all samples in this SDG, which grossly exceeded the 28 day QC limit for mercury. All positive results for mercury were flagged as estimated (J) and all non-detect mercury results were rejected (R).

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met, so no action was necessary.

Continuing Calibration Verification (CCV):

All Continuing Calibration criteria were met, so no action was necessary.

III.) Blanks:

The following blank results represent the highest detections associated with the samples and were used for data qualification:

Blank Type/ID#	Analyte	Max Conc.	Action Level
PBS	aluminum	13.4 mg/kg	67.0 mg/kg
CCB11	barium	7.00 ug/L	7.00 mg/kg
CCB12	cadmium	2.70 ug/L	2.70 mg/kg
CCB6	calcium	97.6 ug/L	97.6 mg/kg
CCB11	cobalt	4.20 ug/L	4.20 mg/kg
PBS	iron	19.9 mg/kg	99.5 mg/kg
CCB6	lead	80.6 ug/L	80.6 mg/kg
PBS	magnesium	11.2 mg/kg	56.0 mg/kg
CCB11	manganese	4.10 ug/L	4.10 mg/kg

Blank Type/ID#	Analyte	Max Conc.	Action Level
PBS	mercury	0.06 mg/kg	0.30 mg/kg
PBS	selenium	0.27 mg/kg	1.35 mg/kg
CCB4	sodium	597 ug/L	2990 mg/kg
CCB11	silver	5.40 ug/L	5.40 mg/kg
PBS	zinc	0.28 mg/kg	1.40 mg/kg

CCB = Continuing Calibration Blank, PBS = Preparation Blank (Soil)

After correction for percent solids, all results greater than the IDL but less than 5X the blank amount (Action Level, mg/kg for sediment samples) for which the contaminated blank was an associated calibration or preparation blank were flagged as undetected (U).

The following analytes had negative results with absolute values greater than the IDL:

Blank Type/ID#	Analyte	Neg. Conc.	5X Conc.
CCB8	arsenic	-4.10 ug/L	4.10 mg/kg
CCB1	cadmium	-2.20 ug/L	2.20 mg/kg
CCB2	chromium	-5.40 ug/L	5.40 mg/kg
CCB4	manganese	-1.50 ug/L	1.50 mg/kg
CCB4	nickel	-12.4 ug/L	12.4 mg/kg
PBS	silver	-0.26 mg/kg	1.30 mg/kg
PBS	thallium	-0.59 mg/kg	2.95 mg/kg
ICB1	zinc	-8.10 ug/L	8.10 mg/kg

ICB = Initial Calibration Blank, PBS = Preparation Blank (Soil)

After correction for percent solids, all associated positive sample results less than 5X the absolute value of the negative blank results and all associated non-detects were flagged as estimated (J) and (UJ).

IV.) ICP Interference Check Sample Results:

All Percent Recovery criteria were met, so no action was taken.

The following analytes were present in ICS Solution A at concentrations greater than the IDL:

antimony	50 ug/L
barium	3 ug/L
manganese	8 ug/L
silver	8 ug/L
sodium	350 ug/L
vanadium	10 ug/L

These analytes should not be present. Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

Negative results were observed in ICS Solution A at absolute concentrations greater than the IDL for the following analytes:

arsenic	-4 ug/L
chromium	-10 ug/L
cobalt	-8 ug/L
silver	-6 ug/L
sodium	-79 ug/L
zinc	-6 ug/L

Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

V.) ICP Serial Dilution Analysis:

The Serial Dilution Percent Differences (%D's) of selenium (21%) and vanadium (11%) in sediment sample 040MZ13001L exceeded the 10% QC limit. Positive results for selenium and vanadium in all associated sediment samples were flagged as estimated (J).

VI.) Laboratory Control Samples (LCS):

The soil LCS Percent Recoveries (%R's) of cobalt (131%) and selenium (450%) exceeded the 80-120% QC limits. All positive results for these analytes in the associated sediment samples were flagged as estimated (J).

VII.) Duplicate Sample Analysis:

The Relative Percent Differences (RPD's) of lead (78%) and selenium (47%) in laboratory duplicate samples 040MZ13001 and 040MZ13001D exceeded the 35% QC limit for sediment samples. All positive and non-detect results for these analytes in the associated sediment samples were flagged as estimated (J) and (UJ).

VIII.) Matrix Spike Recoveries:

The Percent Recoveries (%R's) of the following analytes in sediment spiked sample 040MZ30101S were outside the 75-125% QC limits:

antimony	-272%
arsenic	131%
copper	127%
lead	337%
silver	0%
thallium	0%

All positive results for arsenic, copper and lead in the associated samples were flagged as estimated (J). All associated positive sample results for antimony, silver and thallium were flagged as estimated (J) and all non-detects were rejected (R) since the recoveries for these analytes were below the 30% rejection limit.

The concentration of selenium in unspiked sample 040MZ13001 exceeded the concentration of the spike added by more than 4X. No action was required.

IX.) Field Duplicates:

There were no field duplicate samples designated in this SDG. No action was necessary.

X.) Graphite Furnace Atomic Absorption QC (GFAA):

Graphite Furnace analyses were not used for the samples in this SDG. No action was required.

XI.) Sample Result, Calculation/Transcription Verification:

All criteria were met, so no action was necessary.

XII.) Quarterly Verification of Instrumental Parameters:

All criteria were met, so no action was taken.

XIII.) Overall Assessment of Data/General:

Laboratory Duplicate sample 041MZ13001D was identified on the spreadsheet as "041MZ13001RE." This sample was processed and routinely flagged by the laboratory. The laboratory flags were removed during validation. This sample was not validated as a routine sample, but rather was treated as a QC laboratory duplicate sample which did not require qualification. The validator changed the sample ID on the spreadsheet to "041MZ13001RE/D."

All non-detect mercury results were rejected because of excessive (greater than 2X QC limits) holding time exceedances. All non-detect results for antimony, silver and thallium were rejected because of very low (less than 30%) matrix spike recoveries. All other laboratory data were acceptable with qualifications.

VALIDATA

Chemical Services, Inc.

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DATA VALIDATION SUMMARY REPORT

COMPANY:	Ensafe/Allen & Hoshall
SITE NAME:	NAS Pensacola, Sites 40 and 41
PROJECT NUMBER:	8500.14
CONTRACTED LAB:	Ceimic Corporation
QA/QC LEVEL:	EPA Level IV
EPA METHOD:	SOW ILM03.0
VALIDATION GUIDELINES:	*USEPA CLP National Functional Guidelines for Inorganic Data Review*, 1994
SAMPLE MATRIX:	Sediment
TYPE OF ANALYSIS:	Total Metals
SDG NUMBER:	Z30201 (Level IV)

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Total Metals
040MZ30101	960183-02	Sediment	X
040MZ30201	960183-01	Sediment	X
040MZ40801	960183-11	Sediment	X
040MZ42401	960183-05	Sediment	X
040MZ53701	960183-03	Sediment	X
040MZ54101	960183-20	Sediment	X
040MZ61301	960183-12	Sediment	X
040MZ61801	960183-13	Sediment	X
040MZ62001	960183-14	Sediment	X
040MZ71401	960183-15	Sediment	X
040MZ73501	960183-17	Sediment	X
040MZ80701	960183-16	Sediment	X
040MZ81201	960183-19	Sediment	X
040MZ82101	960183-18	Sediment	X
040MZ90601	960183-10	Sediment	X
041M10A101	960183-04	Sediment	X
041M320301	960183-08	Sediment	X
041M330201	960183-09	Sediment	X
041M641401	960183-06	Sediment	X
040M641501	960183-07	Sediment	X

Client Sample #	Lab Sample #	Matrix	Total Metals
040MZ30101RE/D*	960183-02D	Sediment	+
040MZ30101S	960183-02S	Sediment	+

* = Reanalysis and Laboratory Duplicate samples are one and the same.
+ = Non-billable Quality Control Sample

RE/D* = MATRIX DUPLICATE, S = MATRIX SPIKE

D = MATRIX DUPLICATE, RE = REANALYSIS, S = MATRIX SPIKE

DATA REVIEWER(S): Marvin L. Smith, Jean M. Delashmit

RELEASE SIGNATURE:

Data Qualifier Definitions

J	-	The association numerical value is an estimated quantity.
R	-	The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
U	-	The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
UJ	-	The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

DATA QUALIFICATION SUMMARY

Ceimic Corporation - Z30201, Level IV CLP Inorganics

SAMPLES: 040MZ30101, 040MZ30201, 040MZ40801, 040MZ42401, 040MZ53701, 040MZ54101, 040MZ61301, 040MZ61801, 040MZ62001, 040MZ71401, 040MZ73501, 040MZ80701, 040MZ81201, 040MZ82101, 040MZ90601, 041M10A101, 041M320301, 041M330201, 041M641401, 041M641501, 040MZ30101RE/D*, 040MZ30101S

TOTAL METALS

I.) Holding Times:

The holding times from sampling to analysis were 134 to 170 days for all samples in this SDG, which grossly exceeded the 28 day QC limit for mercury. All positive results for mercury were flagged as estimated (J) and all non-detect mercury results were rejected (R).

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met, so no action was necessary.

Continuing Calibration Verification (CCV):

All Continuing Calibration criteria were met, so no action was necessary.

III.) Blanks:

The following blank results represent the highest detections associated with the samples and were used for data qualification:

Blank Type/ID#	Analyte	Max Conc.	Action Level
PBS	aluminum	18.3 mg/kg	91.5 mg/kg
CCB9	antimony	46.8 ug/L	46.8 mg/kg
PBS	arsenic	4.83 mg/kg	24.2 mg/kg
CCB7	barium	7.1 ug/L	7.1 mg/kg
PBS	calcium	19.9 mg/kg	99.5 mg/kg
PBS	chromium	1.94 mg/kg	9.70 mg/kg
CCB9	cobalt	2.5 ug/L	2.5 mg/kg
PBS	copper	0.29 mg/kg	1.45 mg/kg
PBS	iron	25.1 mg/kg	126 mg/kg

Blank Type/ID#	Analyte	Max Conc.	Action Level
PBS	magnesium	10.9 mg/kg	54.5 mg/kg
CCB7	potassium	121 ug/L	121 mg/kg
PBS	selenium	0.80 mg/kg	4.0 mg/kg
CCB9	sodium	211 ug/L	211 mg/kg
PBS	zinc	0.38 mg/kg	1.9 mg/kg

CCB = Continuing Calibration Blank, PBS = Preparation Blank (Soil)

After correction for percent solids, all results greater than the IDL but less than 5X the blank amount (Action Level, mg/kg for sediment samples) for which the contaminated blank was an associated calibration or preparation blank were flagged as undetected (U).

The following analytes had negative results with absolute values greater than the IDL:

Blank Type/ID#	Analyte	Neg. Conc.	5X Conc.
ICB2	calcium	-6.40 ug/L	6.40 mg/kg
ICB2	iron	-17.2 ug/L	17.2 mg/kg
ICB2	manganese	-1.90 ug/L	1.90 mg/kg
PBS	sodium	-6.16 mg/kg	30.8 mg/kg
PBS	thallium	-0.84 mg/kg	4.20 mg/kg

ICB = Initial Calibration Blank, PBS = Preparation Blank (Soil)

After correction for percent solids, all associated positive sample results less than 5X the absolute value of the negative blank results and all associated non-detects were flagged as estimated (J) and (UJ).

IV.) ICP Interference Check Sample Results:

All Percent Recovery criteria were met.

The following analytes were present in ICS Solution A at concentrations greater than the IDL:

antimony	56 ug/L
manganese	2 ug/L
potassium	157 ug/L
silver	9 ug/L
sodium	48 ug/L
vanadium	10 ug/L

These analytes should not be present. Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

Negative results were observed in ICS Solution A at absolute concentrations greater than the IDL for the following analytes:

chromium	-6 ug/L
cobalt	-5 ug/L
copper	-5 ug/L
nickel	-10 ug/L
sodium	-102 ug/L
zinc	-7 ug/L

Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

V.) ICP Serial Dilution Analysis:

The Serial Dilution Percent Differences (%D's) of iron (43%) and lead (12%) in sediment sample 040MZ30101L exceeded the 10% QC limit. Positive results for these analytes in all associated sediment samples were flagged as estimated (J).

VI.) Laboratory Control Samples (LCS):

The soil LCS Percent Recoveries (%R's) of aluminum (76%), magnesium (61%) and sodium (76%) were below the 80-120% QC limits. All positive and non-detect results for these analytes in the associated sediment samples were flagged as estimated (J) and (UJ).

The soil LCS Percent Recoveries (%R's) of cobalt (137%) and potassium (131%) exceeded the 80-120% QC limits. All positive results for these analytes in the associated sediment samples were flagged as estimated (J).

VII.) Duplicate Sample Analysis:

The Relative Percent Differences (RPD's) of iron (56%), manganese (177%) and selenium (46%) in laboratory duplicate samples 040MZ30101 and 040MZ30101D exceeded the 35% QC limit for sediment samples. All positive and non-detect results for these analytes in the associated sediment samples were flagged as estimated (J) and (UJ).

VIII.) Matrix Spike Recoveries:

The Percent Recoveries (%R's) of the following analytes in sediment spiked sample 040MZ30101S were below the 75-125% QC limits:

arsenic	38%
beryllium	62%
cadmium	30%
cobalt	71%
manganese	-248%
nickel	27%
silver	0%
thallium	0%
zinc	56%

All positive and non-detect results for arsenic, beryllium, cadmium, cobalt and zinc in all associated samples were flagged as estimated (J) and (UJ). All positive results for manganese, nickel, silver and thallium were flagged as estimated (J) and the non-detects were rejected (R) since the recoveries for these analytes were less than the 30% rejection limit.

The concentrations of antimony, chromium, lead and selenium in unspiked sample 040MZ30101 exceeded the concentration of the spike added to spiked sample 040MZ30101S by more than 4X. No action was required.

IX.) Field Duplicates:

There were no field duplicate samples designated in this SDG. No action was necessary.

X.) Graphite Furnace Atomic Absorption QC (GFAA):

Graphite Furnace analyses were not used for the samples in this SDG. No action was required.

XI.) Sample Result, Calculation/Transcription Verification:

All criteria were met, so no action was necessary.

XII.) Quarterly Verification of Instrumental Parameters:

All criteria were met, so no action was taken.

XIII.) Overall Assessment of Data/General:

Laboratory Duplicate sample 041MZ30101D was identified on the spreadsheets as "041MZ30101RE." This sample was processed and routinely flagged by the laboratory. The laboratory flags were removed during validation. This sample was not validated as a routine sample, but rather was treated as a QC laboratory duplicate sample which would not require qualification. The validator changed the sample ID on the spreadsheet to "041MZ301D1RE/D."

All non-detect mercury results were rejected because of excessive (greater than 2X QC limits) holding time exceedances. All non-detect results for manganese, nickel, silver and thallium were rejected because of very low (less than 30%) matrix spike recoveries. All other laboratory data were acceptable with qualifications.

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

RECEIVED

Data Validation Report

SDG#:	Z30301
Date:	March 22, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	November 29, 1995
Number of Samples:	4 Aqueous Sample(s) with 0 MS/MSD(s) 11 Non-aqueous Sample(s) with 1 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Volatiles, Low Concentration Volatiles, Semivolatiles, Low Concentration Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Swafford

Eugene M. Watson, Vice President

3-25-96

Date

4127 Plaza 94 South St. Charles, MO 63304
(314) 936-1335 Fax (314) 936-1335

SDG# Z30301

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	VOA		LVOA		SV		LSV		P/P		TAL/CN	
040MZ30101	SOIL		X				X				X		X
040MZ30201	SOIL		X				X				X		X
040MZ30301	SOIL		X				X				X		X
040MZ30701	SOIL		X				X				X		X
040MZ30901	SOIL		X				X				X		X
040MZ31101	SOIL		X				X				X		X
040MZ40901	SOIL		X				X				X		X
041M120201	SOIL		X				X				X		X
041M570101	SOIL		X				X				X		X
041M720101	SOIL		X				X				X		X
041MZ20201	SOIL		X				X				X		X
040TM01801	WATER			X									
041W570101	WATER			X				X		X		X	
041W720101	WATER			X				X		X		X	
041TM00601	WATER			X									
Total Billable Samples (Water/Soil)		0	11	4	0	0	11	2	0	2	11	2	11

VOA = CLP Volatiles
LVOA = CLP Low Concentrtion Volatiles
SV = CLP Semivolatiles
LSV = CLP Low Concentration Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/cyanide

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and are based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z30301

A validation was performed on the Volatile Data from SDG Z30301. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibration
	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
	• Internal Standard Performance
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Continuing Calibrations

The continuing calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %Ds. The average RRF requirements were met for all continuing calibration standards.

Continuing Calibrations, continued

Specific Findings

The continuing calibration standard, HB326, contained compounds with %Ds greater than 50% but less than 90%. For the samples and noncompliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041M120201	acetone (68.2%)
041M720101	

Method Blanks

Contamination for several target compounds was detected in the method blanks. All B flagged TICs are rejected.

	VBLKGL	VBLKCZ	VBLKCA
methylene chloride	10 µg/Kg	2 µg/Kg	2 µg/Kg
bromomethane	--------	3 µg/Kg	--------

Specific Finding

	Samples	Contaminant	Action Levels	Qualification
VBLKGL	040MZ30301 041MZ20201 040MZ30901 040MZ31101	methylene chloride	100 µg/Kg	CRQL
VBLKCZ	040MZ30201 040MZ30701RE 040MZ40901		20 µg/Kg	CRQL
VBLKCA	041M570101		20 µg/Kg	CRQL
VBLKGL	040MZ30701 040MZ30101	methylene chloride	100 µg/Kg	U

Method Blanks, continued

The end-user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.

Internal Standard Areas

One sample and its RE exhibited noncompliant IS EICP area recoveries.

Specific Findings

The following samples exhibited noncompliant internal standard area recoveries. All associated positive and non-detect results are qualified as estimated, J/UJ.

040MZ30701	1,4-difluorobenzene chlorobenzene-d_5
040MZ30701RE	All internal standards

Surrogate Recoveries

Specific Finding

The following sample exhibited a surrogate recovery above the QC limits. All reported positive results in the sample are qualified as estimated, J.

Samples	Surrogate	%Recovery
040MZ30701	1,2-dichloroethane-d4	125%

Compound Quantitation

Specific Finding

The samples noted below are rejected, UR, in favor of the initial analysis of the sample. The samples exhibited similar internal standard results.

040MZ30701RE

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M120201 041M720101	acetone	+/-	J/UJ
040MZ30301 041MZ20201 040MZ30901 040MZ31101 040MZ30201 040MZ30701RE 040MZ40901 041M570101	methylene chloride	+B	CRQL
040MZ30701 040MZ30101	methylene chloride	+B	U
040MZ30701	All associated with 1,4-difluorobenzene chlorobenzene-d_5	+/-	J/UJ
040MZ30701RE	All associated with All internal standards	+/-	J/UJ
040MZ30701	1,2-dichloroethane-d4	+	J
040MZ30701RE	All compounds	+/-	UR

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # Z30301

A validation was performed on the Volatile Data from SDG Z30301. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Samples
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Initial Calibrations (continued)

Specific Finding:

The initial calibration analyzed on, 12/04/95, contained compounds with %RSD greater than 30% and RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detect (R).

041W720101	acetone (43.2)
	2-butanone

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Specific Finding:

The continuing calibration, FM602, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W570101	acetone
	2-butanone
	2-hexanone (25.9)

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFW	acetone	11	110

Samples	Compound	Qualification
041W570101	acetone	U

Trip Blanks

Associated blank	Compound	Conc.	Action Level
041TM00601	methylene chloride	4	40

Samples	Compound	Qualification
041W720101	methylene chloride	CRQL

Compound Identification/Quantitation

Specific Finding:

For sample 041W570101, reject all E-flagged results in favor of the D-flagged results in the diluted sample. For the diluted sample 041W570101DL, reject all results (R) except for the D-flagged results with corresponding E-flagged results.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W720101	acetone (43.2) 2-butanone	+/-	J/R
041W570101	acetone 2-butanone 2-hexanone (25.9)	+/-	J/R
041W570101	acetone	+	U
041W720101	methylene chloride	+	CRQL
041W570101	All E-flagged results	+	R
041W570101DL	All results (R) except	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # Z30301

A validation was performed on the Semivolatile Data from SDG Z30301. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibrations
*	•	Internal Standard Performance
	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Specific Finding:

The continuing calibration, IF723, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041M570101 4-chloroaniline (230.1%)

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF780, contained compounds with %Ds greater than 50% an less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M120201 hexachlorocyclopentadiene (68.4%)

The continuing calibration, IF780, contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041M120201 4-chloroaniline (190.9%)

Blanks

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria to field samples.

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKIK	bis(2ethylhexyl)phthalate	150J	1500
	Di-n-butylbenzylphthalte	21J	210
SBLKAI	bis(2ethylhexyl)phthalate	150J	1500
SBLKDF	bis(2ethylhexyl)phthalate	150J	1500

Method Blanks (continued)

Samples	Compound	Qualification
041M570101 040MZ30101 040MZ30701 040MZ31101 040MZ30201 041M720101	bis(2ethylhexyl)phthalate	CRQL
041MZ20201	bis(2ethylhexyl)phthalate	U
041M570101	Di-n-butylbenzylphthalte	CRQL

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M120201	hexachlorocyclopentadiene	+/-	J/UJ
041M120201	4-chloroaniline	+/-	J/R
041M570101 040MZ30101 040MZ30701 040MZ31101 040MZ30201 041M720101	bis(2ethylhexyl)phthalate	+	CRQL
041MZ20201	bis(2ethylhexyl)phthalate	+	U
041M570101	Di-n-butylbenzylphthalte	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # Z30301

A validation was performed on the Semivolatile Data from SDG Z30301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, DJ154, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

041W570101	4-chloroaniline (59.4)
	3,3'-dichlorobenzidine (60.2)
	3-nitroaniline (64.1)

Field Blanks

Associated blank	Compound	Conc.	Action Level
041FM00401	bis(2-ethylhexyl) phthalate	9J	90

Samples	Compound	Qualification
041W720101	bis(2-ethylhexyl) phthalate	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W570101	4-chloroaniline (59.4) 3,3'-dichlorobenzidine (60.2) 3-nitroaniline (64.1)	+/-	J/UJ
041W720101	bis(2-ethylhexyl) phthalate	+	U

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z30301

A validation was performed on the Pesticide/Aroclor Data from SDG Z30301. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
	• GC Performance
*	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

GC Performance

PEM0D and PEM1D (1/5/96 17:38) exhibited high %Ds for two (2) compounds.

GC Performance, Continued

Specific Finding

PEM0D and PEM1D (1/5/96 17:38) exhibited high %Ds for 4,4'-DDT and Methoxychlor. For the following samples and non-compliant compounds the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041W720101	4,4'-DDT (-49.0%/-45.0%)
041MZ20201	Methoxychlor (-46.8%/-38.4%)
040MZ40901	
040MZ31101	
041M570101	
040MZ30301	
040MZ30901	
040MZ30701	
041W570101	
040MZ30101	
040MZ30201	
041M120201	
041M720101	

Surrogate Recoveries

One (1) sample exhibited a non-compliant TCX recovery.

Specific Finding

The sample listed below exhibited a low TCX recovery. The positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

Sample ID	Surrogate	% Recovery
040MZ30901	TCX-2	25%

Analyte Identification/Quantitation

One (1) sample required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

For the following sample and compounds, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

040MZ40101	Gamma-BHC
	Endrin

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 10% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W720101 041MZ20201 040MZ40901 040MZ31101 041M570101 040MZ30301 040MZ30901 040MZ30701 041W570101 040MZ30101 040MZ30201 041M120201 041M720101	4,4'-DDT Methoxychlor	+/-	J/UJ
040MZ30901	ALL	+/-	J/UJ
040MZ40101	Gamma-BHC Endrin	+	D
040MZ40101DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z30301

A validation was performed on the Metals Data from SDG Z30301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recovery
*	• Matrix Duplicates
*	• Field Duplicates
*	• Laboratory Control Samples
*	• Serial Dilutions
	• MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Sodium	-7.14 mg/kg	all soil samples below 71.4 mg/kg
Zinc	-0.30 mg/kg	all soil samples below 3.0 mg/kg

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recovery for soils for Antimony (27%) was below 30%. All non-detect results are rejected and all positive results are qualified as estimated, "J".

The Matrix Spike recovery for soils for Thallium (68%) was below the lower control limits (<75% but >30%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

The Matrix Spike recovery for Chromium (131%) was abvoe the upper control limits (>125%). All positive results are qualified as estimated, "J".

Laboratory Duplicate Analysis

Specific Finding

The duplicate analysis for Selenium was less than 2 times the CRDL. No qualification is necessary.

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	040MZ30301	74
Antimony	040MZ30701	76
Antimony	040MZ31101	84
Antimony	040MZ40901	66
Antimony	041M120201	69

The post digestion spike recovery for GFAA was above the upper control limits. All positive results for the listed samples below are qualified as estimated, "J".

Element	Sample IDs	% recoveries
Antimony	040MZ30101	135
Antimony	041M570101	134
Antimony	041MZ20201	118

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 71.4 mg/kg	Na.	+/U	J/UJ
all soil samples below 3.0 mg/kg	Zn.		
all soil samples	Sb.	+	J
		U	R
all soil samples	Tl.	+/U	J/UJ
all soil samples	Cr.	+	J
040MZ30301, 040MZ30701, 040MZ31101, 040MZ40901 and 041M120201.	Sb.	+/U	J/UJ
040MZ30101, 041M570101 and 041MZ20201.	Sb.	+	J
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	Z42101
Date:	February 14, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	NAS Pensacola; Site 40 & 41
Date Sampled:	November 17, 1995
Number of Samples:	4 Aqueous Sample(s) with 0 MS/MSD(s) 11 Non-aqueous Sample(s) with 1 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level IV
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Volatiles, Volatiles, Low Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig R. Lyken

Eugene M. Watson, Vice President

3-4-96

Date

6716 Mexico Road St Peters, MO 63376
(314) 928-9533 (314) 278-1828 Fax (314) 278-2709

SDG# Z42101

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/C	
041W5A0601	WATER	X				X				X		X	
041W5B0201	WATER	X				X				X		X	
040TM01501	WATER			X									
040MZ42101	SOIL				X				X		X		X
040MZ42201	SOIL				X				X		X		X
040NZ42201	SOIL				X				X		X		X
040MZ42301	SOIL				X				X		X		X
040MZ42401	SOIL				X				X		X		X
041M5A0601	SOIL				X				X		X		X
041M5B0101	SOIL				X				X		X		X
041M5B0201	SOIL				X				X		X		X
041M642301	SOIL				X				X		X		X
041M642401	SOIL				X				X		X		X
041TM00301	WATER			X									
041M642201	SOIL				X				X		X		X
Total Billable Samples (Water/Soil)		2	0	2	11	2	0	0	11	2	11	2	11

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # Z42101

A validation was performed on the Volatile Data from SDG Z42101. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within continuing calibration criteria. All RRFs were within calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, CQ029, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J)

041M5A0601 acetone

Method Blank

Associated blank	Compound	Concentration
VBLKCQ	methylene chloride	10
VBLKCR	methylene chloride	15
VBLKCS	methylene chloride	13

Samples	Compound	Qualification
040MZ42101 040MZ42201 040MZ42301 040MZ42401 040NZ42201 041M642301	methylene chloride	U
041M5B0101 041M642201 041M642401 041M5A0601	methylene chloride	CRQL

System Performance and Overall Assessment

The overall system performance was fair The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M5A0601	acetone	+	J
040MZ42101 040MZ42201 040MZ42301 040MZ42401 040NZ42201 041M642301	methylene chloride	+	U
041M5B0101 041M642201 041M642401 041M5A0601	methylene chloride	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG # Z42101

A validation was performed on the Volatile Data from SDG Z42101, low concentration. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM384, contained compounds with %Ds greater than 25%, but less than 50%, and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041W5A0601	acetone
041W5B0201	2-butanone

The continuing calibration, FM384, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041W5A0601	2-hexanone
041W5B0201	

Trip Blank

Associated blank	Compound	Concentration
041TM00301	methylene chloride	11

Samples	Compound	Qualification
041W5A0601 041W5A0201	methylene chloride	U

Compound Identification /Quantitation

Reject E-flagged analytes for sample 041W5B0201, in favor of D-flagged results in diluted sample 041W5B0201DL.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W5A0601 041W5B0201	acetone 2-butanone	+/-	J/R
041W5A0601 041W5B0201	2-hexanone	+/-	J/UJ
041W5A0601 041W5A0201	methylene chloride	+	U
041W5B0201	All E-flagged results	+	R
041W5B0201DL	All analytes except D-flagged results	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OLC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # Z42101

A validation was performed on the Semivolatile Data from SDG Z42101, low concentration. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
*	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that none of the data requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLC01.8, 3/90 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z42101

A validation was performed on the Semivolatile Data from SDG Z42101. The data was evaluated based on the following parameters:

*	• Data Completeness
	• Holding Times
*	• GC/MS Tuning
	• Calibration
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
*	• Internal Standard Performance
*	• Compound Identification
*	• Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

Three (3) samples were extracted outside the extraction holding time.

Specific Finding

The following samples were extracted sixteen (16) days outside the extraction holding time. All positive results are qualified as estimated, J, and all non-detect results are rejected, R.

040MZ42101 040MZ42301 041M642301

Continuing Calibrations

The continuing calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %Ds. All average RRF requirements were met.

Specific Finding

The continuing calibration standard, DJ216 contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

040MZ42101	4-chloroaniline
040MZ42301	3-nitroaniline
041M642301	2,4-dinitrophenol
	4-nitroaniline
	Bis(2-ethylhexyl)phthalate
	Di-n-octylphthalate

The continuing calibration standard, IF285 contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

040NZ42201	2,2'-oxybis(1-chloropropane)
040MZ42401	hexachlorocyclopentadiene
041M5A0601	3-nitroaniline
	2,4-dinitrophenol
	4-nitroaniline
	3,3'-dichlorobenzidine

The continuing calibration standard, IF314 contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

041M642401	hexachlorocyclopentadiene
040MZ42201	3-nitroaniline
041M5B0201	carbazole
041M5B0101	
041M642201	

Continuing Calibrations, continued

Specific Findings

The continuing calibration standard, IF314 contained compounds with %Ds greater than 90%. For the samples and non-compliant compounds listed below, the positive results are qualified as estimated, J, and the non-detect results are rejected, R.

041M642401 2,2'-oxybis(1-chloropropane)

Method Blanks

One (1) of the two (2) method blanks exhibited contamination for bis(2-ethylhexyl)phthalate.

	SBLKIX
bis(2-ethylhexyl)phthalate	110 µg/Kg

Specific Finding

Samples	Contaminant	Qualification
041M5B0101	bis(2-ethylhexyl)phthalate	CRQL
041M5B0201		
041M642201		
041M642401		
040MZ42201		
040NZ42201		

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications. A typographical error was noted on the Form V. The data noted is 12/29/96, but should be 12/29/95.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ42101	4-chloroaniline	+/-	J/UJ
040MZ42301	3-nitroaniline		
041M642301	2,4-dinitrophenol		
	4-nitroaniline		
	Bis(2-ethylhexyl)phthalate		
	Di-n-octylphthalate		
040NZ42201	2,2'-oxybis(1-chloropropane)	+/-	J/UJ
040MZ42401	hexachlorocyclopentadiene		
041M5A0601	3-nitroaniline		
	2,4-dinitrophenol		
	4-nitroaniline		
	3,3'-dichlorobenzidine		
041M642401	hexachlorocyclopentadiene	+/-	J/UJ
040MZ42201	3-nitroaniline		
041M5B0201	carbazole		
041M5B0101			
041M642201			
041M642401	3,3'-oxybis(1-chloropropane)	+/-	J/R
041M5B0101	bis(2-ethylhexyl)phthalate	+B	CRQL
041M5B0201			
041M642201			
041M642401			
040MZ42201			
040NZ42201			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results this report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z42101

A validation was performed on the Pesticide/Aroclor Data from SDG Z42101. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Method Blanks

One (1) method blank exhibited contamination for one (1) target compound.

	PBLK02
endosulfan I	0.24 µg/Kg

Method Blanks, continued

Specific Finding

Samples	Compound	Qualification
040MZ42101	endosulfan I	U
040MZ42201		
040MZ42301		
040MZ42401		
040NZ42201	endosulfan I	CRQL

Surrogate Recoveries

One (1) sample required qualification due to non-compliant surrogate recoveries.

Specific Findings

The following sample exhibited a TCMX recovery below the QC limit. All positive and non-detect results reported in the sample are qualified as estimated, J/UJ.

041M642401

Compound Identification/Quantitation

Several reported results exhibited P flags due to column quantitation %Ds greater than 25%. Single component compounds in samples with reported aroclors should be considered suspect. The Form Is submitted by the laboratory indicated incorrect Concentrated Final Volumes for all samples. The laboratory indicated that the software limitation would not accommodate the correct final volume. The samples were to be calculated based on a final volume of 1.0 ml. Based on this information, calculation verification was possible. Supporting documentation explaining the discrepancy has been received.

Specific Findings

All positive results exhibiting P flags are qualified as estimated, J, due to column quantitation %Ds greater than 25%.

Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 5% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ42101 040MZ42201 040MZ42301 040MZ42401	endosulfan I	+B	U
040NZ42201	endosulfan I	+B	CRQL
041M642401	All Samples	+/-	J/UJ
All	All P flagged results	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z42101

A validation was performed on the Metals Data from SDG Z42101. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recovery
	• Matrix Duplicates
	• Field Duplicates
*	• Laboratory Control Samples
*	• Serial Dilutions
	• MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Barium	0.21 mg/kg	all soil samples below 1.05 mg/kg
Calcium	9.14 mg/kg	no impact
Copper	0.81 mg/kg	all soil samples below 4.05 mg/kg
Iron	3.74 mg/kg	no impact
Lead	0.22 mg/kg	all soil samples below 1.1 mg/kg

Selenium	0.36 mg/kg	no impact
Vanadium	0.44 mg/kg	all soil samples below 2.2 mg/kg
Zinc	0.53 mg/kg	all soil samples below 2.65 mg/kg
Aluminum	29.0 ug/l	all water samples below 145 ug/l
Calcium	123. ug/l	no impact
Iron	49.3 ug/l	no impact
Lead	1.32 ug/l	all water samples below 6.6 ug/l
Nickel	17.1 ug/l	all water samples below 85.5 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U". The field or DI water blanks exhibited contamination but had no impact on the data.

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Arsenic	-0.37 mg/kg	all soil samples below 3.7 mg/kg
Sodium	-19.7 mg/kg	no impact
Arsenic	-2.28 ug/l	all water samples
Chromium	-8.44 ug/l	all water samples
Potassium	-138. ug/l	all water samples below 1380 ug/l
Silver	-6.94 ug/l	all water samples
Sodium	-124. ug/l	no impact

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

Tha Matrix Spike recovery for soils for Antimony was below 30%. All non-detect results are rejected and all positive results are qualified as estimated, "J".

The Matrix Spike recoveries for soils for Lead and Silver were below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

The Matrix Spike recovery for soils for Selenium was above the upper control limits. All positive results are qualified as estimated, "J".

Duplicate Analysis

Specific Finding

The Duplicate analysis for Lead was outside the control limits. All positive results are qualified as estimated, "J". The field duplicate for Calcium was greater than 50%. All positive results are qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	040MZ42101	64
Antimony	040MZ42201	50
Antimony	040NZ42201	76
Antimony	040MZ42401	77
Antimony	041M5B0101	77
Antimony	041M5B0201	72
Antimony	041M642201	74
Antimony	041M642301	66

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 1.05 mg/kg	Ba.	+	U
all soil samples below 4.05 mg/kg	Cu.		
all soil samples below 1.1 mg/kg	Pb.		
all soil samples below 2.2 mg/kg	V.		
all soil samples below 2.65 mg/kg	Zn.		
all water samples below 145 ug/l	Al.		
all water samples below 6.6 ug/l	Pb.		
all water samples below 85.5 ug/l	Ni.		
all soils samples below 197 mg/kg	Na.	+/U	J/UJ
all water samples	As.		
all water samples	Cr.		
all water samples	Ag.		
all water samples below 1380 ug/l	K.		
all soil samples	Sb.	+	J
		U	R
all soil samples	Pb and Ag.	+/U	J/UJ
all soil samples	Se.	+	J
all soil samples	Pb.	+	J
040MZ42101, 42201, NZ42201, MZ42401, 041M5B0101, 201, 642201 and 301.	Sb.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	Z53301
Date:	March 12, 1996
Client Name:	Ensafe/Allen & Hoshall
Project/Site Name:	Pensacola
Date Sampled:	November 28, 1995
Number of Samples:	5 Aqueous Sample(s) with 0 MS/MSD(s) 9 Non-aqueous Sample(s) with 1 MS/MSD(s)
Laboratory:	CEIMIC Corporation
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	CLP Multimedia SOW
Analytical Fractions:	Low Concentration Volatiles, Volatiles, Low Concentration Semivolatiles, Semivolatiles, Pesticides w/PCB's, Metals w/Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user in urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Searfoss
for Eugene M. Watson, Vice President

3-13-96
Date

4127 Plaza 94 South St. Charles, MO 63304
(314) 936-1335 Fax (314) 936-1335

SDG# Z53301

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

Ensafe ID	Matrix	LVOA		VOA		LSV		SV		P/P		TAL/C	
040TM01701	WATER	X											
041W120101	WATER	X				X				X		X	
041EM00201	WATER	X				X				X		X	
041FM00201	WATER	X				X				X		X	
041TM00501	WATER	X											
040MZ53301	SOIL				X				X		X		X
040MZ53401	SOIL				X				X		X		X
040MZ53501	SOIL				X				X		X		X
040MZ53601	SOIL				X				X		X		X
040MZ53701	SOIL				X				X		X		X
040MZ53801	SOIL				X				X		X		X
041M10A101	SOIL				X				X		X		X
041M10A201	SOIL				X				X		X		X
041M120101	SOIL				X				X		X		X
Total Billable Samples (Water/Soil)		5	0	0	9	3	0	0	9	3	9	3	9

LVOA = CLP Low Volatiles
VOA = CLP Volatiles
LSV = CLP Low Semivolatiles
SV = CLP Semivolatiles
P/P = CLP Pesticide w/PCB's
TAL/CN = CLP Metals w/Cyanide

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP OLC01.0, 10/92 SOW; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # Z53301

A validation was performed on the Volatile Data from SDG Z53301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within continuing calibration criteria.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, FM505, contained compounds with RRFs less than 0.05. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and reject all non detects (R).

041W120101	acetone
	2-butanone

Method Blanks

Associated blank	Compound	Conc.	Action Level
VBLKFQ	acetone	5	50

Samples	Compound	Qualification
041W120101	acetone	U

Trip Blanks

Associated blank	Compound	Conc.	Action Level
041TM00501	methylene chloride	9	90
	acetone	10	100

Samples	Compound	Qualification
041W120101	methylene chloride	U

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041W120101	acetone 2-butanone	+/-	J/R
041W120101	acetone	+	U
041W120101	methylene chloride	+	U

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QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; the National Functional Guidelines for Organic Data Review, June 1991, and DQO Level IV. All comments made within this report should be considered when examining the analytical results.

SDG # Z53301

A validation was performed on the Volatile Data from SDG Z53301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Method Blank

Associated blank	Compound	Concentration	Action Level
VBLKCV	Methylene chloride	2J	20
VBLKCX	methylene chloride	4J	40
VBLKCY	methylene chloride	4J	40
VBLKHB	methylene chloride	970J	9700

Method Blank (continued)

Samples	Compound	Qualification
040MZ5350 040MZ53301 040MZ53401 040MZ53601 040MZ53701 040MZ53801 041M10A101 041M10A201	methylene chloride	U
041M120101	methylene chloride	CRQL

Trip Blank

Associated blank	Compound	Concentration	Action Level
040TM01701	acetone	5B	50
040TM00501	acetone	10B	100

Samples	Compound	Qualification
040MZ53301	acetone	CRQL
040MZ53501 040MZ53601 040M10A101	acetone	U

System Performance and Overall Assessment

The overall system performance was fair. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ5350	methylene chloride	+	U
040MZ53301			
040MZ53401			
040MZ53601			
040MZ53701			
040MZ53801			
041M10A101			
041M10A201			
041M120101	methylene chloride	+	CRQL
040MZ53301	acetone	+	CRQL
040MZ53501	acetone	+	U
040MZ53601			
040M10A101			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, OlC01.0 10/92; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # Z53301

A validation was performed on the Semivolatile Data from SDG Z53301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP 3/90; National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # Z53301

A validation was performed on the Semivolatile Data from SDG Z53301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
	• Blanks
*	• Surrogate Recoveries
*	• Laboratory Control Sample
*	• Field Duplicates
*	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds and RRFs that were not within %D and RRF continuing calibration criteria. Qualifications are required.

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF423, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041M120101	hexzchloropentadiene (54.4%)
040MZ53801	2,4-dinitrophenol (52.9%)
	4-nitroaniline (60.3%)
	3,3'-dichlorobenzidine (65.0%)

The continuing calibration, IF423, contained compounds with %Ds greater than 90% and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

041M120101	2,2'-oxybis(1-chloropropane) (113.9%)
040MZ53801	3-nitroaniline (95.6% and 0.018)

The continuing calibration, IF374, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040MZ53301	2,2'-oxybis(1-chloropropane) (83.2%)
040MZ53401	4-nitroaniline (53.6%)
040MZ53501	butylbenzylphthalate (54.4%)
040MZ53601	3,3'-dichlorobenzidene (67.0%)
040MZ53701	bis(2-ethylhexyl)phthalate (68.9%)
041M10A101	
041M10A201	

Continuing calibrations (continued)

Specific Finding:

The continuing calibration, IF374, contained compounds with %Ds greater than 90% and RRF less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (R).

040MZ53301	3-nitroaniline (95.6% and 0.018)
040MZ53401	
040MZ53501	
040MZ53601	
040MZ53701	
041M10A101	
041M10A201	

Method Blanks

Associated blank	Compound	Concentration	Action Level
SBLKIG	bis(2ethylhexyl)phthalate	17J	170
	Di-n-octylphthalate	25J	250

Samples	Compound	Qualification
041M10A101	bis(2ethylhexyl)phthalate	CRQL
041M10A201		
040MZ53301		
040MZ53401		
040MZ53501		
040MZ53601		
040MZ53701		
040MZ53801		
041M10A101	Di-n-octylphthalate	CRQL
040MZ53801		

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M120101 040MZ53801	hexzchloropentadiene (54.4%) 2,4-dinitrophenol (52.9%) 4-nitroaniline (60.3%) 3,3'-dichlorobenzidine (65.0%)	+/-	J/UJ
041M120101 040MZ53801	2,2'-oxybis(1-chloropropane) 3-nitroaniline (95.6% and 0.018)	+/-	J/R
040MZ53301 040MZ53401 040MZ53501 040MZ53601 040MZ53701 041M10A101 041M10A201	2,2'-oxybis(1-chloropropane) 4-nitroaniline (53.6%) butylbenzylphthalate (54.4%) 3,3'-dichlorobenzidene (67.0%) bis(2-ethylhexyl)phthalate (68.9%)	+/-	J/UJ
040MZ53301 040MZ53401 040MZ53501 040MZ53601 040MZ53701 041M10A101 041M10A201	3-nitroaniline (95.6% and 0.018)	+/-	J/R
041M10A101 041M10A201 040MZ53301 040MZ53401 040MZ53501 040MZ53601 040MZ53701 040MZ53801	bis(2ethylhexyl)phthalate	+	CRQL
041M10A101 040MZ53801	Di-n-octylphthalate	+	CRQL

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.9 Method; the National Functional Guidelines for Organic Data Validation, June 1991; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z53301

A validation was performed on the Pesticide/Aroclor Data from SDG Z53301. The data was evaluated based on the following parameters:

*	• Data Completeness
	• Holding Times
	• GC Performance
*	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• GPC and Florisil Clean-up Procedures
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

The analysis holding times were exceeded for many samples.

Holding Times, Continued

Specific Findings

The following samples exceeded the analysis holding time by two (2) to three (3) days. It is the professional opinion of the data validator that the positive results should be qualified as estimated, J.

040MZ53501
040MZ53601
040MZ53801
041M10A101
041M10A201
041M120101
041M120101DL

GC Instrument Performance

Several PEM RPDs were above the QC limit.

Specific Findings

PEM1D (1/10/96 22:22) exhibited a RPD greater than 25%. For the following samples and non-compliant compound, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

040MZ53301	4,4'-DDT
040MZ53401	
040MZ53501	
040MZ53601	
040MZ53701	
041M120101DL	
041W120101	
041EM00201	
041FM00201	
040MZ53801	
041M10A201	
041M120101	
041M10A101	

GC Instrument Performance, Continued

Specific Findings, Continued

PEM1E (1/11/96 23:01) exhibited a RPD greater than 25%. For the following samples and non-compliant compound, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

040MZ53801	4,4'-DDT
041M10A201	
041M120101	
041M10A101	

Surrogate Recoveries

Several samples exhibited non-compliant TCX and/or DCB recoveries.

Specific Finding

The sample listed below exhibited a low TCX recovery. The positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

Sample ID	Surrogate	% Recovery
040MZ53801	TCX-1	26%

The sample listed below exhibited a high DCB recovery. The positive results are qualified as estimated, J.

Sample ID	Surrogate	% Recovery
041M120101	DCB-2	160%

Analyte Identification/Quantitation

One (1) sample required dilution to accurately quantitate target compounds. Several samples exhibited column quantitation %Ds greater than 25%.

Specific Findings

For the following sample and compound, the results from the original analysis are replaced with the corresponding results from the dilution analysis. All other results from the dilution are rejected, UR, in favor of the results reported from the undiluted analysis.

041M120101 Endrin Ketone

The positive results reported in all samples which exhibit column quantitation differences greater than 25% are qualified as estimated, J.

System Performance and Overall Assessment

Overall performance was acceptable. The data reviewer estimates less than 30% of the data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
040MZ53501	ALL	+	J
040MZ53601			
040MZ53801			
041M10A101			
041M10A201			
041M120101			
041M120101DL			
040MZ53301	4,4'-DDT	+/-	J/UJ
040MZ53401			
040MZ53501			
040MZ53601			
040MZ53701			
041M120101DL			
041W120101			
041EM00201			
041FM00201			
040MZ53801			
041M10A201			
041M120101			
041M10A101			
040MZ53801	4,4'-DDT	+/-	J/UJ
041M10A201			
041M120101			
041M10A101			
040MZ53801	ALL	+/-	J/UJ
041M120101	ALL	+	J
041M120101	Endrin Ketone	+	D
041M120101DL	ALL OTHERS	+/-	UR
ALL	ALL P >25%	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # Z53301

A validation was performed on the Metals Data from SDG Z53301. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recovery
	• Matrix Duplicates
*	• Field Duplicates
*	• Laboratory Control Samples
*	• Serial Dilutions
	• MSAs

* - All criteria were met for this parameter.

Preparation and Field Blanks

Specific Finding

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Antimony	0.20 mg/kg	all soil samples below 1.0 mg/kg
Calcium	14.5 mg/kg	no impact
Iron	1.53 mg/kg	no impact
Lead	0.14 mg/kg	all soil samples below 0.70 mg/kg

Antimony	3.37 ug/l	all water samples below 33.7 ug/l
Iron	20.9 ug/l	no impact

The field QC blanks exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	81.0 ug/l	all water samples below 405 ug/l
Barium	4.7 ug/l	all water samples below 23.5 ug/l
Zinc	12.2 ug/l	all water samples below 61.0 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U".

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Manganese	-0.19 mg/kg	all soil samples below 1.9 mg/kg
Sodium	-32.1 mg/kg	all soil samples below 321 mg/kg
Thallium	-0.33 mg/kg	all soil samples below 3.3 mg/kg
Zinc	-0.36 mg/kg	all soil samples below 3.6 mg/kg
Barium	-2.07 ug/l	all water samples below 20.7 ug/l
Copper	-5.08 ug/l	all water samples below 50.8 ug/l
Potassium	-275 ug/l	all water samples below 2750 ug/l
Sodium	-98.4 ug/l	all water samples below 984 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

Specific Finding

The Matrix Spike recoveries for soils for Antimony (58%) and Silver (59%) were below the lower control limits All positive and non-detect results are qualified as estimated, "J" or "UJ".

Duplicate Analysis

Specific Finding

The duplicate analysis for soils for Calcium was above 35% and will be qualified as estimated, "J".

MSAs

Specific Finding

The post digestion spike recovery for GFAA was below the lower control limits. All positive and non-detect results for the listed samples below are qualified as estimated, "J" or "UJ".

Element	Sample IDs	% recoveries
Antimony	041W120101	77
Antimony	040MZ53501	65
Antimony	040MZ53601	75
Antimony	040MZ53701	62
Antimony	040MZ53801	81

The post digestion spike recovery for GFAA was above the upper control limits. All positive results for the listed samples below are qualified as estimated, "J".

Element	Sample IDs	% recoveries
Antimony	041FM00201	118
Antimony	041M10A201	138

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples below 1.00 mg/kg	Sb.	+	U
all soil samples below 0.7 mg/kg	Pb.		
all water samples below 16.9mg/kg	Sb.		
all water samples below 23.5 mg/kg	Ba.		
all water samples below 405 mg/kg	Al.		
all water samples below 61.0 mg/kg	Zn.		
all soil samples below 1.9 mg/kg	Mn.	+/U	J/UJ
all soil samples below 321 mg/kg	Na.		
all soil samples below 3.3 mg/kg	Tl.		
all soil samples below 3.6 mg/kg	Zn.		
all water samples below 20.7 ug/l	Ba.		
all water samples below 50.8 ug/l	Cu.		
allsoil samples	Sb and Ag.	+/U	J/UJ
all soil samples	Ca.	+	J
041W120101, 040MZ53501, 040MZ53601, 040MZ53701 and 040MZ53801.	Sb.	+/U	J/UJ
040FM00201 and 041M10A201.	Sb.	+	J
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

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Data Validation Report

SDG#:	PEN11
Date:	October 8, 1997
Client Name:	EnSafe
Project/Site Name:	Pensacola, Sites 40 & 41
Date Sampled:	August 26-September 3, 1997
Number of Samples:	12 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Semivolatiles, Pesticide/PCB's, Metals, Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scarfone
for Paul B. Humburg, President

10-10-97
Date

MO 6330-
1035

SDG# PEN11

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

ENSAFE ID	MATRIX	VOA		SVOA		P/P		TAL/CN	
040W2B0701	WATER	X		X		X		X	
040W2B0901	WATER	X		X		X		X	
041W030101	WATER	X		X		X		X	
041W330101	WATER	X		X		X		X	
041W330201	WATER	X		X		X		X	
041W5A0401	WATER	X		X		X		X	
041W5A0501	WATER	X		X		X		X	
041W5A0601	WATER	X		X		X		X	
041R5A0601	WATER	X		X		X		X	
041W750101	WATER	X		X		X		X	
041T082697	WATER	X							
041T082797	WATER	X							
Total Billable Samples (Water/Soil)		12	0	10	0	10	0	10	0

VOA = Volatiles
SV = Semivolatiles
P/P = Pesticide/PCB's
TAL/CN = Metals w/Cyanide

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8240; the National Functional Guidelines for Organic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN11

A validation was performed on the Volatile Data from SDG PEN11. The data was evaluated based on the following parameters:

*	Data Completeness
*	Holding Times
*	GC/MS Tuning
*	Calibration
	Blanks
*	Surrogate Recoveries
*	Matrix Spike/Matrix Spike Duplicates
*	Field Duplicates
*	Internal Standard Performance
*	Compound Identification
*	Compound Quantitation

* - All criteria were met for this parameter.

Field QC Blanks

The trip and rinseate blanks associated with these samples exhibited contamination. The samples required qualification. The end-user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X or 10X criteria to field samples

Field QC Blanks, continued

Associated Blanks	Compound	Conc.	Action Level
040TW09047	carbon disulfide	0.46 µg/L	4.6 µg/L
041E082897	carbon disulfide	0.90 µg/L	9.0 µg/L

Samples	Compound	Qualification
041W330101	carbon disulfide	CRQL
041W5A0401		
041W5A0601		

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041W330101	carbon disulfide	+	CRQL
041W5A0401			
041W5A0601			

DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846 8270; the National Functional Guidelines for Organic Data Review, February 1994; and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # PEN11

A validation was performed on the Semivolatile Data from SDG PEN11. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
* Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Field Duplicates
* Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing Calibrations

The continuing calibrations were acceptable for all average RRFs. All %Ds were not within continuing calibration criteria. Qualifications are required.

Continuing Calibrations (continued)

The continuing calibration, JQ750, contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

041W030101	2,4-dinitrophenol (64.1%)
041W5A0401	4,6-dinitro-2-methylphenol (58.8%)
041W5A0501	
041W5A0601	
041R5A0601	
041W750101	
041W330101	
041W330201	

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041W030101	2,4-dinitrophenol	+/-	J/UJ
041W5A0401	4,6-dinitro-2-methylphenol		
041W5A0501			
041W5A0601			
041R5A0601			
041W750101			
041W330101			
041W330201			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8080; the National Functional Guidelines for Organic Data Validation, February 1994; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN11

A validation was performed on the Pesticide/Aroclor Data from SDG PEN11. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Contractual Non-Compliance

The method requires that all target compounds, including the multi-component compounds, be analyzed with a five (5) point calibration curve. The laboratory analyzed a single point curve for the Aroclors 1221, 1232, 1242, 1248 and 1254. No positive results were reported for the compounds analyzed with a single point calibration, therefore the data did not require qualification.

Method Blanks

One (1) associated method blank exhibited contamination for target compounds and required qualifications. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moistures as associated samples. These factors must be taken into consideration when applying the 5X criteria to field samples. The method blank results were compared to the associated samples.

Blank ID	Compound	Concentration	Action Level
08290-MMB	4,4'-DDD	0.0035 JP µg/L	0.0175 µg/L

The following samples have been qualified for method blank contamination. The qualifications are for all the blanks.

Sample	Compound	Qualification
041W5A0501 041R5A0601 041W750101	4,4'-DDD	CRQL

QC Blanks

The associated QC blank exhibited contamination for target compounds and required qualifications. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moistures as associated samples. These factors must be taken into consideration when applying the 5X criteria to field samples. The QC blank results were compared to the associated samples.

Blank ID	Compound	Concentration	Action Level
041E082897	Heptachlor	0.0020 JBP µg/L	0.01 µg/L

The following sample has been qualified for QC blank contamination. The qualifications are for all the blanks.

Sample	Compound	Qualification
041R5A0601	Heptachlor	CRQL

Surrogate Recoveries

The sample listed below exhibited a DCB recovery less than 10%. The positive results are qualified as estimated, J, and the non-detect results are rejected, UR.

Sample ID	Surrogate	% Recovery
041W750101	DCB-2	6%

Compound Identification/Quantitation

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U. (All multi-component results are exempt from this rule.)

4. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ. (All multi-component results are exempt from this rule.)

5. The positive multi-component pesticide sample result which exhibited a column quantitation difference >100% and <10X the respective multi-component CRQL is qualified as presumptively present at an estimated concentration, NJ.

Compound Identification/Quantitation, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041W5A0501	Beta-BHC	222.6%	P	U	3
	Gamma-BHC	134.0%	P	U	3
	Dieldrin	117.8%	P	U	3
	4,4'-DDD	233.3%	P	U	3
041W5A0601	Gamma-Chlordane	269.9%	P	U	3
041R5A0601	Alpha-BHC	154.2%	P	U	3
	4,4'-DDD	284.6%	P	U	3
041W750101	Dieldrin	87.1%	P	J	2
	4,4'-DDE	137.9%	P	U	3
	4,4'-DDD	83.9%	P	J	2
041W330101	Dieldrin	30.0%	P		1
040W2B0901	Delta-BHC	111.5%	P	U	3
040W2B0701	Delta-BHC	93.5%	P	J	2
	Gamma-BHC	230.0	P	U	3

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041W5A0501 041R5A0601 041W750101	4,4'-DDD	+	CRQL
041R5A0601	Heptachlor	+	CRQL
041W750101	ALL	+/-	J/UR
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	single component pests All P > 100% And < 10X CRQL	+	U
ALL	single component pests All P > 100% And > 10X CRQL	+	NJ
ALL	multi-component pests All P> 100% And < 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN11

A validation was performed on the Metals and Cyanide Data from SDG PEN11. The data was evaluated based on the following parameters.

*	Data Completeness
*	Holding Times
*	Calibrations
	Blanks
*	Interferences
*	Matrix Spike Recovery
*	Matrix Duplicates
*	Field Duplicates
*	Laboratory Control Samples
*	Serial Dilutions
	Post Digestion Spiking

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Beryllium	0.20 ug/l	all water samples below 1.0 ug/l
Lead	1.2 ug/l	all water samples below 6.0 ug/l
Mercury	0.06 ug/l	all water samples 0.3 ug/l

The calibration blanks exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Barium	0.8 ug/l	no impact
Chromium	1.1 ug/l	all water samples below 5.5 ug/l
Manganese	0.9 ug/l	all water samples below 4.5 ug/l
Nickel	2.1 ug/l	all water samples below 10.5 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U".

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Arsenic	-5.38 ug/l	all water samples below 53.8 ug/l
Chromium	-0.9 ug/l	all water samples below 9.0 ug/l
Cobalt	-1.17 ug/l	all water samples below 11.7 ug/l
Iron	-20.6 ug/l	all water samples below 206 ug/l
Vanadium	-1.99 ug/l	all water samples below 19.9 ug/l
Cyanide	-4.56 ug/l	all water samples below 45.6 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Post Digestion Spiking results

The post digestion spiking for the following samples were below the lower control limits (>10% but <85%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

Analytes	Sample IDs	Recovery
Silver	040W2B0701	60
Silver	040W2B0901	59
Silver	041W330101	80
Thallium	040W2B0701	47
Thallium	040W2B0901	40
Thallium	041W330101	64

"B" qualifier

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All water samples below 1.0 ug/l	Be.	+	U
All water samples below 5.5 ug/l	Cr.		
All water samples below 6.0 ug/l	Pb.		
All water samples below 4.5 ug/l	Mn.		
All water samples below 0.3 ug/l	Hg.		
All water samples below 10.5 ug/l	Ni.		
All water samples below 53.8 ug/l	As.	+/U	J/UJ
All water samples below 9.0 ug/l	Cr.		
All water samples below 11.7 ug/l	Co.		
All water samples below 206 ug/l	Fe.		
All water samples below 19.9 ug/l	V.		
All water samples below 45.6 ug/l	Cn.		
040W2B0701, 040W2B0901 and 041W330101.	Ag and Tl.	+/U	J/UJ
All "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PEN12
Date:	October 14, 1997
Client Name:	EnSafe
Project/Site Name:	Pensacola - Sites 40 & 41
Date Sampled:	August 27-September 3, 1997
Number of Samples:	4 Aqueous Sample(s) with 0 MS/MSD(s) 20 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Semivolatiles, Pesticide/PCB's, Metals, Cyanide, Total Organic Carbons

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

for Paul B. Humburg, President — Kimberly S. Shopp — 14 October 1997 — Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1332 · Fax (314) 936-1335

SDG# PEN12

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

ENSAFE ID	MATRIX	VOA		SVOA		P/P		TAL		CN		TOC	
040T082997	WATER	X											
040M2B0101	SOIL		X		X		X		X		X		X
040M2B0201	SOIL		X		X		X		X		X		X
040M2B0301	SOIL		X		X		X		X		X		X
040M2B0401	SOIL		X		X		X		X		X		X
040M2B0501	SOIL		X		X		X		X		X		X
040M2B0601	SOIL		X		X		X		X		X		X
040M2B0701	SOIL		X										
040M2B0901	SOIL		X										
040M2B1001	SOIL		X										
040TW09037	WATER	X											
041M030201	SOIL		X		X		X		X		X		X
041M030701	SOIL		X		X		X		X		X		X
041E082897	WATER	X		X		X		X		X			
041T082897	WATER	X											
041M18B101	SOIL		X		X		X		X		X		X
041M330101	SOIL		X		X		X		X		X		X
041M330201	SOIL		X		X		X		X		X		X
041M5A0401	SOIL		X		X		X		X		X		X
041M5A0501	SOIL		X		X		X		X		X		X
041M5A0601	SOIL		X		X		X		X		X		X
041M640601	SOIL		X										
041M750101	SOIL		X		X		X		X		X		X
041N750101	SOIL		X		X		X		X		X		X
Total Billable Samples	(Water/Soil)	4	20	1	16	1	16	1	16	1	16	0	16

VOA = Volatiles
SV = Semivolatiles
P/P = Pesticide/PCB's
TAL = Metals
CN = Cyanide
TOC = Total Organic Carbons

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results. surrogate and matrix spike recoveries. GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846, Method 8240; the National Functional Guidelines for Organic Data Review, February 1994, and DQO Level III. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # PEN12

A validation was performed on the Volatile Data from SDG PEN12. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

The continuing calibration, MQ306, contained compounds with %Ds greater than 25% D but less than 50% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J).

041M030201RE acetone (28.0)

Compound Identification/Quantitation

Specific Finding:

Do not use results for the samples listed below, in favor of the re-analyzed sample results due to non compliant surrogate recoveries and/or non compliant internal standard areas.

041M030201
041M330101

Do not use results for the re-analyzed samples listed below, due to non compliant internal standard areas.

041M5A601RE
041M640601RE
041N750101RE
040M2B0501RE
040M2B0601RE
040M2B0201RE

System Performance and Overall Assessment

The laboratory did not encounter any large problems. The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D= result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M030201RE	acetone (28.0)	+	J
041M030201 041M330101	All results	+/-	Do not use
041M5A601RE 041M640601RE 041N750101RE 040M2B0501RE 040M2B0601RE 040M2B0201RE	All results	+/-	Do not use

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846 8270; the National Functional Guidelines for Organic Data Review, February 1994, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # PEN12

A validation was performed on the Semivolatile Data from SDG PEN12. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
* Calibrations
* Internal Standard Performance
* Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Field Duplicates
* Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The data as presented requires no qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8080; the National Functional Guidelines for Organic Data Validation, February 1994; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN12

A validation was performed on the Pesticide/Aroclor Data from SDG PEN12. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Contractual Non-Compliance

The method requires that all target compounds, including the multi-component compounds, be analyzed with a five (5) point calibration curve. The laboratory analyzed a single point curve for the Aroclors 1221, 1232, 1242, 1248, and 1254. No positive results were reported for the compounds analyzed with a single point calibration, therefore the data did not require qualification.

Compound Identification/Quantitation

Two (2) samples required dilution to accurately quantitate target compounds. For the following samples, the E flagged results are replaced with the corresponding results from the dilution analysis. All other results from the dilution are not used in favor of the results reported from the original analysis.

041M18B101
041M5A0401

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U. (All multi-component results are exempt from this rule.)

4. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ. (All multi-component results are exempt from this rule.)

5. The positive multi-component pesticide sample result which exhibited a column quantitation difference >100% and <10X the respective multi-component CRQL is qualified as presumptively present at an estimated concentration, NJ.

Compound Identification/Quantitation, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M330201	Gamma-BHC	45.4%	P	J	2
	Dieldrin	2197%	P	U	3
	Methoxychlor	3700%	P	U	3
041M030201	Gamma-BHC	666.0%	P	U	3
	Methoxychlor	1150%	P	U	3
041M030701	Dieldrin	1998%	P	U	3
	Endosulfan Sulfate	52.8%	P	J	2
	Gamma-Chlordane	75.7%	P	J	2
041M5A0401	Gamma-BHC	83.3%	P	J	2
	Dieldrin	762.1%	P	U	3
	Endrin	146.4%	P	U	3
	Endosulfan Sulfate	56.5%	P	J	2
	Methoxychlor	990.9%	P	U	3
	Endrin Aldehyde	364.3%	P	U	3
	Gamma-Chlordane	77.2%	P	J	2
041M5A0501	Endrin	158.3%	P	U	3
041M5A0601	Endosulfan I	120.0%	P	U	3
	Dieldrin	64.3%	P	J	2
	Endrin	36.4%	P		1
	Endosulfan Sulfate	50.0%	P	J	2
	Methoxychlor	1385%	P	U	3
	Alpha-Chlordane	115.4%	P	U	3
	Gamma-Chlordane	828.6%	P	U	3

Compound Identification/Quantitation, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M750101	Gamma-BHC	32.0%	P		1
	Dieldrin	1040%	P	U	3
	4,4'-DDT	70.0%	P	J	2
	Methoxychlor	386.5%	P	U	3
	Endrin Aldehyde	793.6%	P	U	3
	Gamma-Chlordane	300.0%	P	U	3
041N750101	Dieldrin	596.4%	P	U	3
	4,4'-DDT	100.0%	P	J	2
	Methoxychlor	633.3%	P	U	3
	Gamma-Chlordane	217.1%	P	U	3
040M2B0201	Gamma-BHC	34.1%	P		1
	Endrin	74.6%	P	J	2
	Endrin Aldehyde	309.1%	p	U	3
041M18B101	4,4'-DDE	49.2%	P	J	2
040M2B0501	Endrin	48.6%	P	J	2
	Endrin Ketone	114.3%	P	U	3
	Endrin Aldehyde	420.8%	P	U	3
040M2B0601	Gamma-BHC	152.9%	P	U	3
	Dieldrin	670.3%	P	U	3
	4,4'-DDT	81.8%	p	J	2

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041M18B101 041M5A0401	All E flagged	+E	D
041M18B101DL 041M5A0401DL	All except corresponding D flagged results	+/-	Not Used
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	single component pests All P > 100% And < 10X CRQL	+	U
ALL	single component pests All P > 100% And > 10X CRQL	+	NJ
ALL	multi-component pests All P> 100% And < 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS, CYANIDE AND TOC

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 6010, 7000, 9012, and 9060; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN12

A validation was performed on the Metals, Cyanide and TOC data from SDG PEN12. The data was evaluated based on the following parameters.

*	Data Completeness
*	Holding Times
*	Calibrations
	Blanks
*	Interferences
	Matrix Spike Recovery
*	Matrix Duplicates
*	Field Duplicates
*	Laboratory Control Samples
*	Serial Dilutions
*	Post Digestion Spiking

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples Affected
Mercury	0.005 mg/Kg	All soil samples ≤ 0.025 mg/Kg
Potassium	3.426 mg/Kg	All soil samples ≤ 17.3 mg/Kg

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U".

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples Affected
Arsenic	-0.479 mg/Kg	All samples ≤ 4.79 mg/Kg
Cadmium	-0.049 mg/Kg	All samples ≤ 0.49 mg/Kg
Cobalt	-0.165 mg/Kg	All samples ≤ 1.65 mg/Kg
Silver	-0.221 mg/Kg	All samples ≤ 2.21 mg/Kg

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

The equipment rinseate blank 041E082897 exhibited contamination for some target analytes. However, there was no impact on the analytical data because of this contamination.

Matrix Spike Recoveries

The matrix spike recoveries for soils for Antimony (71.3%) and Cyanide (40.6%) were below the lower control limits (>30% but ≤75%). All positive and non-detect results for these analytes are qualified as estimated, "J" or "UJ".

"B" Qualifier

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples ≤ 0.025 mg/Kg	Hg	+	U
All soil samples ≤ 17.3 mg/Kg	K	+	U
All soil samples ≤ 4.79 mg/Kg	As	+/-	J/UJ
All soil samples ≤ 0.49 mg/Kg	Cd	+/-	J/UJ
All samples ≤ 1.65 mg/Kg	Co	+/-	J/UJ
All samples ≤ 2.21 mg/Kg	Ag	+/-	J/UJ
All soil samples	Sb, CN	+/-	J/UJ
All soil samples	All	+ "B"	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PEN13
Date:	October 14, 1997
Client Name:	EnSafe
Project/Site Name:	Pensacola - Sites 40 & 41
Date Sampled:	September 3-8, 1997
Number of Samples:	11 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Semivolatiles, Pesticide/PCB's, Metals, Cyanide, Total Organic Carbons

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

for Kimberly S. Hopp — 14 October 1997

Paul B. Humburg, President — Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1335 · Fax (314) 936-1335

SDG# PEN13

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

ENSAFE ID	MATRIX	VOA		SVOA		P/P		TAL		CN		TOC	
040M2B0701	SOIL				X		X		X				X
040M2B0801	SOIL		X		X		X		X				X
040M2B0901	SOIL				X		X		X		X		X
040M2B1001	SOIL				X		X		X				X
040SR10910	SOIL								X				
040SR20920	SOIL								X				
040SR30930	SOIL								X				
041M160301	SOIL		X		X		X		X				X
041M640401	SOIL		X		X		X		X				X
041M640501	SOIL		X		X		X		X				X
041M640601	SOIL				X		X		X				X
Total Billable Samples (Water/Soil)		0	4	0	8	0	8	0	11	0	1	0	8

VOA = Volatiles
SV = Semivolatiles
P/P = Pesticide/PCB's
TAL = Metals
CN = Cyanide
TOC = Total Organic Carbons

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846, Method 8240; the National Functional Guidelines for Organic Data Review, February 1994, and DQO Level III. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG # PEN13

A validation was performed on the Volatile Data from SDG PEN13. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
	• Calibrations
*	• Internal Standard Performance
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate
*	• Field Duplicates
	• Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Continuing calibrations (continued)

The continuing calibration, MQ349, contained compounds with %Ds greater than 25% D but less than 50% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J).

041M640401	acetone (25.8)
041M640501RE	

Compound Identification/Quantitation

Specific Finding:

Do not use results for the sample 041M640501, in favor of the re-analyzed sample results due to non compliant internal standard areas.

System Performance and Overall Assessment

The laboratory did not encounter any large problems. The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

D= result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
041M640401 041M640501RE	acetone (25.8)	+	J
041M640501	All results	+/-	Do not use

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis. results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846 8270; the National Functional Guidelines for Organic Data Review, February 1994, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # PEN13

A validation was performed on the Semivolatile Data from SDG PEN13. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
  Internal Standard Performance
* Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Field Duplicates
  Compound Identification /Quantitation

* - All criteria were met for this parameter

Continuing Calibrations

The continuing calibrations were acceptable for all average RRFs. All %Ds were not within continuing calibration criteria. Qualifications are required.

Continuing Calibration (continued)

The continuing calibration, GQ569, contained compounds with %Ds greater than 25% but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

040M2B0801	pyrene (25.8%)
041M640401	
041M640501	
041M640601	

The continuing calibration, GQ569, contained compounds with %Ds greater than 25% but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

041M640401	carbazole (27.8%)
041M640501	
041M640601	

The continuing calibration, JQ766, contained compounds with %Ds greater than 25% but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

040M2B0701	pyrene (40.2%)

The continuing calibration, JQ766, contained compounds with %Ds greater than 50% but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

040M2B0701	2,2'-oxybis(1-chloropropene) (68.8%)
040M2B1001	3,3'-dichlorobenzidine (65.3%)
041M160301	

Internal Standards

All internal standard EICP areas did not meet the internal standard EICP area QA/QC criteria. Qualifications are required.

Internal Standards (continued)

The following samples exhibited low internal standard area for the internal standard listed. Qualify associated positive results as estimated (J) and non detects as estimated (UJ).

041M640501	perylene-d_{12}
041M640401	

Compound Identification/Quantitation

Do not use samples 041M640501RE and 041M640401RE, in favor of the initial analysis, due to non compliant internal standard area recoveries.

System Performance and Overall Assessment

The data as presented requires qualifications.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
040M2B0801 041M640401 041M640501 041M640601	pyrene	+	J
041M640401 041M640501 041M640601	carbazole	+	J
040M2B0701	pyrene	+	J
040M2B0701 040M2B1001 041M160301	bis(2-chloroisopropyl)ether 3,3'-dichlorobenzidine	+/-	J/UJ
041M640501 041M640401	All associated compounds perylene-d_{12}	+/-	J/UJ
041M640501RE 041M640401RE	all compounds	+/-	do not use

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
– in the DL column denotes a positive result
- in the DL column denotes a non detect result

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
040M2B0801 041M640401 041M640501 041M640601	pyrene	+	J
041M640401 041M640501 041M640601	carbazole	+	J
040M2B0701	pyrene	+	J
040M2B0701 040M2B1001 041M160301	bis(2-chloroisopropyl)ether 3,3'-dichlorobenzidine	+/-	J/UJ
041M640501 041M640401	All associated compounds perylene-d_{12}	+/-	J/UJ
041M640501RE 041M640401RE	all compounds	+/-	do not use

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8080; the National Functional Guidelines for Organic Data Validation, February 1994; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN13

A validation was performed on the Pesticide/Aroclor Data from SDG PEN13. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
*	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Contractual Non-Compliance

The method requires that all target compounds, including the multi-component compounds, be analyzed with a five (5) point calibration curve. The laboratory analyzed a single point curve for the Aroclors 1221, 1232, 1242, 1248, and 1254. No positive results were reported for the compounds analyzed with a single point calibration, therefore the data did not require qualification.

Compound Identification/Quantitation

Several target compounds were not confirmed due to coelution of matrix interferences and flagged X by the laboratory. The sample concentrations were too low for GC/MS confirmation. It is the profession opinion of the data reviewer that these results be considered presumptively present at an estimated concentration. For the following samples and compounds, the positive results which did not meet the confirmation criteria should be considered presumptively present and are qualified as estimated, NJ.

041M640401	Delta-BHC
041M640601	

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U. (All multi-component results are exempt from this rule.)

4. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ. (All multi-component results are exempt from this rule.)

5. The positive multi-component pesticide sample result which exhibited a column quantitation difference >100% and <10X the respective multi-component CRQL is qualified as presumptively present at an estimated concentration, NJ.

Compound Identification/Quantitation, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M640601	Gamma-BHC	1689.5%	P	U	3
	Aldrin	605.9%	P	U	3
	Heptachlor Epoxide	50920%	P	U	3
	Endosulfan I	76.9%	P	J	2
	Dieldrin	27.3%	P		1
	4,4'-DDT	31.6%	P		1
	Alpha-Chlordane	116.7%	P	U	3
	Gamma-Chlordane	144.4%	P	U	3
040M2B0701	4,4'-DDE	139.1%	P	U	3
041M640501	Aldrin	2207.7%	P	U	3
	Heptachlor Epoxide	499.0%	P	U	3
	Endosulfan I	237.2%	P	U	3
	4,4'-DDT	120.8%	P	U	3
	Gamma-Chlordane	185.7%	P	U	3
041M640401	Aldrin	1207.7%	P	U	3
	Endosulfan I	50.0%	P	J	2
	4,4'-DDT	72.2%	P	J	2
	Alpha-Chlordane	94.6%	P	J	2
	Gamma-Chlordane	1275.0%	P	U	3
	Aroclor-1260	26.7%	P		1
040M2B0801	Dieldrin	38.5%	P		1

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041M640401 041M640601	Delta-BHC	+	NJ
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	single component pests All P > 100% And < 10X CRQL	+	U
ALL	single component pests All P > 100% And > 10X CRQL	+	NJ
ALL	multi-component pests All P> 100% And < 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS, CYANIDE AND TOC

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 6010, 7000, 9012, and 9060; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN13

A validation was performed on the Metals, Cyanide and TOC data from SDG PEN13. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
*	• Matrix Spike Recovery
*	• Matrix Duplicates
*	• Field Duplicates
*	• Laboratory Control Samples
	• Serial Dilutions
*	• Post Digestion Spiking

* - All criteria were met for this parameter

Preparation and Field Blanks

The preparation blank exhibited contamination for the following elements.

Elements	Conc.	Samples Affected
Mercury	0.002 mg/Kg	All soil samples ≤ 0.010 mg/Kg
Sodium	6.636 mg/Kg	No Impact
Zinc	0.518 mg/Kg	All soil samples ≤ 2.59 mg/Kg

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U".

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples Affected
Silver	-0.180 mg/Kg	All samples ≤ 1.80 mg/Kg
Thallium	-0.472 mg/Kg	All samples ≤ 4.72 mg/Kg

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

The equipment rinseate blank 041E082897 exhibited contamination for some target analytes. However there was no impact on the analytical data because of this contamination.

Serial Dilution Results

The serial dilution for Aluminum was outside the control limits of 10% (42.1%). All positive results are qualified as estimated, "J".

"B" Qualifier

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All soil samples ≤ 0.010mg/kg	Hg	+	U
All soil samples ≤ 2.59mg/kg	Zn	+	U
All soil samples ≤ 1.80mg/kg	Ag	+/-	J/UJ
All soil samples ≤ 4.72mg/kg	Tl	+/-	J/UJ
All soil samples	Al	+	J
All soil samples	All	+ "B"	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PEN14
Date:	October 8, 1997
Client Name:	EnSafe
Project/Site Name:	Pensacola, Sites 40 & 41
Date Sampled:	September 4, 1997
Number of Samples:	5 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Semivolatiles, Pesticide/PCB's, Metals, Cyanide

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Searcy — 10/10/97

Paul B. Humburg, President — Date

4127 Plaza 94 South · St. Charles, MO 63304
(314) 936-1332 · Fax (314) 936-1335

SDG# PEN14

Samples and Fractions Reviewed

Sample Identifications — Analytical Fractions

ENSAFE ID	MATRIX	VOA		SVOA		P/P		TAL/CN	
040W2B0101	WATER	X		X		X		X	
040TW09047	WATER	X							
041W640101	WATER	X		X		X		X	
041W640501	WATER	X		X		X		X	
041R640501	WATER	X		X		X		X	
Total Billable Samples (Water/Soil)		5	0	4	0	4	0	4	0

VOA = Volatiles
SV = Semivolatiles
P/P = Pesticide/PCB's
TAL/CN = Metals w/Cyanide

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8240; the National Functional Guidelines for Organic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN14

A validation was performed on the Volatile Data from SDG PEN14. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibration
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
*	• Internal Standard Performance
*	• Compound Identification
*	• Compound Quantitation

* - All criteria were met for this parameter.

Field QC Blanks

The trip and rinseate blanks associated with these samples exhibited contamination. The samples required qualification. The end-user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X or 10X criteria to field samples.

Field QC Blanks, continued

Associated Blanks	Compound	Conc.	Action Level
040TW09047	carbon disulfide	0.46 µg/L	4.6 µg/L
041E082897	carbon disulfide	0.90 µg/L	9.0 µg/L

Samples	Compound	Qualification
040W2B0101	carbon disulfide	CRQL
041W640101		
041W640501		
041R640501		

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
040W2B0101	carbon disulfide	+	CRQL
041W640101			
041W640501			
041R640501			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results. surrogate and matrix spike recoveries. GC/MS performance. tuning results. calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846 8270; the National Functional Guidelines for Organic Data Review, February 1994; and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # PEN14

A validation was performed on the Semivolatile Data from SDG PEN14. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
* Calibrations
* Internal Standard Performance
* Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Field Duplicates
* Compound Identification /Quantitation

* - All criteria were met for this parameter

System Performance and Overall Assessment

The data as presented requires no qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL

No qualifications are required.

* DL denotes the Form 1 qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8080; the National Functional Guidelines for Organic Data Validation, February 1994; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN14

A validation was performed on the Pesticide/Aroclor Data from SDG PEN14. The data was evaluated based on the following parameters:

*	Data Completeness
*	Holding Times
*	GC Performance
*	Calibration
*	Blanks
*	Surrogate Recoveries
*	Matrix Spike/Matrix Spike Duplicates
*	Field Duplicates
*	Compound Identification
	Compound Quantitation

* - All criteria were met for this parameter.

Contractual Non-Compliance

The method requires that all target compounds, including the multi-component compounds, be analyzed with a five (5) point calibration curve. The laboratory analyzed a single point curve for the Aroclors 1221, 1232, 1242, 1248, and 1254. No positive results were reported for the compounds analyzed with a single point calibration, therefore the data do not require qualification.

Compound Identification/Quantitation

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U. (All multi-component results are exempt from this rule.)

4. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ. (All multi-component results are exempt from this rule.)

5. The positive multi-component pesticide sample result which exhibited a column quantitation difference >100% and <10X the respective multi-component CRQL is qualified as presumptively present at an estimated concentration, NJ.

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041W640501	Beta-BHC	303.2%	P	U	3
	Gamma-BHC	207.7%	P	U	3
041W640101	Beta-BHC	52.8%	P	J	2
	Gamma-BHC	220.0%	P	U	3
041R640501	Beta-BHC	82.4%	P	J	2
	Gamma-BHC	328.6%	P	U	3
040W2B0101	Beta-BHC	157.1%	P	U	3
	Gamma-BHC	441.7%	P	U	3

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	single component pests All P > 100% And < 10X CRQL	+	U
ALL	single component pests All P > 100% And > 10X CRQL	+	NJ
ALL	multi-component pests All P> 100% And < 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
METALS AND CYANIDE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP ILM03.0 Method; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN14

A validation was performed on the Metals and Cyanide Data from SDG PEN14. The data was evaluated based on the following parameters.

*	• Data Completeness
*	• Holding Times
*	• Calibrations
	• Blanks
*	• Interferences
	• Matrix Spike Recoveries
*	• Matrix Duplicates
*	• Field Duplicates
*	• Laboratory Control Samples
	• Serial Dilutions
	• Post Digestion Spiking

* - All criteria were met for this parameter.

Preparation and Field Blanks

The calibration blanks exhibited contamination for the following elements.

Elements	Conc.	Samples affected
Aluminum	30.0 ug/l	all water samples below 150 ug/l
Barium	3.9 ug/l	no impact
Calcium	30.4 ug/l	no impact
Magnesium	25.3 ug/l	no impact
Manganese	0.8 ug/l	no impact
Vanadium	0.8 ug/l	all water samples below 4.0 ug/l

The USEPA requires that all sample values below five times the preparation, field, DI or calibration blank contamination be qualified as non-detect, "U".

The preparation blank exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Cadmium	-0.75 ug/l	all water samples below 7.5 ug/l
Chromium	-1.06 ug/l	all water samples below 10.6 ug/l
Nickel	-1.75 ug/l	all water samples below 17.5 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery

The Matrix Spike recoveries for waters for Mercury (68%) and Silver (61%) were below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

The Matrix Spike recovery for waters for Zinc (128%) was above the upper control limits (>125%). All positive results are qualified as estimated, "J".

Serial Dilution results

The serial dilution for waters for Potassium was outside the control limits of 10%. All positive results are qualified as estimated, "J".

Post Digestion Spiking results

The post digestion spiking for the following samples were below the lower control limits (>10% but <85%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

Analytes	Sample IDs	Recovery
Silver	040W2B0101	53
Silver	041W640101	62
Silver	041W640501	60
Silver	041R640501	64
Thallium	040W2B0101	63
Thallium	041W640101	81
Thallium	041W640501	67
Thallium	041R640501	68

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All water samples below 150 ug/l	Al.	+	U
All water samples below 4.0 ug/l	V.		
All water samples below 7.5 ug/l	Cd.	+/U	J/UJ
All water samples below 10.6 ug/l	Cr.		
All water samples below 17.5 ug/l	Ni.		
All water samples	Hg and Ag.	+/U	J/UJ
All water samples	Zn.	+	J
All water samples	K.	+	J
041W640101, 041W640501, 041R640501 and 040W2B0101.	Ag and Tl.	+/U	J/UJ
All "B" results	all analytes	B	J

"B" qualifier

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PEN15
Date:	October 30, 1997
Client Name:	EnSafe
Project/Site Name:	Pensacola
Date Sampled:	September 2-8, 1997
Number of Samples:	8 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Polynuclear Aromatic Hydrocarbons, Pesticide/PCB's, Lead

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scanlon

Paul B. Humburg, President

11/4/97

Date

4127 Plaza 94 South St Charles, MO 63304
(314) 936-1332 Fax (314) 936-1335

SDG# PEN15

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

ENSAFE ID	MATRIX	PAH		P/P		PB	
040J400601	SOIL		X		X		X
040J400602	SOIL				X		X
041J18B101	SOIL		X		X		X
041J330101	SOIL				X		X
041J330201	SOIL		X		X		X
041J640101	SOIL		X		X		X
041J640601	SOIL		X		X		X
041J750101	SOIL		X		X		X
Total Billable Samples (Water/Soil)		0	6	0	8	0	8

PAH = Polynuclear Aromatic Hydrocarbons
P/P = Pesticide/PCB's
PB = Lead

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846, method 8270; National Functional Guidelines for Organic Data Review, February 1994 and DQO Level III All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # PEN15

A validation was performed on the Semivolatile Data from SDG PEN15. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibrations
	•	Internal Standard Performance
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Laboratory Control Sample
*	•	Field Duplicates
*	•	Compound Identification /Quantitation

* - All criteria were met for this parameter

Internal Standards

The samples listed below, exhibited low internal standard areas. Qualify all associated positive results as estimated (J) and all non detects as estimated (UJ).

041J750101	chrysene-d_{12} perylene-d_{12}
041J188101 041J330201 041J640101	perylene-d_{12}

System Performance and Overall Assessment

The laboratory did not encounter any large problems. The data requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL
	All associated compounds	+/-	J/UJ
041J750101	chrysene-d_{12} perylene-d_{12}		
041J188101 041J330201 041J640101	perylene-d_{12}		

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8080; the National Functional Guidelines for Organic Data Validation, February 1994; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN15

A validation was performed on the Pesticide/Aroclor Data from SDG PEN15. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
*	• Calibration
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Contractual Non-Compliance

The method requires that all target compounds, including the multi-component compounds, be analyzed with a five (5) point calibration curve. The laboratory analyzed a single point curve for the Aroclors 1221, 1232, 1242, 1248, and 1254. No positive results were reported for the compounds analyzed with a single point calibration, therefore the data did not require qualification.

Method Blanks

The associated method blank exhibited contamination for target compounds and required qualifications. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moistures as associated samples. These factors must be taken into consideration when applying the 5X criteria to field samples. The method blank results were compared to the associated samples.

Blank ID	Compound	Concentration	Action Level
0923Q-KMB	Delta-BHC	0.20 J μg/Kg	1.0 μg/Kg
	4,4'-DDD	0.28 JP μg/Kg	1.4 μg/Kg

The following samples have been qualified for method blank contamination. The qualifications are for all the blanks.

Sample	Compound	Qualification
040J400602	Delta-BHC	CRQL
041J330201	4,4'-DDD	CRQL

Compound Identification/Quantitation

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences $< 40\%$. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference $> 40\%$, but $\leq 100\%$ is qualified as estimated, J.

3. The positive single component pesticide sample result which exhibited a column quantitation difference $> 100\%$ and is $< 10X$ the respective compound CRQL, is qualified as non-detect, U. (All multi-component results are exempt from this rule.)

Compound Identification/Quantitation, Continued

4. The positive single component pesticide sample result which exhibited a column quantitation difference > 100% and > 10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ. (All multi-component results are exempt from this rule.)

5. The positive multi-component pesticide sample result which exhibited a column quantitation difference > 100% and < 10X the respective multi-component CRQL is qualified as presumptively present at an estimated concentration, NJ.

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
040J400601	Gamma-BHC	26.4%	P		1
	Alpha-chlordane	1081.8%	P	U	3
	Gamma-Chlordane	41.2%	P	J	2
040J400602	Delta-BHC	88.2%	P	J	2
	Gamma-BHC	35.1%	P		1
	Aldrin	106.4%	P	U	3
	Heptachlor Epoxide	135.3%	P	U	3
	Dieldrin	46.2%	P	J	2
	Alpha-Chlordane	533.8%	P	U	3
	Gamma-Chlordane	82.4%	P	J	2
041J18B101	4,4'-DDT	159.7	P	U	3
	Alpha-Chlordane	85.7%	P	J	2
041J640101	Gamma-BHC	50.0%	P	J	2
	Endosulfan I	100.0%	P	J	2
	Dieldrin	30.3%	P		1
	4,4'-DDT	89.3%	P	J	2
	Alpha-Chlordane	143.6%	P	U	3
	Gamma-Chlordane	109.0%	P	U	3
	Aroclor-1260	92.3%	P	J	2

Compound Identification/Quantitation, Continued

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041J640601	Endosulfan I	58.3%	P	J	2
	Dieldrin	262.5%	P	U	3
	Alpha-Chlordane	58.3%	P	J	2
	Gamma-Chlordane	73.7%	P	J	2
	Aroclor-1260	46.3%	P	J	2
041J330201	Dieldrin	361.5%	P	U	3
	4,4'-DDE	86.7%	P	J	2
	4,4'-DDD	414.3%	P	U	3
	4,4'-DDT	42.8%	P	J	2
	Gamma-Chlordane	486.2%	P	U	3
041J330101	Heptachlor	37.5%	P		1
	Aldrin	423.8%	P	U	3
	Endosulfan I	233.3%	P	U	3
	Dieldrin	445.4%	P	U	3
	4,4'-DDE	27.8%	P		1
	Endrin Aldehyde	214.3%	P	U	3
	Alpha-Chlordane	227.3%	P	U	3
	Gamma-Chlordane	81.8%	P	J	2
041J750101	4,4'-DDT	237.0%	P	U	3

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
040J400602	Delta-BHC	+	CRQL
041J330201	4,4'-DDD	+	CRQL
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	single component pests All P > 100% And < 10X CRQL	+	U
ALL	single component pests All P > 100% And > 10X CRQL	+	NJ
ALL	multi-component pests All P> 100% And < 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
LEAD ONLY

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 Methods; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # PEN15

A validation was performed on the Lead only Data from SDG PEN15. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * Calibrations
- * Blanks
- * Interferences
- * Matrix Spike Recovery
- * Matrix Duplicates
- * Field Duplicates
- * Laboratory Control Samples
- * Serial Dilutions

* - All criteria were met for this parameter.

Specific Finding

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B" per Ensafe's request.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
All "B" results	all analytes	B	J

Data Validation Report

ENSAFE
Pensacola
SDG #: NASP14 and NASP15

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	NASP14
Date:	October 18, 2001
Client Name:	EnSafe
Project/Site Name:	Pensacola
Date Sampled:	August 1 - 3, 2001
Number of Samples:	2 Aqueous Sample(s) with 0 MS/MSD(s) 17 Non-Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	STL Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition and STL SOP
Analytical Fractions:	Semivolatiles, Pesticides, PCBs, Metals, SEM Metals, Acid Volatile Sulfide, Mercury and Total Organic Carbon

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seafoss
for Paul B. Humburg, President

10-18-01.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# NASP14

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

ENSAFE ID	MATRIX	SVOA		PEST		PCB		MET		S MET		AV SUL		Hg		TOC	
041M640202	SOIL		X		X		X		X		X		X				X
041N640202	SOIL		X		X		X		X		X		X				X
041M640302	SOIL		X		X		X		X		X		X				X
041M640502	SOIL		X		X		X		X		X		X				X
041M640602	SOIL		X		X		X		X		X		X				X
041M640702	SOIL		X		X		X		X		X		X				X
041M641102	SOIL		X		X		X		X		X		X				X
041M642402	SOIL		X		X		X		X		X		X				X
040MZ13002	SOIL								X		X		X				X
040MZ21602	SOIL								X		X		X				X
040NZ21602	SOIL										X		X		X		X
040MZ23702	SOIL										X		X		X		X
040NZ23702	SOIL								X		X		X				X
040MZ24402	SOIL										X		X		X		X
040MZ24702	SOIL										X		X		X		X
040MZ31602	SOIL										X		X		X		X
040MZ40102	SOIL										X		X		X		X
041E640803	WATER	X		X		X		X									
041F640803	WATER	X		X		X		X									
Total Billable Samples (Water/Soil)		2	8	2	8	2	8	2	11	0	17	0	17	0	6	0	17

SVOA= Semivolatiles
PEST= Pesticides
PCB= PCBs
MET= Metals
S MET= SEM Metals
AV SUL= Acid Volatile Sulfide
Hg= Mercury
TOC= Total Organic Carbon

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C for Semivolatiles; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP14

A validation was performed on the Semivolatile Data from SDG NASP14. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibration
*	•	Blanks
*	•	Internal Standard Performance
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Compound Identification
*	•	Compound Quantitation

* - All criteria were met for this parameter.

Calibration

The continuing calibration standard DQ586 exhibited a non-compliant %D greater than 50% but less than 90%. For the following sample and compound, the reported positive or non-detect result is qualified as estimated, J or UJ.

041M641102	benzidine (50.4%)

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041M641102	benzidine (50.4%)	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 80801A/8082; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP14

A validation was performed on the Pesticides/PCB Data from SDG NASP14. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration MAG14024 analyzed on 8/14/01 at 2344 Instrument SGMECD1 on the RTX-CLP column exhibited a non-compliant %D greater than 50% but less than 90%. For the following samples and non-compliant compounds, the reported positive and non-detect results are qualified as estimated, J/UJ.

All Soil Samples methoxychlor (52.8%)

Calibrations (continued)

The continuing calibration MAG14024 analyzed on 8/14/01 at 2344 on Instrument SGMECD2 exhibited non-compliant %Ds greater than 15% but less than 50% on the RTX-CLP 2 column for which qualifications were required. For the following samples and non-compliant compound, the reported positive results are qualified as estimated, J.

041N640202	4,4'-DDD (38.5%)
041M640602	

The closing continuing calibration MAG14024 analyzed on 8/15/01 at 1021 on Instrument SGMECD1/2 exhibited non-compliant %Ds greater than 15% on both columns for which qualifications were required. For the following samples and non-compliant compound, the reported positive results are qualified as estimated, J.

041N640202	4,4'-DDD (39.3%/35.2%)
041M640602	

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries for the compound TCX on one or both columns. All reported positive and non-detect results in the sample are qualified as estimated, J/UJ.

041M640302	TCX (23%/20%)
041M642402	TCX (25%)
041M641102	TCX (24%/27%)

Compound Quantitation

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U.

4. The positive sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ.

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M640702	delta-BHC	41.0	P	J	2
041M640602	delta-BHC	98.8	P	J	2
	4,4'-DDD	94.7	P	J	2
041M640302	4,4'-DDE	50.0	P	J	2
	4,4'-DDD	105.1	P	U	3
041M640202	delta-BHC	77.8	P	J	2
	4,4'-DDE	32.4	P		1
	4,4'-DDD	114.3	P	U	3
040N640202	delta-BHC	37.3	P		1
	4,4'-DDD	63.5	P	J	2

Compound Quantitation (continued)

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M640502	delta-BHC	41.8	P	J	2
	heptachlor epoxide	98.8	P	J	2
	4,4'-DDE	32.7	P		1
	4,4'-DDD	139.9	P	U	3

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Soil Samples	methoxychlor (52.8%)	+/-	J/UJ
041N640202 041M640602	4,4'-DDD (38.5%)	+	J
041N640202 041M640602	4,4'-DDD (39.3%/35.2%)	+	J
041M640302 041M642402 041M641102	All compounds	+/-	J/UJ
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	All P > 100% And < 10X CRQL	+	U
ALL	All P > 100% And > 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
TOTAL AND SEM METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # NASP14

A validation was performed on the total and sem Metals Data from SDG NASP14. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
	●	Blanks
*	●	Interferences
	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

Total soil samples

Elements	Conc.	Samples affected
Chromium	0.20 mg/kg	all soil samples below 1.0 mg/kg
Iron	2.53 mg/kg	no impact

SEM metals

Zinc	0.14 mg/kg	all sem samples below 0.7 mg/kg

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

The preparation blanks exhibited negative bias for the following elements.

total soil samples

Elements	Conc.	Samples affected
Cadmium	-0.06 mg/kg	all soil samples below 0.6 mg/kg
Zinc	-0.63 mg/kg	all soil samples below 6.3 mg/kg

This reviewer qualifies all samples results below 10 times the absolute value of the negative blank value.

Matrix Spike Recovery results

The matrix spike recovery results for the SEM samples for Copper (0%) was below 30%. All positive results are qualified as estimated, "J" and all non-detect results are rejected.

The matrix spike recovery results for the SEM samples for Cadmium (47%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" and "UJ".

Matrix Duplicate RPD results

The matrix duplicate RPD results for SEM samples for Copper (32%) and Lead (21%) were not greater than 35% and will not be qualified.

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 1.0 mg/kg	Cr.	+	U
all sem samples below 0.7 mg/kg	Zn.		
all soil samples below 0.6 mg/kg	Cd.	+/U	J/UJ
all soil samples below 6.3 mg/kg	Zn.		
all sem samples	Cu.	+	J
		U	R
all sem samples	Cd.	+/U	J/UJ
all "B" results	all analytes	B	J

DATA ASSESSMENT NARRATIVE
AVS AND TOC

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # NASP14

A validation was performed on the AVS and toc Data from SDG NASP14. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
*	●	Blanks
*	●	Interferences
*	●	Matrix Spike Recovery
*	●	Matrix Duplicates
	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Field Duplicate RPD results

The field duplicate RPD results for samples (040M-Z216-02 and 040N-Z216-02) for AVS (141%) and for samples (040M-6402-02 and 040N-6402-02) for AVS (56%) were greater than 50%.. All positive and non-detect results are qualified as estimated, "J" and "UJ".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
040M-Z216-02 and 040N-Z216-02.	AVS.	+/U	J/UJ
040M-6402-02 and 040N-6402-02.	AVS.	+/U	J/UJ
all "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	NASP15
Date:	October 18, 2001
Client Name:	EnSafe
Project/Site Name:	Pensacola
Date Sampled:	August 2 - 3, 2001
Number of Samples:	16 Non-Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	STL Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition and STL SOP
Analytical Fractions:	Semivolatiles, Pesticides, PCBs, Metals and Mercury

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Simpson
Paul B. Humburg, President

10-18-01.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# NASP15

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

ENSAFE ID	MATRIX	SVOA		PEST		PCB		MET		Hg	
040JZ13002	SOIL										X
040NZ23702	SOIL										X
040JZ23702	SOIL										X
040MZ24401	SOIL										X
040JZ24701	SOIL										X
040JZ31601	SOIL										X
040JZ21602	SOIL		X		X		X		X		
041J640202	SOIL		X		X		X		X		
041J640301	SOIL		X		X		X		X		
041J640302	SOIL		X		X		X		X		
041J64030K	SOIL		X		X		X		X		
041J640501	SOIL		X		X		X		X		
041J640602	SOIL		X		X		X		X		
041J640701	SOIL		X		X		X		X		
041B640803	SOIL		X		X		X		X		
041J642401	SOIL		X		X		X		X		
Total Billable Samples (Water/Soil)		0	10	0	10	0	10	0	10	0	6

SVOA= Semivolatiles
PEST= Pesticides
PCB= PCBs
MET= Metals
Hg= Mercury

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C for Semivolatiles; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP15

A validation was performed on the Semivolatile Data from SDG NASP15. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC/MS Tuning
*	• Calibration
*	• Blanks
*	• Internal Standard Performance
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Field Duplicates
*	• Compound Identification
*	• Compound Quantitation

* - All criteria were met for this parameter.

System Performance and Overall Assessment

The data, as reported, did not require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL

NO QUALIFICATIONS WERE REQUIRED.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 80801A/8082; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP15

A validation was performed on the Pesticides/PCB Data from SDG NASP15. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration MAG15041 analyzed on 8/16/01 on Instrument SGMECD1 on the RTX-CLP columns exhibited a non-compliant %D greater than 50% but less than 90%. For the following samples and non-compliant compounds, the reported positive and non-detect results are qualified as estimated, J/UJ.

041B640803	methoxychlor (52%)

Calibrations (continued)

The continuing calibration MAG17128 analyzed on 8/18/01 at 0912 on Instrument SGMECD1/2 exhibited non-compliant %Ds greater than 15% but less than 50% on one or both columns for which qualifications were required. For the following samples and non-compliant compounds, the reported positive results are qualified as estimated, J.

041J64030K	heptachlor (20.1%)
041J64030K	gamma-chlordane (16.0%)
041J640301	4,4'-DDD (27.8%/21.7%)
041J640602	

The closing continuing calibration MAG17162 analyzed on 8/19/01 at 0244 on Instrument SGMECD1/2 exhibited non-compliant %Ds greater than 15% on one or both columns for which qualifications were required. For the following samples and non-compliant compounds, the reported positive results are qualified as estimated, J.

041J64030K	heptachlor (18.9%)
041J64030K	gamma-chlordane (15.5%)
041J640301	4,4'-DDD (44.8%/39.1%)
041J640602	
041J640301	4,4'-DDT (21.1%/21.5%)
041J640202	
041J640302	
041J640602	
041J640701	

Surrogate Recoveries

The following sample exhibited a non-compliant surrogate recovery for the compound decachlorobiphenyl on the RTX-CLP2 column (28%). All reported positive and non-detect results in the sample are qualified as estimated, J/UJ.

041J64030K

Compound Quantitation

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U.

4. The positive sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ.

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041J640301	heptachlor epoxide	164.2	P	U	3
	gamma-chlordane	41.4	P	J	2
	4,4'-DDD	100.0	P	J	2
041J640301K	heptachlor	58.8	P	J	2
	gamma-chlordane	35.3	P		1
	4,4'-DDE	69.8	P	J	2
	4,4'-DDD	97.4	P	J	2
041J640602	4,4'-DDE	37.8	P		1
	4,4'-DDD	79.1	P	J	2
	AR1260	45.2	P	J	2
041J640302	gamma-chlordane	115.8	P	U	3
	4,4'-DDE	132.4	P	U	3
	4,4'-DDT	50.0	P	J	2
040MZ21602	gamma-chlordane	161.6	P	U	3
	4,4'-DDE	159.8	P	U	3

Compound Quantitation (continued)

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M640202	gamma-chlordane	127.5	P	U	3
	4,4'-DDE	95.7	P	J	2
041J642401	gamma-BHC	75.9	P	J	2
041J640501	gamma-chlordane	153.8	P	U	3
041J640701	gamma-BHC	83.6	P	J	2

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041B640803	methoxychlor (52%)	+/-	J/UJ
041J64030K	heptachlor (20.1%)	+	J
041J64030K 041J640301 041J640602	gamma-chlordane (16.0%) 4,4'-DDD (27.8%/21.7%)	+	J
041J64030K	heptachlor (18.9%)	+	J
041J64030K 041J640301 041J640602	gamma-chlordane (15.5%) 4,4'-DDD (44.8%/39.1%)	+	J
041J640301 041J640202 041J640302 041J640602 041J640701	4,4'-DDT (21.1%/21.5%)	+	J
041J64030K	All compounds	+/-	J/UJ
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	All P > 100% And < 10X CRQL	+	U
ALL	All P > 100% And > 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # NASP15

A validation was performed on the Metals Data from SDG NASP15. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
	●	Blanks
*	●	Interferences
	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

tiisue samples

Elements	Conc.	Samples affected
Barium	0.035 mg/kg	no impact
Calcium	0.81 mg/kg	no impact
Chromium	0.18 mg/kg	all tissue samples below 0.9 mg/kg
Lead	0.30 mg/kg	all tissue samples below 1.5 mg/kg

Manganese	0.06 mg/kg	no impact
Sodium	33.7 mg/kg	no impact

solid samples

Iron	2.53 mg/kg	no impact

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

The preparation blanks exhibited negative bias for the following elements.

tissue samples

Elements	Conc.	Samples affected
Thallium	-0.54 mg/kg	all tissue samples below 5.4 mg/kg
Zinc	-0.32 mg/kg	all tissue samples below 3.2 mg/kg

solid samples

Cadmium	-0.06 mg/kg	all solid samples below 0.6 mg/kg

This reviewer qualifies all samples results below 10 times the absolute value of the negative blank value.

Matrix Spike Recovery results

The matrix spike recovery results for the solid samples for Mercury (68%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" and "UJ".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all tissue samples below 0.9 mg/kg	Cr.	+	U
all tissue samples below 1.5 mg/kg	Pb.		
all solid samples below 0.6 mg/kg	Cd.	+/U	J/UJ
all tissue samples below 5.4 mg/kg	Tl.		
all tissue samples below 6.3 mg/kg	Zn.		
all solid samples	Hg.	+/U	J/UJ
all "B" results	all analytes	B	J

SEVERN TRENT STL

TL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Report

For: Ms. Allison Harris
EnSafe, Inc.
5724 Summer Trees Drive
Memphis, TN 38134
CC:

Order Number: S443041
SDG Number: PEN17
Client Project ID: 0036-001-00-130-00
Project: NAS Pensacola Site 41 Resampling/PEN17
Report Date: 05/13/2004
Sampled By: Client
Sample Received Date: 04/09/2004
Requisition Number:
Purchase Order: PO 6071

Linda A Wolfe

Linda A. Wolfe, Project Manager
lwolfe@stl-inc.com

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Sample Summary

Order: S443041 Client: EnSafe, Inc.
Date Received: 04/09/2004 Project: NAS Pensacola Site 41 Resampling/PEN17

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
041M19A101	S443041*1	Solid	04/08/2004 13:00
041M19A101	S443041*1-DL	Solid	04/08/2004 13:00
041W061002	S443041*2	Liquid	04/08/2004 09:00
041EW00001	S443041*3	Liquid	04/08/2004 09:15
041TB00002	S443041*4	Liquid	04/08/2004 16:10
033W000102	S443041*5	Liquid	04/08/2004 09:30
041W63A202	S443041*6	Liquid	04/08/2004 10:15
041W170102	S443041*7	Liquid	04/08/2004 11:30
041W150102	S443041*8	Liquid	04/08/2004 11:45
041W19A102	S443041*9	Liquid	04/08/2004 13:00
041W720102	S443041*10	Liquid	04/08/2004 14:00
041R720102	S443041*11	Liquid	04/08/2004 14:00

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
TAL Metals (6010)			
Aluminum	mg/kg dw	910	
Antimony	mg/kg dw	1.1I	
Arsenic	mg/kg dw	0.56I	
Barium	mg/kg dw	0.99I	
Beryllium	mg/kg dw	0.036I	
Cadmium	mg/kg dw	0.067U	
Calcium	mg/kg dw	50I	
Chromium	mg/kg dw	0.95I	
Cobalt	mg/kg dw	0.13U	
Copper	mg/kg dw	0.47I	
Iron	mg/kg dw	540	
Lead	mg/kg dw	1.5	
Magnesium	mg/kg dw	27I	
Manganese	mg/kg dw	1.6	
Nickel	mg/kg dw	0.26I	
Potassium	mg/kg dw	21I	
Selenium	mg/kg dw	0.59U	
Silver	mg/kg dw	0.12U	
Sodium	mg/kg dw	3.5I	
Thallium	mg/kg dw	0.85U	
Vanadium	mg/kg dw	1.5	
Zinc	mg/kg dw	1.3I	
Percent Solids		76	76
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		07:00	
Analysis Date		04/15/04	
Analysis Time		14:56	
Batch ID		0412C	
Quantitation Factor		0.8474	

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
Mercury (7471)			
Mercury	mg/kg dw	0.0048U	
Percent Solids		76	76
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		15:35	
Analysis Date		04/13/04	
Analysis Time		18:07	
Batch ID		0412T	
Quantitation Factor		0.8474	
TCL Pesticides (8081)			
alpha-BHC	ug/kg dw	0.32U*J4	1.6U
beta-BHC	ug/kg dw	0.38U	1.9U
delta-BHC	ug/kg dw	0.16U	0.79U
gamma-BHC (Lindane)	ug/kg dw	0.20U	0.99U
Heptachlor	ug/kg dw	0.37U	1.8U
Aldrin	ug/kg dw	0.14U	0.72U
Heptachlor epoxide	ug/kg dw	0.22U	1.1U
Endosulfan I	ug/kg dw	0.22U	1.1U
Dieldrin	ug/kg dw	0.41U	2.0U
4,4'-DDE	ug/kg dw	0.71U	3.6U
Endrin	ug/kg dw	0.56U	2.8U
Endrin aldehyde	ug/kg dw	0.41U	2.0U
Endosulfan II	ug/kg dw	0.29U	1.4U
4,4'-DDD	ug/kg dw	0.46U	2.3U
Endosulfan sulfate	ug/kg dw	0.58U	2.9U
4,4'-DDT	ug/kg dw	0.41U	2.0U
Endrin ketone	ug/kg dw	0.50U	2.5U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
TCL Pesticides (8081)			
Methoxychlor	ug/kg dw	0.26U	1.3U
alpha-Chlordane	ug/kg dw	0.14U	0.72U
gamma-Chlordane	ug/kg dw	0.17U	0.86U
Toxaphene	ug/kg dw	43U	220U
Surrogate - DCB *	%	54 %	82 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	64 %	59 %
Percent Solids		76	76
Dilution Factor		1	5
Prep Date		04/15/04	04/15/04
Prep Time		13:00	13:00
Analysis Date		04/29/04	04/29/04
Analysis Time		16:40	13:39
Batch ID		0415N	0415N
Quantitation Factor		1.000	5.000
PCB's (8082)			
Aroclor-1016	ug/kg dw	5.1U	26U
Aroclor-1221	ug/kg dw	22U	110U
Aroclor-1232	ug/kg dw	8.8U	44U
Aroclor-1242	ug/kg dw	8.8U	44U
Aroclor-1248	ug/kg dw	8.6U	43U
Aroclor-1254	ug/kg dw	8.8U	44U
Aroclor-1260	ug/kg dw	5.8U	29U
Surrogate - TCX *	%	64 %	59 %
Surrogate - DCB *	%	54 %	82 %
Percent Solids		76	76
Dilution Factor		1	5
Prep Date		04/15/04	04/15/04
Analysis Date		04/29/04	04/29/04
Analysis Time		16:40	13:39
Batch ID		0415N	0415N
Quantitation Factor		1.000	5.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
TCL Semivolatiles (8270)			
Phenol	ug/kg dw	54U	
bis(2-Chloroethyl)ether	ug/kg dw	49U	
2-Chlorophenol	ug/kg dw	54U	
1,3-Dichlorobenzene	ug/kg dw	30U	
1,4-Dichlorobenzene	ug/kg dw	32U	
1,2-Dichlorobenzene	ug/kg dw	30U	
2-Methylphenol (o-Cresol)	ug/kg dw	60U	
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw	42U	
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw	53U	
Nitroso-di-n-propylamine	ug/kg dw	39U	
Hexachloroethane	ug/kg dw	25U	
Nitrobenzene	ug/kg dw	41U	
Isophorone	ug/kg dw	34U	
2-Nitrophenol	ug/kg dw	34U	
2,4-Dimethylphenol	ug/kg dw	37U	
bis(2-Chloroethoxy)methane	ug/kg dw	42U	
2,4-Dichlorophenol	ug/kg dw	38U	
1,2,4-Trichlorobenzene	ug/kg dw	50U	
4-Chloroaniline	ug/kg dw	38U	
Hexachlorobutadiene	ug/kg dw	36U	
4-Chloro-3-methylphenol	ug/kg dw	53U	
Hexachlorocyclopentadiene	ug/kg dw	360U	
2,4,6-Trichlorophenol	ug/kg dw	42U	
2,4,5-Trichlorophenol	ug/kg dw	41U	
2-Chloronaphthalene	ug/kg dw	49U	
2-Nitroaniline	ug/kg dw	33U	
Dimethylphthalate	ug/kg dw	46U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
TCL Semivolatiles (8270)			
3-Nitroaniline	ug/kg dw	39U	
2,4-Dinitrophenol	ug/kg dw	450U	
4-Nitrophenol	ug/kg dw	33U	
Dibenzofuran	ug/kg dw	45U	
2,4-Dinitrotoluene	ug/kg dw	29U	
2,6-Dinitrotoluene	ug/kg dw	38U	
Diethylphthalate	ug/kg dw	46U	
4-Chlorophenylphenyl ether	ug/kg dw	34U	
4-Nitroaniline	ug/kg dw	34U	
4,6-Dinitro-2-methylphenol	ug/kg dw	41U	
N-Nitrosodiphenylamine	ug/kg dw	39U	
4-Bromophenylphenyl ether	ug/kg dw	39U	
Hexachlorobenzene	ug/kg dw	50U	
Pentachlorophenol	ug/kg dw	68J	
Di-n-butylphthalate	ug/kg dw	51U	
Butylbenzylphthalate	ug/kg dw	42U	
3,3'-Dichlorobenzidine	ug/kg dw	34U	
bis(2-Ethylhexyl)phthalate	ug/kg dw	58U	
Di-n-octylphthalate	ug/kg dw	42U	
Carbazole	ug/kg dw	39U	
Surrogate - Phenol-d5 *	%	59 %	
Surrogate - 2-Fluorophenol *	%	59 %	
Surrogate - 2,4,6-Tribromophenol *	%	75 %	
Surrogate - Nitrobenzene - d5 *	%	59 %	
Surrogate - 2-Fluorobiphenyl *	%	68 %	
Surrogate - Terphenyl-d14 *	%	73 %	
Percent Solids		76	76
Dilution Factor		1	
Prep Date		04/15/04	
Prep Time		11:55	
Analysis Date		04/22/04	
Analysis Time		19:48	
Batch ID		0415C	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
Low Level PAH (8270PAH)			
Naphthalene	ug/kg dw	3.7U	
Acenaphthylene	ug/kg dw	4.5U	
Acenaphthene	ug/kg dw	4.7U	
Fluorene	ug/kg dw	4.1U	
Phenanthrene	ug/kg dw	5.6I	
Anthracene	ug/kg dw	5.0U	
Fluoranthene	ug/kg dw	4.5U	
Pyrene	ug/kg dw	6.3U	
Chrysene	ug/kg dw	5.3U	
Benzo(a)anthracene	ug/kg dw	4.0U	
·o(b)fluoranthene	ug/kg dw	5.0U	
.zo(k)fluoranthene	ug/kg dw	5.2U	
Benzo(a)pyrene	ug/kg dw	4.7U	
Indeno(1,2,3-cd)pyrene	ug/kg dw	3.4U	
Dibenzo(a,h)anthracene	ug/kg dw	4.6U	
Benzo(g,h,i)perylene	ug/kg dw	3.2U	
2-Methylnaphthalene	ug/kg dw	2.8U	
1-Methylnaphthalene	ug/kg dw	1.8U	
Surrogate - o-Terphenyl *	%	84 %	
Percent Solids		76	76
Dilution Factor		4	
Prep Date		04/15/04	
Prep Time		15:00	
Analysis Date		04/17/04	
Analysis Time		16:23	
Batch ID		0415B	
Quantitation Factor		4.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
Volatiles by GC/MS (8260)			
Chloromethane	ug/kg dw	1.7U	
Bromomethane (Methyl bromide)	ug/kg dw	4.2U	
Vinyl chloride	ug/kg dw	1.7U	
Chloroethane	ug/kg dw	2.1U	
Methylene chloride (Dichloromethane)	ug/kg dw	3.0U	
Acetone	ug/kg dw	9.9U	
Carbon disulfide	ug/kg dw	2.5U	
1,1-Dichloroethene	ug/kg dw	2.1U	
1,1-Dichloroethane	ug/kg dw	1.2U	
cis-1,2-Dichloroethene	ug/kg dw	1.4U	
trans-1,2-Dichloroethene	ug/kg dw	1.5U	
Chloroform	ug/kg dw	3.4I	
1,2-Dichloroethane	ug/kg dw	1.9U	
2-Butanone (MEK)	ug/kg dw	5.8U	
1,1,1-Trichloroethane	ug/kg dw	1.0U	
Carbon tetrachloride	ug/kg dw	2.3I	
Bromodichloromethane	ug/kg dw	1.6U	
1,1,2,2-Tetrachloroethane	ug/kg dw	2.5U	
1,2-Dichloropropane	ug/kg dw	1.5U	
trans-1,3-Dichloropropene	ug/kg dw	2.0U	
Trichloroethene	ug/kg dw	1.4U	
Dibromochloromethane	ug/kg dw	1.7U	
1,1,2-Trichloroethane	ug/kg dw	2.2U	
Benzene	ug/kg dw	1.4U	
cis-1,3-Dichloropropene	ug/kg dw	1.5U	
Bromoform	ug/kg dw	2.1U	
2-Hexanone	ug/kg dw	6.3U	
4-Methyl-2-pentanone (MIBK)	ug/kg dw	6.2U	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
Volatiles by GC/MS (8260)			
Tetrachloroethene	ug/kg dw	1.9U	
Toluene	ug/kg dw	2.2U	
Chlorobenzene	ug/kg dw	1.6U	
Ethylbenzene	ug/kg dw	1.2U	
Styrene	ug/kg dw	1.4U	
Xylenes, Total	ug/kg dw	3.7U	
Surrogate - Toluene-d8 *	%	100 %	
Surrogate - 4-Bromofluorobenzene *	%	97 %	
Surrogate - ibromofluoromethane *	%	103 %	
..cent Solids		76	76
Dilution Factor		1	
Prep Date		04/19/04	
Prep Time		17:29	
Analysis Date		04/19/04	
Analysis Time		17:29	
Batch ID		1M0419	
Quantitation Factor		0.9434	
Total Organic Carbon (9060)			
Total Organic Carbon	mg/kg dw	1700	
Percent Solids		76	76
Dilution Factor		1	
Prep Date		04/19/04	
Prep Time		16:00	
Analysis Date		04/20/04	
Analysis Time		17:11	
Batch ID		0420X	
Quantitation Factor		1.000	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-1	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17
43041-1-DL	041M19A101	Solid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-1	43041-1-DL
Grain Size * (D422)			
Grain Size *		Attached	
Percent Solids		76	76

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-2	041W061002	Liquid	04/09/04	04/08/04 09:00	PEN17
43041-3	041EW00001	Liquid	04/09/04	04/08/04 09:15	PEN17

Parameter	Units	Lab Sample IDs 43041-2	43041-3
TAL Metals (6010)			
Aluminum	ug/l	1200	23I
Antimony	ug/l	3.9U	3.9U
Arsenic	ug/l	5.7I	3.3U
Barium	ug/l	46	0.42I
Beryllium	ug/l	0.34I	0.31I
Cadmium	ug/l	2.5I	0.60U
Calcium	ug/l	30000	15I
Chromium	ug/l	21	1.4U
Cobalt	ug/l	1.2U	1.2U
Copper	ug/l	19I	0.60U
ר	ug/l	3300	31I
ן	ug/l	40	1.9U
Magnesium	ug/l	3800	8.5U
Manganese	ug/l	110	0.40U
Nickel	ug/l	2.5I	1.5U
Potassium	ug/l	2400	23I
Selenium	ug/l	6.9I	5.3U
Silver	ug/l	1.1U	1.1U
Sodium	ug/l	13000	21I
Thallium	ug/l	7.6U	7.6U
Vanadium	ug/l	3.4I	0.70U
Zinc	ug/l	78	0.60U
Dilution Factor		1	1
Prep Date		04/13/04	04/13/04
Prep Time		12:00	12:00
Analysis Date		04/14/04	04/14/04
Analysis Time		05:56	06:11
Batch ID		0413I	0413I
Quantitation Factor		1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-2	041W061002	Liquid	04/09/04	04/08/04 09:00	PEN17
43041-3	041EW00001	Liquid	04/09/04	04/08/04 09:15	PEN17

Parameter	Units	Lab Sample IDs 43041-2	43041-3
Mercury (7470)			
Mercury	ug/l	0.078U	0.078U
Dilution Factor		1	1
Prep Date		04/12/04	04/12/04
Prep Time		16:05	16:05
Analysis Date		04/14/04	04/14/04
Analysis Time		12:02	12:04
Batch ID		0412U	0412U
Quantitation Factor		1.000	1.000
TAL Metals (Dissolved) (6010DISS)			
Aluminum (Dissolved)	ug/l	53I	13I
Antimony (Dissolved)	ug/l	3.9U	3.9U
Arsenic, (Dissolved)	ug/l	3.3U	3.3U
Barium, (Dissolved)	ug/l	40	0.70I
Beryllium (Dissolved)	ug/l	0.94I	0.30I
Cadmium (Dissolved)	ug/l	0.60U	0.60U
Calcium (Dissolved)	ug/l	24000	31I
Chromium, (Dissolved)	ug/l	1.7I	1.4U
Cobalt (Dissolved)	ug/l	1.2U	1.2U
Copper, Dissolved	ug/l	1.3I	0.60U
Iron (Dissolved)	ug/l	450	18U
Lead, (Dissolved)	ug/l	3.6I	1.9U
Magnesium (Dissolved)	ug/l	3500	8.5U
Manganese (Dissolved)	ug/l	6.8I	0.40U
Nickel, (Dissolved)	ug/l	1.5U	1.5U
Potassium (Dissolved)	ug/l	2600	12I
Selenium (Dissolved)	ug/l	5.3U	5.3U
Silver (Dissolved)	ug/l	1.1U	1.1U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-2	041W061002	Liquid	04/09/04	04/08/04 09:00	PEN17
43041-3	041EW00001	Liquid	04/09/04	04/08/04 09:15	PEN17

Parameter	Units	Lab Sample IDs 43041-2	43041-3
TAL Metals (Dissolved) (6010DISS)			
Sodium (Dissolved)	ug/l	13000	59I
Thallium (Dissolved)	ug/l	7.6U	7.6U
Vanadium (Dissolved)	ug/l	0.94I	0.70U
Zinc, (Dissolved)	ug/l	17I	0.60U
Dilution Factor		1	1
Prep Date		04/13/04	04/13/04
Prep Time		09:50	09:50
Analysis Date		04/14/04	04/14/04
Analysis Time		07:16	07:41
Batch ID		0413G	0413G
ntitation Factor		1.000	1.000
Mercury (Dissolved) (7470)			
Mercury (Dissolved)	ug/l	0.078U	0.078U
Dilution Factor		1	1
Prep Date		04/14/04	04/14/04
Prep Time		09:30	09:30
Analysis Date		04/15/04	04/15/04
Analysis Time		09:58	10:00
Batch ID		0414R	0414R
Quantitation Factor		1.000	1.000
Volatiles by GC/MS (8260)			
Chloromethane	ug/l	0.39U	0.39U
Bromomethane (Methyl bromide)	ug/l	0.62U	0.62U
Vinyl chloride	ug/l	0.56U	0.56U
Chloroethane	ug/l	0.78U	0.78U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-2	041W061002	Liquid	04/09/04	04/08/04 09:00	PEN17
43041-3	041EW00001	Liquid	04/09/04	04/08/04 09:15	PEN17

Parameter	Units	Lab Sample IDs 43041-2	43041-3
Volatiles by GC/MS (8260)			
Methylene chloride (Dichloromethane)	ug/l	0.64U	0.64U
Acetone	ug/l	5.0U	5.0U
Carbon disulfide	ug/l	0.66U	0.66U
1,1-Dichloroethene	ug/l	0.98I	0.36U
1,1-Dichloroethane	ug/l	0.80I	0.36U
cis-1,2-Dichloroethene	ug/l	5.1	0.38U
trans-1,2-Dichloroethene	ug/l	0.40U	0.40U
Chloroform	ug/l	0.37U	0.37U
1,2-Dichloroethane	ug/l	0.26U	0.26U
2-Butanone (MEK)	ug/l	5.6IV	6.1IV
1,1,1-Trichloroethane	ug/l	0.32U	0.32U
Carbon tetrachloride	ug/l	0.31U	0.31U
Bromodichloromethane	ug/l	0.14U	0.14U
1,1,2,2-Tetrachloroethane	ug/l	0.18U	0.18U
1,2-Dichloropropane	ug/l	0.33U	0.33U
trans-1,3-Dichloropropene	ug/l	0.26U	0.26U
Trichloroethene	ug/l	1.3	0.37U
Dibromochloromethane	ug/l	0.50U	0.50U
1,1,2-Trichloroethane	ug/l	0.22U	0.22U
Benzene	ug/l	0.36U	0.36U
cis-1,3-Dichloropropene	ug/l	0.23U	0.23U
Bromoform	ug/l	0.33U	0.33U
2-Hexanone	ug/l	0.93U	0.93U
4-Methyl-2-pentanone (MIBK)	ug/l	0.65U	0.65U
Tetrachloroethene	ug/l	0.35U	0.35U
Toluene	ug/l	0.54U	0.54U
Chlorobenzene	ug/l	11	0.34U
Ethylbenzene	ug/l	0.34U	0.34U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-2	041W061002	Liquid	04/09/04	04/08/04 09:00	PEN17
43041-3	041EW00001	Liquid	04/09/04	04/08/04 09:15	PEN17

Parameter	Units	Lab Sample IDs 43041-2	43041-3
Volatiles by GC/MS (8260)			
Styrene	ug/l	0.25U	0.25U
Xylenes, Total	ug/l	1.3U	1.3U
Surrogate - Toluene-d8 *	%	106 %	108 %
Surrogate - 4-Bromofluorobenzene *	%	110 %	114 %
Surrogate - Dibromofluoromethane *	%	108 %	112 %
Dilution Factor		1	1
Prep Date		04/15/04	04/15/04
Prep Time		16:12	16:39
Analysis Date		04/15/04	04/15/04
Analysis Time		16:12	16:39
Batch ID		1P0415C1	1P0415C1
Quantitation Factor		1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-4	041TB00002	Liquid	04/09/04	04/08/04 16:10	PEN17

Parameter	Units	Lab Sample IDs 43041-4
Volatiles by GC/MS (8260)		
Chloromethane	ug/l	0.39U
Bromomethane (Methyl bromide)	ug/l	0.62U
Vinyl chloride	ug/l	0.56U
Chloroethane	ug/l	0.78U
Methylene chloride (Dichloromethane)	ug/l	0.64U
Acetone	ug/l	8.7I
Carbon disulfide	ug/l	0.66U
1,1-Dichloroethene	ug/l	0.36U
1,1-Dichloroethane	ug/l	0.36U
cis-1,2-Dichloroethene	ug/l	0.38U
trans-1,2-Dichloroethene	ug/l	0.40U
Chloroform	ug/l	0.37U
1,2-Dichloroethane	ug/l	0.26U
2-Butanone (MEK)	ug/l	7.3IV
1,1,1-Trichloroethane	ug/l	0.32U
Carbon tetrachloride	ug/l	0.31U
Bromodichloromethane	ug/l	0.14U
1,1,2,2-Tetrachloroethane	ug/l	0.18U
1,2-Dichloropropane	ug/l	0.33U
trans-1,3-Dichloropropene	ug/l	0.26U
Trichloroethene	ug/l	0.37U
Dibromochloromethane	ug/l	0.50U
1,1,2-Trichloroethane	ug/l	0.22U
Benzene	ug/l	0.36U
cis-1,3-Dichloropropene	ug/l	0.23U
Bromoform	ug/l	0.33U
2-Hexanone	ug/l	0.93U
4-Methyl-2-pentanone (MIBK)	ug/l	0.65U
Tetrachloroethene	ug/l	0.35U

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Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-4	041TB00002	Liquid	04/09/04	04/08/04 16:10	PEN17

Parameter	Units	Lab Sample IDs 43041-4
Volatiles by GC/MS (8260)		
Toluene	ug/l	0.54U
Chlorobenzene	ug/l	0.34U
Ethylbenzene	ug/l	0.34U
Styrene	ug/l	0.25U
Xylenes, Total	ug/l	1.3U
Surrogate - Toluene-d8 *	%	108 %
Surrogate - 4-Bromofluorobenzene *	%	110 %
Surrogate - Dibromofluoromethane *	%	110 %
Dilution Factor		1
Date		04/15/04
Time		15:16
Analysis Date		04/15/04
Analysis Time		15:16
Batch ID		1P0415C1
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-5	033W000102	Liquid	04/09/04	04/08/04 09:30	PEN17
43041-6	041W63A202	Liquid	04/09/04	04/08/04 10:15	PEN17
43041-7	041W170102	Liquid	04/09/04	04/08/04 11:30	PEN17
43041-8	041W150102	Liquid	04/09/04	04/08/04 11:45	PEN17
43041-9	041W19A102	Liquid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-5	43041-6	43041-7	43041-8	43041-9
TAL Metals (6010)						
Aluminum	ug/l	480	25I	66I	500	330
Antimony	ug/l	3.9U	3.9U	3.9U	11I	3.9U
Arsenic	ug/l	3.3U	3.3U	4.8I	5.5I	3.3U
Barium	ug/l	15	61	18	43	8.5I
Beryllium	ug/l	0.50I	0.44I	0.62I	0.67I	0.74I
Cadmium	ug/l	0.82I	0.60U	0.60U	0.60U	0.60U
Calcium	ug/l	46000	76000	240000	180000	6400
Chromium	ug/l	1.4U	1.4U	1.4U	2.5I	1.4U
Cobalt	ug/l	1.2U	1.2U	1.2U	1.2U	1.2U
Copper	ug/l	1.6I	0.98I	0.60U	0.60U	0.60U
Iron	ug/l	900	140	110	2600	1000
Lead	ug/l	1.9U	1.9U	1.9U	1.9U	1.9U
Magnesium	ug/l	6900	5800	740000	480000	1100
Manganese	ug/l	290	15	26	210	18
Nickel	ug/l	2.7I	1.5U	1.5U	1.5U	1.5U
Potassium	ug/l	4000	1400	280000	200000	780I
Selenium	ug/l	8.9I	5.3U	5.9I	5.3U	5.3U
Silver	ug/l	1.1U	1.1U	1.1U	1.1U	1.1U
Sodium	ug/l	33000	14000	5600000	3600000	5800
Thallium	ug/l	7.6U	7.6U	8.3I	17	7.6U
Vanadium	ug/l	3.3I	1.7I	0.70U	2.3I	3.0I
Zinc	ug/l	2.0I	1.8I	0.60U	13I	1.6I
Dilution Factor		1	1	1	1	1
Prep Date		04/13/04	04/13/04	04/13/04	04/13/04	04/13/04
Prep Time		12:00	12:00	12:00	12:00	12:00
Analysis Date		04/14/04	04/14/04	04/14/04	04/14/04	04/14/04
Analysis Time		06:16	06:31	06:36	06:41	06:45
Batch ID		0413I	0413I	0413I	0413I	0413I
Quantitation Factor		1.000	1.000	1.000	1.000	1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-5	033W000102	Liquid	04/09/04	04/08/04 09:30	PEN17
43041-6	041W63A202	Liquid	04/09/04	04/08/04 10:15	PEN17
43041-7	041W170102	Liquid	04/09/04	04/08/04 11:30	PEN17
43041-8	041W150102	Liquid	04/09/04	04/08/04 11:45	PEN17
43041-9	041W19A102	Liquid	04/09/04	04/08/04 13:00	PEN17

Parameter	Units	Lab Sample IDs 43041-5	43041-6	43041-7	43041-8	43041-9
Mercury (7470)						
Mercury	ug/l	0.078U	0.078U	0.078U	0.078U	0.078U
Dilution Factor		1	1	1	1	1
Prep Date		04/12/04	04/12/04	04/12/04	04/12/04	04/12/04
Prep Time		16:05	16:05	16:05	16:05	16:05
Analysis Date		04/14/04	04/14/04	04/14/04	04/14/04	04/14/04
Analysis Time		12:07	12:09	12:12	12:24	12:31
Batch ID		0412U	0412U	0412U	0412U	0412U
ntitation Factor		1.000	1.000	1.000	1.000	1.000
TAL Metals (Dissolved) (6010DISS)						
Aluminum (Dissolved)	ug/l	32I	17I	44I	35I	57I
Antimony (Dissolved)	ug/l	3.9U	3.9U	3.9U	3.9U	3.9U
Arsenic, (Dissolved)	ug/l	3.3U	3.9I	3.3U	3.6I	3.3U
Barium, (Dissolved)	ug/l	12	58	17	40	5.4I
Beryllium (Dissolved)	ug/l	0.30I	0.33I	0.66I	0.57I	0.28I
Cadmium (Dissolved)	ug/l	0.60U	0.60U	0.60U	0.60U	0.60U
Calcium (Dissolved)	ug/l	44000	74000	230000	170000	6900
Chromium, (Dissolved)	ug/l	1.4U	1.4U	1.4U	1.4U	1.4U
Cobalt (Dissolved)	ug/l	1.2U	1.2U	1.2U	1.2U	1.2U
Copper, Dissolved	ug/l	0.60U	0.60U	0.60U	0.60U	0.60U
Iron (Dissolved)	ug/l	24I	22I	18U	18U	190
Lead, (Dissolved)	ug/l	1.9U	1.9U	1.9U	1.9U	1.9U
Magnesium (Dissolved)	ug/l	6600	5700	700000	440000	1100
Manganese (Dissolved)	ug/l	1.9I	0.40U	19	3.4I	2.2I
Nickel, (Dissolved)	ug/l	1.5U	1.5U	1.5U	1.5U	1.5U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-5	033W000102	Liquid	04/09/04	04/08/04 09:30	PEN17
43041-6	041W63A202	Liquid	04/09/04	04/08/04 10:15	PEN17
43041-7	041W170102	Liquid	04/09/04	04/08/04 11:30	PEN17
43041-8	041W150102	Liquid	04/09/04	04/08/04 11:45	PEN17
43041-9	041W19A102	Liquid	04/09/04	04/08/04 13:00	PEN17

		Lab Sample IDs				
Parameter	**Units**	**43041-5**	**43041-6**	**43041-7**	**43041-8**	**43041-9**
TAL Metals (Dissolved) (6010DISS)						
Potassium (Dissolved)	ug/l	3800	1300	250000	160000	690I
Selenium (Dissolved)	ug/l	5.3U	5.3U	5.3U	5.3U	5.3U
Silver (Dissolved)	ug/l	1.1U	1.1U	1.1U	1.1U	1.1U
Sodium (Dissolved)	ug/l	31000	14000	5100000	3400000	5400
Thallium (Dissolved)	ug/l	7.6U	7.6U	8.7I	8.9I	7.6U
Vanadium (Dissolved)	ug/l	0.70U	1.2I	0.70U	0.70U	0.70U
Zinc, (Dissolved)	ug/l	0.60U	3.8I	2.7I	5.6I	1.9I
Dilution Factor		1	1	1	1	1
Prep Date		04/13/04	04/13/04	04/13/04	04/13/04	04/13/04
Prep Time		09:50	09:50	09:50	09:50	09:50
Analysis Date		04/14/04	04/14/04	04/14/04	04/14/04	04/14/04
Analysis Time		07:46	07:51	07:56	08:01	08:06
Batch ID		0413G	0413G	0413G	0413G	0413G
Quantitation Factor		1.000	1.000	1.000	1.000	1.000
Mercury (Dissolved) (7470)						
Mercury (Dissolved)	ug/l	0.11I	0.078U	0.081I	0.093I	0.078U
Dilution Factor		1	1	1	1	1
Prep Date		04/14/04	04/14/04	04/14/04	04/14/04	04/14/04
Prep Time		09:30	09:30	09:30	09:30	09:30
Analysis Date		04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
Analysis Time		10:07	10:10	10:12	10:14	10:16
Batch ID		0414R	0414R	0414R	0414R	0414R
Quantitation Factor		1.000	1.000	1.000	1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-10	041W720102	Liquid	04/09/04	04/08/04 14:00	PEN17
43041-11	041R720102	Liquid	04/09/04	04/08/04 14:00	PEN17

Parameter	Units	Lab Sample IDs 43041-10	43041-11
TAL Metals (6010)			
Aluminum	ug/l	830	740
Antimony	ug/l	3.9U	3.9U
Arsenic	ug/l	3.3U	3.3U
Barium	ug/l	12	12
Beryllium	ug/l	0.78I	0.41I
Cadmium	ug/l	0.60U	0.60U
Calcium	ug/l	9700	10000
Chromium	ug/l	1.4U	1.4U
Cobalt	ug/l	1.2U	1.2U
Copper	ug/l	0.60U	0.60U
n	ug/l	1200	1000
d	ug/l	2.3I	2.5I
Magnesium	ug/l	1400	1400
Manganese	ug/l	7.7I	7.7I
Nickel	ug/l	1.5U	1.5U
Potassium	ug/l	990I	930I
Selenium	ug/l	5.3U	5.3U
Silver	ug/l	1.1U	1.1U
Sodium	ug/l	5400	5100
Thallium	ug/l	7.6U	7.6U
Vanadium	ug/l	3.7I	2.9I
Zinc	ug/l	1.7I	0.60U
Dilution Factor		1	1
Prep Date		04/13/04	04/13/04
Prep Time		12:00	12:00
Analysis Date		04/14/04	04/14/04
Analysis Time		06:50	06:55
Batch ID		0413I	0413I
Quantitation Factor		1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-10	041W720102	Liquid	04/09/04	04/08/04 14:00	PEN17
43041-11	041R720102	Liquid	04/09/04	04/08/04 14:00	PEN17

Parameter	Units	Lab Sample IDs 43041-10	43041-11
Mercury (7470)			
Mercury	ug/l	0.078U	0.078U
Dilution Factor		1	1
Prep Date		04/12/04	04/12/04
Prep Time		16:05	16:05
Analysis Date		04/14/04	04/14/04
Analysis Time		12:33	12:36
Batch ID		0412U	0412U
Quantitation Factor		1.000	1.000
TAL Metals (Dissolved) (6010DISS)			
Aluminum (Dissolved)	ug/l	220	210
Antimony (Dissolved)	ug/l	3.9U	3.9U
Arsenic, (Dissolved)	ug/l	3.3U	3.3U
Barium, (Dissolved)	ug/l	11	11
Beryllium (Dissolved)	ug/l	0.31I	0.32I
Cadmium (Dissolved)	ug/l	0.60U	0.60U
Calcium (Dissolved)	ug/l	11000	11000
Chromium, (Dissolved)	ug/l	1.4U	1.4U
Cobalt (Dissolved)	ug/l	1.2U	1.2U
Copper, Dissolved	ug/l	0.60U	0.60U
Iron (Dissolved)	ug/l	110	110
Lead, (Dissolved)	ug/l	1.9U	1.9U
Magnesium (Dissolved)	ug/l	1500	1400
Manganese (Dissolved)	ug/l	3.9I	4.8I
Nickel, (Dissolved)	ug/l	1.5U	1.5U
Potassium (Dissolved)	ug/l	920I	910I
Selenium (Dissolved)	ug/l	5.3U	5.3U
Silver (Dissolved)	ug/l	1.1U	1.1U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-10	041W720102	Liquid	04/09/04	04/08/04 14:00	PEN17
43041-11	041R720102	Liquid	04/09/04	04/08/04 14:00	PEN17

Parameter	Units	Lab Sample IDs 43041-10	43041-11
TAL Metals (Dissolved) (6010DISS)			
Sodium (Dissolved)	ug/l	5200	5100
Thallium (Dissolved)	ug/l	7.6U	7.6U
Vanadium (Dissolved)	ug/l	0.94I	1.2I
Zinc, (Dissolved)	ug/l	3.0I	1.9I
Dilution Factor		1	1
Prep Date		04/13/04	04/13/04
Prep Time		09:50	09:50
Analysis Date		04/14/04	04/14/04
Analysis Time		08:11	08:16
Batch ID		0413G	0413G
ıtitation Factor		1.000	1.000
Mercury (Dissolved) (7470)			
Mercury (Dissolved)	ug/l	0.078U	0.078U
Dilution Factor		1	1
Prep Date		04/14/04	04/14/04
Prep Time		09:30	09:30
Analysis Date		04/15/04	04/15/04
Analysis Time		10:28	10:35
Batch ID		0414R	0414R
Quantitation Factor		1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-12	Method Detection Limit (MDL)	Solid	04/09/04		PEN17
43041-13	Reporting Limit (RL)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-12	43041-13
TCL Pesticides (8081)			
alpha-BHC	ug/kg dw	0.24	1.7
beta-BHC	ug/kg dw	0.29	1.7
delta-BHC	ug/kg dw	0.12	1.7
gamma-BHC (Lindane)	ug/kg dw	0.15	1.7
Heptachlor	ug/kg dw	0.28	1.7
Aldrin	ug/kg dw	0.11	1.7
Heptachlor epoxide	ug/kg dw	0.17	1.7
Endosulfan I	ug/kg dw	0.17	1.7
Dieldrin	ug/kg dw	0.31	3.3
4,4'-DDE	ug/kg dw	0.54	3.3
Endrin	ug/kg dw	0.43	3.3
Endrin aldehyde	ug/kg dw	0.31	3.3
Endosulfan II	ug/kg dw	0.22	3.3
4,4'-DDD	ug/kg dw	0.35	3.3
Endosulfan sulfate	ug/kg dw	0.44	3.3
4,4'-DDT	ug/kg dw	0.31	3.3
Endrin ketone	ug/kg dw	0.38	3.3
Methoxychlor	ug/kg dw	0.20	17
alpha-Chlordane	ug/kg dw	0.11	1.7
gamma-Chlordane	ug/kg dw	0.13	1.7
Toxaphene	ug/kg dw	33	170
PCB's (8082)			
Aroclor-1016	ug/kg dw	3.9	33
Aroclor-1221	ug/kg dw	17	67
Aroclor-1232	ug/kg dw	6.7	33
Aroclor-1242	ug/kg dw	6.7	33
Aroclor-1248	ug/kg dw	6.5	33

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-12	Method Detection Limit (MDL)	Solid	04/09/04		PEN17
43041-13	Reporting Limit (RL)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-12	43041-13
PCB's (8082)			
Aroclor-1254	ug/kg dw	6.7	33
Aroclor-1260	ug/kg dw	4.4	33
TCL Semivolatiles (8270)			
Phenol	ug/kg dw	41	330
bis(2-Chloroethyl)ether	ug/kg dw	37	330
2-Chlorophenol	ug/kg dw	41	330
1,3-Dichlorobenzene	ug/kg dw	23	330
1,4-Dichlorobenzene	ug/kg dw	24	330
-Dichlorobenzene	ug/kg dw	23	330
ethylphenol (o-Cresol)	ug/kg dw	46	330
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw	32	330
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw	40	330
N-Nitroso-di-n-propylamine	ug/kg dw	30	330
Hexachloroethane	ug/kg dw	19	330
Nitrobenzene	ug/kg dw	31	330
Isophorone	ug/kg dw	26	330
2-Nitrophenol	ug/kg dw	26	330
2,4-Dimethylphenol	ug/kg dw	28	330
bis(2-Chloroethoxy)methane	ug/kg dw	32	330
2,4-Dichlorophenol	ug/kg dw	29	330
1,2,4-Trichlorobenzene	ug/kg dw	38	330
4-Chloroaniline	ug/kg dw	29	660
Hexachlorobutadiene	ug/kg dw	27	330
4-Chloro-3-methylphenol	ug/kg dw	40	330
Hexachlorocyclopentadiene	ug/kg dw	270	330

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-12	Method Detection Limit (MDL)	Solid	04/09/04		PEN17
43041-13	Reporting Limit (RL)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-12	43041-13
TCL Semivolatiles (8270)			
2,4,6-Trichlorophenol	ug/kg dw	32	330
2,4,5-Trichlorophenol	ug/kg dw	31	330
2-Chloronaphthalene	ug/kg dw	37	330
2-Nitroaniline	ug/kg dw	25	1700
Dimethylphthalate	ug/kg dw	35	330
3-Nitroaniline	ug/kg dw	30	1700
2,4-Dinitrophenol	ug/kg dw	340	1700
4-Nitrophenol	ug/kg dw	25	1700
Dibenzofuran	ug/kg dw	34	330
2,4-Dinitrotoluene	ug/kg dw	22	330
2,6-Dinitrotoluene	ug/kg dw	29	330
Diethylphthalate	ug/kg dw	35	330
4-Chlorophenylphenyl ether	ug/kg dw	26	330
4-Nitroaniline	ug/kg dw	26	1700
4,6-Dinitro-2-methylphenol	ug/kg dw	31	1700
N-Nitrosodiphenylamine	ug/kg dw	30	330
4-Bromophenylphenyl ether	ug/kg dw	30	330
Hexachlorobenzene	ug/kg dw	38	330
Pentachlorophenol	ug/kg dw	34	1700
Di-n-butylphthalate	ug/kg dw	39	330
Butylbenzylphthalate	ug/kg dw	32	330
3,3'-Dichlorobenzidine	ug/kg dw	26	660
bis(2-Ethylhexyl)phthalate	ug/kg dw	44	330
Di-n-octylphthalate	ug/kg dw	32	330
Carbazole	ug/kg dw	30	330

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-12	Method Detection Limit (MDL)	Solid	04/09/04		PEN17
43041-13	Reporting Limit (RL)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-12	43041-13
Low Level PAH (8270PAH)			
Naphthalene	ug/kg dw	0.71	6.7
Acenaphthylene	ug/kg dw	0.86	6.7
Acenaphthene	ug/kg dw	0.90	6.7
Fluorene	ug/kg dw	0.78	6.7
Phenanthrene	ug/kg dw	0.80	6.7
Anthracene	ug/kg dw	0.96	6.7
Fluoranthene	ug/kg dw	0.86	6.7
Pyrene	ug/kg dw	1.2	6.7
Chrysene	ug/kg dw	1.0	6.7
Benzo(a)anthracene	ug/kg dw	0.76	6.7
?o(b)fluoranthene	ug/kg dw	0.96	6.7
:o(k)fluoranthene	ug/kg dw	0.98	6.7
Benzo(a)pyrene	ug/kg dw	0.90	6.7
Indeno(1,2,3-cd)pyrene	ug/kg dw	0.65	6.7
Dibenzo(a,h)anthracene	ug/kg dw	0.88	6.7
Benzo(g,h,i)perylene	ug/kg dw	0.61	6.7
2-Methylnaphthalene	ug/kg dw	0.53	6.7
1-Methylnaphthalene	ug/kg dw	0.35	6.7
Volatiles by GC/MS (8260)			
Chloromethane	ug/kg dw	1.4	5.0
Bromomethane (Methyl bromide)	ug/kg dw	3.4	5.0
Vinyl chloride	ug/kg dw	1.4	5.0
Chloroethane	ug/kg dw	1.7	5.0
Methylene chloride (Dichloromethane)	ug/kg dw	2.4	5.0
Acetone	ug/kg dw	8.0	50
Carbon disulfide	ug/kg dw	2.0	5.0

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-12	Method Detection Limit (MDL)	Solid	04/09/04		PEN17
43041-13	Reporting Limit (RL)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-12	43041-13
Volatiles by GC/MS (8260)			
1,1-Dichloroethene	ug/kg dw	1.7	5.0
1,1-Dichloroethane	ug/kg dw	1.0	5.0
cis-1,2-Dichloroethene	ug/kg dw	1.1	5.0
trans-1,2-Dichloroethene	ug/kg dw	1.2	5.0
Chloroform	ug/kg dw	1.2	5.0
1,2-Dichloroethane	ug/kg dw	1.5	5.0
2-Butanone (MEK)	ug/kg dw	4.7	25
1,1,1-Trichloroethane	ug/kg dw	0.81	5.0
Carbon tetrachloride	ug/kg dw	0.94	5.0
Bromodichloromethane	ug/kg dw	1.3	5.0
1,1,2,2-Tetrachloroethane	ug/kg dw	2.0	5.0
1,2-Dichloropropane	ug/kg dw	1.2	5.0
trans-1,3-Dichloropropene	ug/kg dw	1.6	5.0
Trichloroethene	ug/kg dw	1.1	5.0
Dibromochloromethane	ug/kg dw	1.4	5.0
1,1,2-Trichloroethane	ug/kg dw	1.8	5.0
Benzene	ug/kg dw	1.1	5.0
cis-1,3-Dichloropropene	ug/kg dw	1.2	5.0
Bromoform	ug/kg dw	1.7	5.0
2-Hexanone	ug/kg dw	5.1	25
4-Methyl-2-pentanone (MIBK)	ug/kg dw	5.0	25
Tetrachloroethene	ug/kg dw	1.5	5.0
Toluene	ug/kg dw	1.8	5.0
Chlorobenzene	ug/kg dw	1.3	5.0
Ethylbenzene	ug/kg dw	1.0	5.0
Styrene	ug/kg dw	1.1	5.0
Xylenes, Total	ug/kg dw	3.0	10

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-12	Method Detection Limit (MDL)	Solid	04/09/04		PEN17
43041-13	Reporting Limit (RL)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-12	43041-13
Total Organic Carbon (9060)			
Total Organic Carbon	mg/kg dw	390	1000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-30	Method Detection Limit (MDL)	Solid	04/09/04		PEN17
43041-15	Reporting Limit (RL)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-30	43041-15
TAL Metals (6010)			
Aluminum	mg/kg dw	0.93	20
Antimony	mg/kg dw	0.39	2.0
Arsenic	mg/kg dw	0.33	1.0
Barium	mg/kg dw	0.020	1.0
Beryllium	mg/kg dw	0.020	0.40
Cadmium	mg/kg dw	0.060	0.50
Calcium	mg/kg dw	0.74	50
Chromium	mg/kg dw	0.14	1.0
Cobalt	mg/kg dw	0.12	1.0
Copper	mg/kg dw	0.060	2.0
Iron	mg/kg dw	1.8	5.0
Lead	mg/kg dw	0.19	0.50
Magnesium	mg/kg dw	0.85	50
Manganese	mg/kg dw	0.040	1.0
Nickel	mg/kg dw	0.15	4.0
Potassium	mg/kg dw	0.89	100
Selenium	mg/kg dw	0.53	1.0
Silver	mg/kg dw	0.11	1.0
Sodium	mg/kg dw	0.11	50
Thallium	mg/kg dw	0.76	1.0
Vanadium	mg/kg dw	0.070	1.0
Zinc	mg/kg dw	0.060	2.0
Mercury (7471)			
Mercury	mg/kg dw	0.0043	0.020

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
TAL Metals (6010)		
Aluminum	mg/kg dw	2.0I
Antimony	mg/kg dw	0.90I
Arsenic	mg/kg dw	0.33U
Barium	mg/kg dw	0.046I
Beryllium	mg/kg dw	0.023I
Cadmium	mg/kg dw	0.083I
Calcium	mg/kg dw	0.74U
Chromium	mg/kg dw	0.14U
Cobalt	mg/kg dw	0.12U
Copper	mg/kg dw	0.060U
Iron	mg/kg dw	2.8I
d	mg/kg dw	0.34I
nesium	mg/kg dw	0.88I
Manganese	mg/kg dw	0.040U
Nickel	mg/kg dw	0.15U
Potassium	mg/kg dw	2.5I
Selenium	mg/kg dw	0.53U
Silver	mg/kg dw	0.11U
Sodium	mg/kg dw	0.77I
Thallium	mg/kg dw	0.76U
Vanadium	mg/kg dw	0.097I
Zinc	mg/kg dw	0.51I
Dilution Factor		1
Prep Date		04/12/04
Prep Time		07:00
Analysis Date		04/15/04
Analysis Time		13:25
Batch ID		0412C
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
Mercury (7471)		
Mercury	mg/kg dw	0.0043U
Dilution Factor		1
Prep Date		04/12/04
Prep Time		15:35
Analysis Date		04/13/04
Analysis Time		17:17
Batch ID		0412T
Quantitation Factor		1.000
TCL Pesticides (8081)		
alpha-BHC	ug/kg dw	0.24U
beta-BHC	ug/kg dw	0.29U
delta-BHC	ug/kg dw	0.12U
gamma-BHC (Lindane)	ug/kg dw	0.15U
Heptachlor	ug/kg dw	0.28U
Aldrin	ug/kg dw	0.026I
Heptachlor epoxide	ug/kg dw	0.17U
Endosulfan I	ug/kg dw	0.17U
Dieldrin	ug/kg dw	0.31U
4,4'-DDE	ug/kg dw	0.54U
Endrin	ug/kg dw	0.43U
Endrin aldehyde	ug/kg dw	0.31U
Endosulfan II	ug/kg dw	0.22U
4,4'-DDD	ug/kg dw	0.35U
Endosulfan sulfate	ug/kg dw	0.44U
4,4'-DDT	ug/kg dw	0.31U
Endrin ketone	ug/kg dw	0.38U
Methoxychlor	ug/kg dw	0.20U
alpha-Chlordane	ug/kg dw	0.11U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
TCL Pesticides (8081)		
gamma-Chlordane	ug/kg dw	0.13U
Toxaphene	ug/kg dw	33U
Surrogate - DCB *	%	94 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	88 %
Dilution Factor		1
Prep Date		04/15/04
Prep Time		13:00
Analysis Date		04/29/04
Analysis Time		12:45
ch ID		0415N
ıtitation Factor		1.000
PCB's (8082)		
Aroclor-1016	ug/kg dw	3.9U
Aroclor-1221	ug/kg dw	17U
Aroclor-1232	ug/kg dw	6.7U
Aroclor-1242	ug/kg dw	6.7U
Aroclor-1248	ug/kg dw	6.5U
Aroclor-1254	ug/kg dw	6.7U
Aroclor-1260	ug/kg dw	4.4U
Surrogate - TCX *	%	88 %
Surrogate - DCB *	%	94 %
Dilution Factor		1
Prep Date		04/15/04
Analysis Date		04/29/04
Analysis Time		12:45
Batch ID		0415N
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
TCL Semivolatiles (8270)		
Phenol	ug/kg dw	41U
bis(2-Chloroethyl)ether	ug/kg dw	37U
2-Chlorophenol	ug/kg dw	41U
1,3-Dichlorobenzene	ug/kg dw	23U
1,4-Dichlorobenzene	ug/kg dw	24U
1,2-Dichlorobenzene	ug/kg dw	23U
2-Methylphenol (o-Cresol)	ug/kg dw	46U
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw	32U
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw	40U
N-Nitroso-di-n-propylamine	ug/kg dw	30U
Hexachloroethane	ug/kg dw	19U
Nitrobenzene	ug/kg dw	31U
Isophorone	ug/kg dw	26U
2-Nitrophenol	ug/kg dw	26U
2,4-Dimethylphenol	ug/kg dw	28U
bis(2-Chloroethoxy)methane	ug/kg dw	32U
2,4-Dichlorophenol	ug/kg dw	29U
1,2,4-Trichlorobenzene	ug/kg dw	38U
4-Chloroaniline	ug/kg dw	29U
Hexachlorobutadiene	ug/kg dw	27U
4-Chloro-3-methylphenol	ug/kg dw	40U
Hexachlorocyclopentadiene	ug/kg dw	270U
2,4,6-Trichlorophenol	ug/kg dw	32U
2,4,5-Trichlorophenol	ug/kg dw	31U
2-Chloronaphthalene	ug/kg dw	37U
2-Nitroaniline	ug/kg dw	25U
Dimethylphthalate	ug/kg dw	35U
3-Nitroaniline	ug/kg dw	30U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
TCL Semivolatiles (8270)		
2,4-Dinitrophenol	ug/kg dw	340U
4-Nitrophenol	ug/kg dw	25U
Dibenzofuran	ug/kg dw	34U
2,4-Dinitrotoluene	ug/kg dw	22U
2,6-Dinitrotoluene	ug/kg dw	29U
Diethylphthalate	ug/kg dw	35U
4-Chlorophenylphenyl ether	ug/kg dw	26U
4-Nitroaniline	ug/kg dw	26U
4,6-Dinitro-2-methylphenol	ug/kg dw	31U
N-Nitrosodiphenylamine	ug/kg dw	30U
4-Bromophenylphenyl ether	ug/kg dw	30U
achlorobenzene	ug/kg dw	38U
cachlorophenol	ug/kg dw	34U
Di-n-butylphthalate	ug/kg dw	39U
Butylbenzylphthalate	ug/kg dw	32U
3,3'-Dichlorobenzidine	ug/kg dw	26U
bis(2-Ethylhexyl)phthalate	ug/kg dw	44U
Di-n-octylphthalate	ug/kg dw	32U
Carbazole	ug/kg dw	30U
Surrogate - Phenol-d5 *	%	76 %
Surrogate - 2-Fluorophenol *	%	76 %
Surrogate - 2,4,6-Tribromophenol *	%	79 %
Surrogate - Nitrobenzene - d5 *	%	70 %
Surrogate - 2-Fluorobiphenyl *	%	76 %
Surrogate - Terphenyl-d14 *	%	106 %
Dilution Factor		1
Prep Date		04/15/04
Prep Time		11:55
Analysis Date		04/19/04
Analysis Time		10:12
Batch ID		0415C
Quantitation Factor		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
Low Level PAH (8270PAH)		
Naphthalene	ug/kg dw	0.71U
Acenaphthylene	ug/kg dw	0.86U
Acenaphthene	ug/kg dw	0.90U
Fluorene	ug/kg dw	0.78U
Phenanthrene	ug/kg dw	0.80U
Anthracene	ug/kg dw	0.96U
Fluoranthene	ug/kg dw	0.86U
Pyrene	ug/kg dw	1.2U
Chrysene	ug/kg dw	1.0U
Benzo(a)anthracene	ug/kg dw	0.76U
Benzo(b)fluoranthene	ug/kg dw	0.96U
Benzo(k)fluoranthene	ug/kg dw	0.98U
Benzo(a)pyrene	ug/kg dw	0.90U
Indeno(1,2,3-cd)pyrene	ug/kg dw	0.65U
Dibenzo(a,h)anthracene	ug/kg dw	0.88U
Benzo(g,h,i)perylene	ug/kg dw	0.61U
2-Methylnaphthalene	ug/kg dw	0.53U
1-Methylnaphthalene	ug/kg dw	0.35U
Surrogate - o-Terphenyl *	%	97 %
Dilution Factor		1
Prep Date		04/15/04
Prep Time		15:00
Analysis Date		04/16/04
Analysis Time		11:10
Batch ID		0415B
Quantitation Factor		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
Volatiles by GC/MS (8260)		
Chloromethane	ug/kg dw	1.4U
Bromomethane (Methyl bromide)	ug/kg dw	3.4U
Vinyl chloride	ug/kg dw	1.4U
Chloroethane	ug/kg dw	1.7U
Methylene chloride (Dichloromethane)	ug/kg dw	2.4U
Acetone	ug/kg dw	8.0U
Carbon disulfide	ug/kg dw	2.0U
1,1-Dichloroethene	ug/kg dw	1.7U
1,1-Dichloroethane	ug/kg dw	1.0U
cis-1,2-Dichloroethene	ug/kg dw	1.1U
ns-1,2-Dichloroethene	ug/kg dw	1.2U
oroform	ug/kg dw	1.2U
1,2-Dichloroethane	ug/kg dw	1.5U
2-Butanone (MEK)	ug/kg dw	4.7U
1,1,1-Trichloroethane	ug/kg dw	0.81U
Carbon tetrachloride	ug/kg dw	0.94U
Bromodichloromethane	ug/kg dw	1.3U
1,1,2,2-Tetrachloroethane	ug/kg dw	2.0U
1,2-Dichloropropane	ug/kg dw	1.2U
trans-1,3-Dichloropropene	ug/kg dw	1.6U
Trichloroethene	ug/kg dw	1.1U
Dibromochloromethane	ug/kg dw	1.4U
1,1,2-Trichloroethane	ug/kg dw	1.8U
Benzene	ug/kg dw	1.1U
cis-1,3-Dichloropropene	ug/kg dw	1.2U
Bromoform	ug/kg dw	1.7U
2-Hexanone	ug/kg dw	5.1U
4-Methyl-2-pentanone (MIBK)	ug/kg dw	5.0U
Tetrachloroethene	ug/kg dw	1.5U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-16	Method Blank	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-16
Volatiles by GC/MS (8260)		
Toluene	ug/kg dw	1.8U
Chlorobenzene	ug/kg dw	1.3U
Ethylbenzene	ug/kg dw	1.0U
Styrene	ug/kg dw	1.1U
Xylenes, Total	ug/kg dw	3.0U
Surrogate - Toluene-d8 *	%	100 %
Surrogate - 4-Bromofluorobenzene *	%	100 %
Surrogate - Dibromofluoromethane *	%	104 %
Dilution Factor		1
Prep Date		04/19/04
Prep Time		12:18
Analysis Date		04/19/04
Analysis Time		12:18
Batch ID		1M0419
Quantitation Factor		1.000
Total Organic Carbon (9060)		
Total Organic Carbon	mg/kg dw	390U
Dilution Factor		1
Prep Date		04/20/04
Prep Time		15:59
Analysis Date		04/20/04
Analysis Time		15:59
Batch ID		0420X
Quantitation Factor		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-17	Lab Control Standard Result	Solid	04/09/04		PEN17
43041-18	Spike Amount Added, LCS	Solid	04/09/04		PEN17
43041-19	Lab Control Standard % Recovery	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-17	43041-18	43041-19
TAL Metals (6010)				
Aluminum	mg/kg dw	222	214	104 %
Antimony	mg/kg dw	51.5	50.0	103 %
Arsenic	mg/kg dw	199	200	100 %
Barium	mg/kg dw	217	200	109 %
Beryllium	mg/kg dw	5.27	5.00	105 %
Cadmium	mg/kg dw	5.05	5.00	101 %
Calcium	mg/kg dw	507	500	101 %
Chromium	mg/kg dw	21.6	20.0	108 %
Cobalt	mg/kg dw	51.9	50.0	104 %
[illegible]per	mg/kg dw	26.4	25.0	106 %
[illegible]n	mg/kg dw	111	109	102 %
Lead	mg/kg dw	51.8	50.0	104 %
Magnesium	mg/kg dw	490	500	98 %
Manganese	mg/kg dw	54.6	50.0	109 %
Nickel	mg/kg dw	52.7	50.0	105 %
Potassium	mg/kg dw	528	510	104 %
Selenium	mg/kg dw	189	200	95 %
Silver	mg/kg dw	4.99	5.00	100 %
Sodium	mg/kg dw	502	555	90 %
Thallium	mg/kg dw	207	200	104 %
Vanadium	mg/kg dw	52.0	50.0	104 %
Zinc	mg/kg dw	51.5	50.0	103 %
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		07:00		07:00
Analysis Date		04/15/04		04/15/04
Analysis Time		13:31		13:31
Batch ID		0412C	0412C	0412C
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-17	Lab Control Standard Result	Solid	04/09/04		PEN17
43041-18	Spike Amount Added, LCS	Solid	04/09/04		PEN17
43041-19	Lab Control Standard % Recovery	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-17	43041-18	43041-19
Mercury (7471)				
Mercury	mg/kg dw	0.116	0.125	92 %
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		15:35		15:35
Analysis Date		04/13/04		04/13/04
Analysis Time		17:23		17:23
Batch ID		0412T	0412T	0412T
Quantitation Factor		1.000		
TCL Pesticides (8081)				
alpha-BHC	ug/kg dw	3.2	3.3	97 %
beta-BHC	ug/kg dw	3.6	3.3	109 %
delta-BHC	ug/kg dw	2.4	3.3	73 %
gamma-BHC (Lindane)	ug/kg dw	2.2	3.3	67 %
Heptachlor	ug/kg dw	2.4	3.3	73 %
Aldrin	ug/kg dw	5.6	3.3	127 %J3
Heptachlor epoxide	ug/kg dw	2.9	3.3	88 %
Endosulfan I	ug/kg dw	3.5	3.3	106 %
Dieldrin	ug/kg dw	8.3	6.7	124 %
4,4'-DDE	ug/kg dw	5.8	6.7	86 %
Endrin	ug/kg dw	7.9	6.7	118 %
Endrin aldehyde	ug/kg dw	4.3	6.7	64 %
Endosulfan II	ug/kg dw	6.5	6.7	97 %
4,4'-DDD	ug/kg dw	7.4	6.7	110 %
Endosulfan sulfate	ug/kg dw	7.4	6.7	110 %
4,4'-DDT	ug/kg dw	8.0	6.7	119 %
Endrin ketone	ug/kg dw	8.4	6.7	125 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-17	Lab Control Standard Result	Solid	04/09/04		PEN17
43041-18	Spike Amount Added, LCS	Solid	04/09/04		PEN17
43041-19	Lab Control Standard % Recovery	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-17	43041-18	43041-19
TCL Pesticides (8081)				
Methoxychlor	ug/kg dw	8.9	6.7	133 %
alpha-Chlordane	ug/kg dw	3.3	3.3	100 %
gamma-Chlordane	ug/kg dw	3.6	3.3	109 %
Surrogate - DCB *	ug/kg dw	14		82 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	ug/kg dw	13		76 %
Dilution Factor		1		1
Prep Date		04/15/04		04/15/04
Prep Time		13:00		13:00
Analysis Date		04/29/04		04/29/04
Analysis Time		13:03		13:03
Batch ID		0415N	0415N	0415N
Quantitation Factor		1.000		
PCB's (8082)				
Aroclor-1016	ug/kg dw	310	330	94 %
Aroclor-1260	ug/kg dw	340	330	103 %
Surrogate - TCX *	ug/kg dw	14		82 %
Surrogate - DCB *	ug/kg dw	15		88 %
Dilution Factor		1		1
Prep Date		04/15/04		04/15/04
Analysis Date		04/29/04		04/29/04
Analysis Time		13:21		13:21
Batch ID		0415N	0415N	0415N
Quantitation Factor		1.000		

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-17	Lab Control Standard Result	Solid	04/09/04		PEN17
43041-18	Spike Amount Added, LCS	Solid	04/09/04		PEN17
43041-19	Lab Control Standard % Recovery	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-17	43041-18	43041-19
TCL Semivolatiles (8270)				
Phenol	ug/kg dw	2500	3300	76 %
2-Chlorophenol	ug/kg dw	2400	3300	73 %
1,4-Dichlorobenzene	ug/kg dw	2300	3300	70 %
N-Nitroso-di-n-propylamine	ug/kg dw	2200	3300	67 %
1,2,4-Trichlorobenzene	ug/kg dw	2800	3300	85 %
4-Chloro-3-methylphenol	ug/kg dw	3400	3300	103 %
4-Nitrophenol	ug/kg dw	2600	3300	79 %
2,4-Dinitrotoluene	ug/kg dw	3300	3300	100 %
Pentachlorophenol	ug/kg dw	3100	3300	94 %
Surrogate - Phenol-d5 *	ug/kg dw	2800	3300	85 %
Surrogate - 2-Fluorophenol *	ug/kg dw	2600	3300	79 %
Surrogate - 2,4,6-Tribromophenol *	ug/kg dw	3400	3300	103 %
Surrogate - Nitrobenzene - d5 *	ug/kg dw	1300	1700	76 %
Surrogate - 2-Fluorobiphenyl *	ug/kg dw	1400	1700	82 %
Surrogate - Terphenyl-d14 *	ug/kg dw	1800	1700	106 %
Dilution Factor		1		1
Prep Date		04/15/04		04/15/04
Prep Time		11:55		11:55
Analysis Date		04/19/04		04/19/04
Analysis Time		11:08		11:08
Batch ID		0415C	0415C	0415C
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-17	Lab Control Standard Result	Solid	04/09/04		PEN17
43041-18	Spike Amount Added, LCS	Solid	04/09/04		PEN17
43041-19	Lab Control Standard % Recovery	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-17	43041-18	43041-19
Low Level PAH (8270PAH)				
Naphthalene	ug/kg dw	42	67	63 %
Acenaphthene	ug/kg dw	44	67	66 %
Fluorene	ug/kg dw	46	67	69 %
Pyrene	ug/kg dw	49	67	73 %
Benzo(a)pyrene	ug/kg dw	50	67	75 %
Surrogate - o-Terphenyl *	ug/kg dw	54	67	80 %
Dilution Factor		1		1
Prep Date		04/15/04		04/15/04
Prep Time		15:00		15:00
Analysis Date		04/16/04		04/16/04
Analysis Time		11:39		11:39
Batch ID		0415B	0415B	0415B
Quantitation Factor		1.000		
Volatiles by GC/MS (8260)				
1,1-Dichloroethene	ug/kg dw	57	50	114 %
Trichloroethene	ug/kg dw	53	50	106 %
Benzene	ug/kg dw	52	50	104 %
Toluene	ug/kg dw	52	50	104 %
Chlorobenzene	ug/kg dw	53	50	106 %
Surrogate - Toluene-d8 *	ug/kg dw	52	50	104 %
Surrogate - 4-Bromofluorobenzene *	ug/kg dw	53	50	106 %
Surrogate - Dibromofluoromethane *	ug/kg dw	56	50	112 %
Dilution Factor		1		1
Prep Date		04/19/04		04/19/04
Prep Time		11:57		11:57
Analysis Date		04/19/04		04/19/04
Analysis Time		11:57		11:57
Batch ID		1M0419	1M0419	1M0419
Quantitation Factor		1.000		

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-17	Lab Control Standard Result	Solid	04/09/04		PEN17
43041-18	Spike Amount Added, LCS	Solid	04/09/04		PEN17
43041-19	Lab Control Standard % Recovery	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-17	43041-18	43041-19
Total Organic Carbon (9060)				
Total Organic Carbon	mg/kg dw	400000	408000	98 %
Dilution Factor		1		1
Prep Date		04/20/04		04/20/04
Prep Time		16:07		16:07
Analysis Date		04/20/04		04/20/04
Analysis Time		16:07		16:07
Batch ID		0420X	0420X	0420X
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-20	LCS Accuracy Control Limit (%R)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-20
TAL Metals (6010)		
Aluminum	%	75-125 %
Antimony	%	75-125 %
Arsenic	%	75-125 %
Barium	%	75-125 %
Beryllium	%	75-125 %
Cadmium	%	75-125 %
Calcium	%	75-125 %
Chromium	%	75-125 %
Cobalt	%	75-125 %
Copper	%	75-125 %
Iron	%	75-125 %
[illegible]	%	75-125 %
[illegible]nesium	%	75-125 %
Manganese	%	75-125 %
Nickel	%	75-125 %
Potassium	%	75-125 %
Selenium	%	75-125 %
Silver	%	75-125 %
Sodium	%	75-125 %
Thallium	%	75-125 %
Vanadium	%	75-125 %
Zinc	%	75-125 %
Mercury (7471)		
Mercury	%	80-120 %

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-20	LCS Accuracy Control Limit (%R)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-20
TCL Pesticides (8081)		
alpha-BHC	%	22-125 %
beta-BHC	%	36-144 %
delta-BHC	%	32-140 %
gamma-BHC (Lindane)	%	35-132 %
Heptachlor	%	31-142 %
Aldrin	%	34-124 %
Heptachlor epoxide	%	29-133 %
Endosulfan I	%	31-133 %
Dieldrin	%	40-133 %
4,4'-DDE	%	33-139 %
Endrin	%	42-137 %
Endrin aldehyde	%	37-152 %
Endosulfan II	%	34-150 %
4,4'-DDD	%	37-149 %
Endosulfan sulfate	%	45-163 %
4,4'-DDT	%	46-156 %
Endrin ketone	%	44-165 %
Methoxychlor	%	37-185 %
alpha-Chlordane	%	40-139 %
gamma-Chlordane	%	39-143 %
Surrogate - DCB *	%	30-150 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	30-150 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-20	LCS Accuracy Control Limit (%R)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-20
PCB's (8082)		
Aroclor-1016	%	24-132 %
Aroclor-1260	%	28-153 %
Surrogate - TCX *	%	30-150 %
Surrogate - DCB *	%	30-150 %
TCL Semivolatiles (8270)		
Phenol	%	20-108 %
2-Chlorophenol	%	22-109 %
1,4-Dichlorobenzene	%	25-93 %
N-Nitroso-di-n-propylamine	%	17-110 %
4-Trichlorobenzene	%	26-102 %
nloro-3-methylphenol	%	22-124 %
4-Nitrophenol	%	13-133 %
2,4-Dinitrotoluene	%	18-125 %
Pentachlorophenol	%	17-140 %
Surrogate - Phenol-d5 *	%	31-105 %
Surrogate - 2-Fluorophenol *	%	31-105 %
Surrogate - 2,4,6-Tribromophenol *	%	26-127 %
Surrogate - Nitrobenzene - d5 *	%	31-99 %
Surrogate - 2-Fluorobiphenyl *	%	37-106 %
Surrogate - Terphenyl-d14 *	%	38-120 %

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-20	LCS Accuracy Control Limit (%R)	Solid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-20
Low Level PAH (8270PAH)		
Naphthalene	%	29-106 %
Acenaphthene	%	28-110 %
Fluorene	%	27-116 %
Pyrene	%	28-130 %
Benzo(a)pyrene	%	28-128 %
Surrogate - o-Terphenyl *	%	14-129 %
Volatiles by GC/MS (8260)		
1,1-Dichloroethene	%	46-142 %
Trichloroethene	%	64-126 %
Benzene	%	65-130 %
Toluene	%	63-133 %
Chlorobenzene	%	69-128 %
Surrogate - Toluene-d8 *	%	65-128 %
Surrogate - 4-Bromofluorobenzene *	%	68-121 %
Surrogate - Dibromofluoromethane *	%	66-127 %
Total Organic Carbon (9060)		
Total Organic Carbon	%	60-140 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-21	Method Detection Limit (MDL)	Liquid	04/09/04		PEN17
43041-22	Reporting Limit (RL)	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-21	43041-22
Volatiles by GC/MS (8260)			
Chloromethane	ug/l	0.39	1.0
Bromomethane (Methyl bromide)	ug/l	0.62	1.0
Vinyl chloride	ug/l	0.56	1.0
Chloroethane	ug/l	0.78	1.0
Methylene chloride (Dichloromethane)	ug/l	0.64	5.0
Acetone	ug/l	5.0	25
Carbon disulfide	ug/l	0.66	1.0
1,1-Dichloroethene	ug/l	0.36	1.0
1,1-Dichloroethane	ug/l	0.36	1.0
-1,2-Dichloroethene	ug/l	0.38	1.0
ans-1,2-Dichloroethene	ug/l	0.40	1.0
Chloroform	ug/l	0.37	1.0
1,2-Dichloroethane	ug/l	0.26	1.0
2-Butanone (MEK)	ug/l	1.3	10
1,1,1-Trichloroethane	ug/l	0.32	1.0
Carbon tetrachloride	ug/l	0.31	1.0
Bromodichloromethane	ug/l	0.14	1.0
1,1,2,2-Tetrachloroethane	ug/l	0.18	1.0
1,2-Dichloropropane	ug/l	0.33	1.0
trans-1,3-Dichloropropene	ug/l	0.26	1.0
Trichloroethene	ug/l	0.37	1.0
Dibromochloromethane	ug/l	0.50	1.0
1,1,2-Trichloroethane	ug/l	0.22	1.0
Benzene	ug/l	0.36	1.0
cis-1,3-Dichloropropene	ug/l	0.23	1.0
Bromoform	ug/l	0.33	1.0
2-Hexanone	ug/l	0.93	10
4-Methyl-2-pentanone (MIBK)	ug/l	0.65	10

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-21	Method Detection Limit (MDL)	Liquid	04/09/04		PEN17
43041-22	Reporting Limit (RL)	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-21	43041-22
Volatiles by GC/MS (8260)			
Tetrachloroethene	ug/l	0.35	1.0
Toluene	ug/l	0.54	1.0
Chlorobenzene	ug/l	0.34	1.0
Ethylbenzene	ug/l	0.34	1.0
Styrene	ug/l	0.25	1.0
Xylenes, Total	ug/l	1.3	2.0

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-31	Method Detection Limit (MDL)	Liquid	04/09/04		PEN17
43041-24	Reporting Limit (RL)	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-31	43041-24
TAL Metals (6010)			
Aluminum	ug/l	9.3	200
Antimony	ug/l	3.9	20
Arsenic	ug/l	3.3	10
Barium	ug/l	0.20	10
Beryllium	ug/l	0.20	4.0
Cadmium	ug/l	0.60	5.0
Calcium	ug/l	7.4	500
Chromium	ug/l	1.4	10
Cobalt	ug/l	1.2	10
Copper	ug/l	0.60	20
]	ug/l	18	50
J	ug/l	1.9	5.0
Magnesium	ug/l	8.5	500
Manganese	ug/l	0.40	10
Nickel	ug/l	1.5	40
Potassium	ug/l	8.9	1000
Selenium	ug/l	5.3	10
Silver	ug/l	1.1	10
Sodium	ug/l	1.1	500
Thallium	ug/l	7.6	10
Vanadium	ug/l	0.70	10
Zinc	ug/l	0.60	20
Mercury (7470)			
Mercury	ug/l	0.078	0.20

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-31	Method Detection Limit (MDL)	Liquid	04/09/04		PEN17
43041-24	Reporting Limit (RL)	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-31	43041-24
TAL Metals (Dissolved) (6010DISS)			
Aluminum (Dissolved)	ug/l	9.3	200
Antimony (Dissolved)	ug/l	3.9	20
Arsenic, (Dissolved)	ug/l	3.3	10
Barium, (Dissolved)	ug/l	0.20	10
Beryllium (Dissolved)	ug/l	0.20	4.0
Cadmium (Dissolved)	ug/l	0.60	5.0
Calcium (Dissolved)	ug/l	7.4	500
Chromium, (Dissolved)	ug/l	1.4	10
Cobalt (Dissolved)	ug/l	1.2	10
Copper, Dissolved	ug/l	0.60	20
Iron (Dissolved)	ug/l	18	50
Lead, (Dissolved)	ug/l	1.9	5.0
Magnesium (Dissolved)	ug/l	8.5	500
Manganese (Dissolved)	ug/l	0.40	10
Nickel, (Dissolved)	ug/l	1.5	40
Potassium (Dissolved)	ug/l	8.9	1000
Selenium (Dissolved)	ug/l	5.3	10
Silver (Dissolved)	ug/l	1.1	10
Sodium (Dissolved)	ug/l	1.1	500
Thallium (Dissolved)	ug/l	7.6	10
Vanadium (Dissolved)	ug/l	0.70	10
Zinc, (Dissolved)	ug/l	0.60	20
Mercury (Dissolved) (7470)			
Mercury (Dissolved)	ug/l	0.078	0.20

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-25	Method Blank	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-25
TAL Metals (6010)		
Aluminum	ug/l	13I
Antimony	ug/l	3.9U
Arsenic	ug/l	3.3U
Barium	ug/l	0.20U
Beryllium	ug/l	0.31I
Cadmium	ug/l	0.60U
Calcium	ug/l	43I
Chromium	ug/l	1.4U
Cobalt	ug/l	1.2U
Copper	ug/l	0.60U
Iron	ug/l	18U
d	ug/l	1.9U
nesium	ug/l	8.5U
Manganese	ug/l	0.45I
Nickel	ug/l	1.5U
Potassium	ug/l	8.9U
Selenium	ug/l	5.3U
Silver	ug/l	1.5I
Sodium	ug/l	23I
Thallium	ug/l	7.6U
Vanadium	ug/l	0.70U
Zinc	ug/l	0.72I
Dilution Factor		1
Prep Date		04/13/04
Prep Time		12:00
Analysis Date		04/14/04
Analysis Time		04:42
Batch ID		0413I
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-25	Method Blank	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-25
Mercury (7470)		
Mercury	ug/l	0.078U
Dilution Factor		1
Prep Date		04/12/04
Prep Time		16:05
Analysis Date		04/14/04
Analysis Time		11:17
Batch ID		0412U
Quantitation Factor		1.000
TAL Metals (Dissolved) (6010DISS)		
Aluminum (Dissolved)	ug/l	39I
Antimony (Dissolved)	ug/l	3.9U
Arsenic, (Dissolved)	ug/l	3.7I
Barium, (Dissolved)	ug/l	0.30I
Beryllium (Dissolved)	ug/l	0.82I
Cadmium (Dissolved)	ug/l	0.60U
Calcium (Dissolved)	ug/l	11I
Chromium, (Dissolved)	ug/l	1.4U
Cobalt (Dissolved)	ug/l	1.4I
Copper, Dissolved	ug/l	0.60U
Iron (Dissolved)	ug/l	21I
Lead, (Dissolved)	ug/l	1.9U
Magnesium (Dissolved)	ug/l	8.5U
Manganese (Dissolved)	ug/l	0.45I
Nickel, (Dissolved)	ug/l	1.5U
Potassium (Dissolved)	ug/l	8.9U
Selenium (Dissolved)	ug/l	5.3U
Silver (Dissolved)	ug/l	1.5I
Sodium (Dissolved)	ug/l	67I

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-25	Method Blank	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-25
TAL Metals (Dissolved) (6010DISS)		
Thallium (Dissolved)	ug/l	7.6U
Vanadium (Dissolved)	ug/l	0.70U
Zinc, (Dissolved)	ug/l	3.9I
Dilution Factor		1
Prep Date		04/13/04
Prep Time		09:50
Analysis Date		04/14/04
Analysis Time		07:07
Batch ID		0413G
Quantitation Factor		1.000
Mercury (Dissolved) (7470)		
Mercury (Dissolved)	ug/l	0.10I
Dilution Factor		1
Prep Date		04/14/04
Prep Time		09:30
Analysis Date		04/15/04
Analysis Time		09:41
Batch ID		0414R
Quantitation Factor		1.000
Volatiles by GC/MS (8260)		
Chloromethane	ug/l	0.39U
Bromomethane (Methyl bromide)	ug/l	0.62U
Vinyl chloride	ug/l	0.56U
Chloroethane	ug/l	0.78U
Methylene chloride (Dichloromethane)	ug/l	0.64U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-25	Method Blank	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-25
Volatiles by GC/MS (8260)		
Acetone	ug/l	5.0U
Carbon disulfide	ug/l	0.66U
1,1-Dichloroethene	ug/l	0.36U
1,1-Dichloroethane	ug/l	0.36U
cis-1,2-Dichloroethene	ug/l	0.38U
trans-1,2-Dichloroethene	ug/l	0.40U
Chloroform	ug/l	0.37U
1,2-Dichloroethane	ug/l	0.26U
2-Butanone (MEK)	ug/l	5.7I
1,1,1-Trichloroethane	ug/l	0.32U
Carbon tetrachloride	ug/l	0.31U
Bromodichloromethane	ug/l	0.14U
1,1,2,2-Tetrachloroethane	ug/l	0.18U
1,2-Dichloropropane	ug/l	0.33U
trans-1,3-Dichloropropene	ug/l	0.26U
Trichloroethene	ug/l	0.37U
Dibromochloromethane	ug/l	0.50U
1,1,2-Trichloroethane	ug/l	0.22U
Benzene	ug/l	0.36U
cis-1,3-Dichloropropene	ug/l	0.23U
Bromoform	ug/l	0.33U
2-Hexanone	ug/l	0.93U
4-Methyl-2-pentanone (MIBK)	ug/l	0.65U
Tetrachloroethene	ug/l	0.35U
Toluene	ug/l	0.54U
Chlorobenzene	ug/l	0.34U
Ethylbenzene	ug/l	0.34U
Styrene	ug/l	0.25U
Xylenes, Total	ug/l	1.3U
Surrogate - Toluene-d8 *	%	104 %

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-25	Method Blank	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-25
Volatiles by GC/MS (8260)		
Surrogate - 4-Bromofluorobenzene *	%	110 %
Surrogate - Dibromofluoromethane *	%	110 %
Dilution Factor		1
Prep Date		04/15/04
Prep Time		11:17
Analysis Date		04/15/04
Analysis Time		11:17
Batch ID		1P0415C1
Quantitation Factor		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-26	Lab Control Standard Result	Liquid	04/09/04		PEN17
43041-27	Spike Amount Added, LCS	Liquid	04/09/04		PEN17
43041-28	Lab Control Standard % Recovery	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-26	43041-27	43041-28
TAL Metals (6010)				
Aluminum	ug/l	2080	2000	104 %
Antimony	ug/l	534	500	107 %
Arsenic	ug/l	2100	2000	105 %
Barium	ug/l	2080	2000	104 %
Beryllium	ug/l	55.4	50.0	111 %
Cadmium	ug/l	55.3	50.0	111 %
Calcium	ug/l	5610	5000	112 %
Chromium	ug/l	221	200	110 %
Cobalt	ug/l	536	500	107 %
Copper	ug/l	267	250	107 %
Iron	ug/l	1080	1000	108 %
Lead	ug/l	541	500	108 %
Magnesium	ug/l	5220	5000	104 %
Manganese	ug/l	553	500	111 %
Nickel	ug/l	549	500	110 %
Potassium	ug/l	5200	5000	104 %
Selenium	ug/l	2100	2000	105 %
Silver	ug/l	50.3	50.0	101 %
Sodium	ug/l	5040	5000	101 %
Thallium	ug/l	2150	2000	108 %
Vanadium	ug/l	525	500	105 %
Zinc	ug/l	538	500	108 %
Dilution Factor		1		1
Prep Date		04/13/04		04/13/04
Prep Time		12:00		12:00
Analysis Date		04/14/04		04/14/04
Analysis Time		04:47		04:47
Batch ID		0413I	0413I	0413I
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-26	Lab Control Standard Result	Liquid	04/09/04		PEN17
43041-27	Spike Amount Added, LCS	Liquid	04/09/04		PEN17
43041-28	Lab Control Standard % Recovery	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-26	43041-27	43041-28
Mercury (7470)				
Mercury	ug/l	2.06	2.5	82 %
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		16:05		16:05
Analysis Date		04/14/04		04/14/04
Analysis Time		11:19		11:19
Batch ID		0412U	0412U	0412U
Quantitation Factor		1.000		
TAL Metals (Dissolved) (6010DISS)				
Aluminum (Dissolved)	ug/l	2070	2000	103 %
Antimony (Dissolved)	ug/l	518	500	104 %
Arsenic, (Dissolved)	ug/l	2050	2000	103 %
Barium, (Dissolved)	ug/l	2090	2000	105 %
Beryllium (Dissolved)	ug/l	53.1	50.0	106 %
Cadmium (Dissolved)	ug/l	52.8	50.0	106 %
Calcium (Dissolved)	ug/l	5270	5000	105 %
Chromium, (Dissolved)	ug/l	212	200	106 %
Cobalt (Dissolved)	ug/l	515	500	103 %
Copper, Dissolved	ug/l	268	250	107 %
Iron (Dissolved)	ug/l	1040	1000	104 %
Lead, (Dissolved)	ug/l	520	500	104 %
Magnesium (Dissolved)	ug/l	5070	5000	101 %
Manganese (Dissolved)	ug/l	535	500	107 %
Nickel, (Dissolved)	ug/l	531	500	106 %
Potassium (Dissolved)	ug/l	5280	5000	106 %
Selenium (Dissolved)	ug/l	2050	2000	103 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-26	Lab Control Standard Result	Liquid	04/09/04		PEN17
43041-27	Spike Amount Added, LCS	Liquid	04/09/04		PEN17
43041-28	Lab Control Standard % Recovery	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-26	43041-27	43041-28
TAL Metals (Dissolved) (6010DISS)				
Silver (Dissolved)	ug/l	49.7	50.0	99 %
Sodium (Dissolved)	ug/l	5040	5000	101 %
Thallium (Dissolved)	ug/l	2100	2000	105 %
Vanadium (Dissolved)	ug/l	511	500	102 %
Zinc, (Dissolved)	ug/l	514	500	103 %
Dilution Factor		1		1
Prep Date		04/13/04		04/13/04
Prep Time		09:50		09:50
Analysis Date		04/14/04		04/14/04
Analysis Time		07:11		07:11
Batch ID		0413G	0413G	0413G
Quantitation Factor		1.000		
Mercury (Dissolved) (7470)				
Mercury (Dissolved)	ug/l	2.25	2.50	90 %
Dilution Factor		1		1
Prep Date		04/14/04		04/14/04
Prep Time		09:30		09:30
Analysis Date		04/15/04		04/15/04
Analysis Time		09:51		09:51
Batch ID		0414R	0414R	0414R
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-26	Lab Control Standard Result	Liquid	04/09/04		PEN17
43041-27	Spike Amount Added, LCS	Liquid	04/09/04		PEN17
43041-28	Lab Control Standard % Recovery	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-26	43041-27	43041-28
Volatiles by GC/MS (8260)				
1,1-Dichloroethene	ug/l	26	25	104 %
Trichloroethene	ug/l	25	25	100 %
Benzene	ug/l	26	25	104 %
Toluene	ug/l	26	25	104 %
Chlorobenzene	ug/l	26	25	104 %
Surrogate - Toluene-d8 *	ug/l	24	25	96 %
Surrogate - 4-Bromofluorobenzene *	ug/l	26	25	104 %
Surrogate - ibromofluoromethane *	ug/l	26	25	104 %
ution Factor		1		1
Prep Date		04/15/04		04/15/04
Prep Time		09:54		09:54
Analysis Date		04/15/04		04/15/04
Analysis Time		09:54		09:54
Batch ID		1P0415C1	1P0415C1	1P0415C1
Quantitation Factor		1.000		

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-29	LCS Accuracy Control Limit (%R)	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-29
TAL Metals (6010)		
Aluminum	%	75-125 %
Antimony	%	75-125 %
Arsenic	%	75-125 %
Barium	%	75-125 %
Beryllium	%	75-125 %
Cadmium	%	75-125 %
Calcium	%	75-125 %
Chromium	%	75-125 %
Cobalt	%	75-125 %
Copper	%	75-125 %
Iron	%	75-125 %
Lead	%	75-125 %
Magnesium	%	75-125 %
Manganese	%	75-125 %
Nickel	%	75-125 %
Potassium	%	75-125 %
Selenium	%	75-125 %
Silver	%	75-125 %
Sodium	%	75-125 %
Thallium	%	75-125 %
Vanadium	%	75-125 %
Zinc	%	75-125 %
Mercury (7470)		
Mercury	%	80-120 %

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-29	LCS Accuracy Control Limit (%R)	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-29
TAL Metals (Dissolved) (6010DISS)		
Aluminum (Dissolved)	%	75-125 %
Antimony (Dissolved)	%	75-125 %
Arsenic, (Dissolved)	%	75-125 %
Barium, (Dissolved)	%	75-125 %
Beryllium (Dissolved)	%	75-125 %
Cadmium (Dissolved)	%	75-125 %
Calcium (Dissolved)	%	75-125 %
Chromium, (Dissolved)	%	75-125 %
Cobalt (Dissolved)	%	75-125 %
Copper, Dissolved	%	75-125 %
Iron (Dissolved)	%	75-125 %
l, (Dissolved)	%	75-125 %
gnesium (Dissolved)	%	75-125 %
Manganese (Dissolved)	%	75-125 %
Nickel, (Dissolved)	%	75-125 %
Potassium (Dissolved)	%	75-125 %
Selenium (Dissolved)	%	75-125 %
Silver (Dissolved)	%	75-125 %
Sodium (Dissolved)	%	75-125 %
Thallium (Dissolved)	%	75-125 %
Vanadium (Dissolved)	%	75-125 %
Zinc, (Dissolved)	%	75-125 %
Mercury (Dissolved) (7470)		
Mercury (Dissolved)	%	80-120 %

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
43041-29	LCS Accuracy Control Limit (%R)	Liquid	04/09/04		PEN17

Parameter	Units	Lab Sample IDs 43041-29
Volatiles by GC/MS (8260)		
1,1-Dichloroethene	%	53-144 %
Trichloroethene	%	70-123 %
Benzene	%	69-128 %
Toluene	%	71-129 %
Chlorobenzene	%	72-126 %
Surrogate - Toluene-d8 *	%	74-122 %
Surrogate - 4-Bromofluorobenzene *	%	70-119 %
Surrogate - Dibromofluoromethane *	%	68-129 %

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Order Number: S443041

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III.

Attached - Grain-size analysis was performed by STL Burlington. Data is provided as a seperate attachment.

J4 = Due to matrix interference from samples, DDT breakdown occured therefore the continuing calibration failed. Samples were diluted and reanalyzed and both sets of results are reported. The continuing calibration passed criteria for diluted samples.

U = Indicates that the compound was analyzed for but not detected.

J = Reported value between the method detection limit andreporting limit is estimated.
V = Analyte was detected in the associated method blank.
J3 = Spike recovery was outside control limits.

SEVERN TRENT STL

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

April 21, 2004

Ms. Linda Wolfe
Severn Trent Laboratories
5102 LaRoche Avenue
Savannah, GA 31404

Re: Laboratory Project No.: 24005
Case: 24005; ETR 99537

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by STL Burlington on April 10, 2004. This report is sequentially numbered starting with page 0001 and ending with page 0004.

Laboratory ID numbers were designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 04/10/04 ETR No: 99537		
566800	041M19A101	04/08/04	Solid

ASTM Method D422 – Particle Size:
The laboratory noted at the time of sample receipt, that some water from the bag of ice that accompanied the sample might have leaked into the sample baggie.

No exceptions to the method prescribed quality control criteria were observed during the analysis of the sample in this delivery group.

Client specified matrix spike/matrix spike duplicate samples were not analyzed or requested with the above sample. However, routine method quality control analyses were performed.

The analytical results presented in this data report were generated under a quality system that adheres to the requirements specified in the NELAC standard. This report shall not be reproduced, except in full, without the written approval of the laboratory. The release of the data in this report is authorized by the Laboratory Director or his designee, as verified by the following signature.

If there are any questions regarding this test report, please contact Ron Pentkowski at (802) 655-1203.

Sincerely,

Michael F. Wheeler, Ph.D.
Laboratory Director

Enclosure

STL Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified in project QA plan, the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

*: Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P	ICP-AES
MS	ICP-MS
CV	Cold Vapor AA
AS	Semi-Automated Spectrophotometric

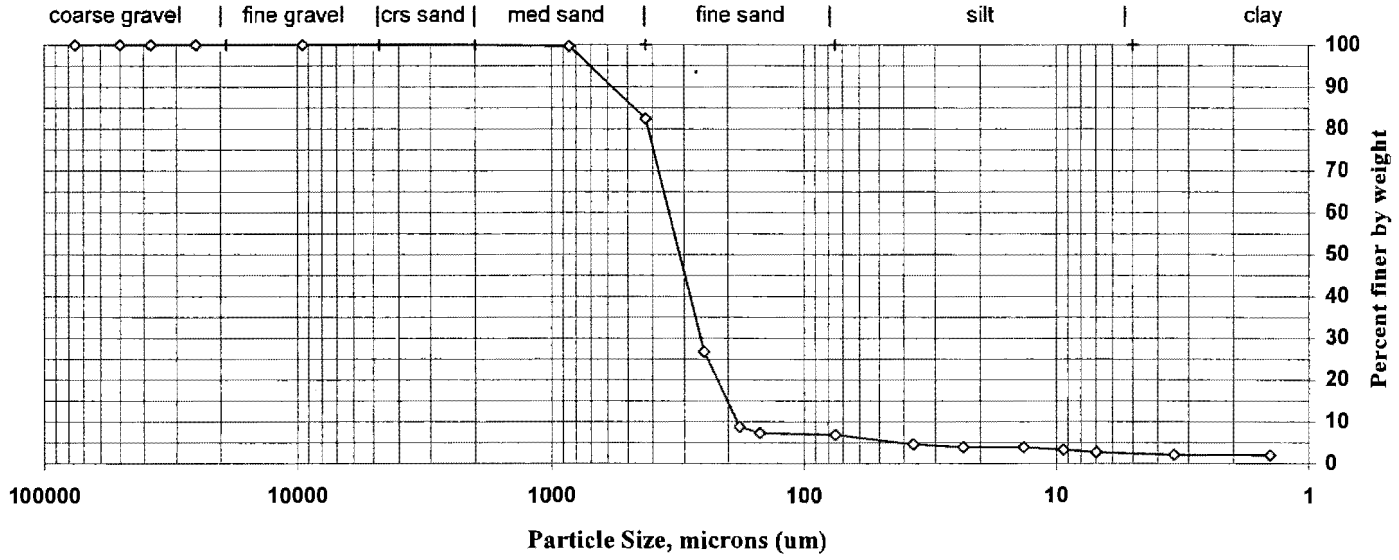
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	STLGAS	**Project No.:**	24005	**ETR(s) #:**	99537
Client Code:	STLGAS	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	10-Apr-04	**Start Date:**	12-Apr-04	**End Date:**	16-Apr-04

Lab ID: 566800 **Sample ID:** 041M19A101

Percent Solids:	82.8%		**Maximum Particle Size:**	Med sand
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	N/A
Non-soil mass:	0.1%		**Hardness (> #10):**	N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.7	0.3
#40	425	82.4	17.2
#60	250	26.8	55.6
#80	180	8.8	18.0
#100	150	7.3	1.5
#200	75	6.9	0.4
Hydrometer	36.6	4.6	2.3
|	23.2	3.9	0.6
|	13.4	3.9	0.0
|	9.4	3.3	0.6
|	6.9	2.7	0.6
|	3.4	2.1	0.6
V	1.4	2.0	0.1

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	93.1
Coarse Sand	0.0
Medium Sand	17.6
Fine Sand	75.5
Silt	4.2
Clay	2.7

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

ATTN: Ron P. FEP-SAT

Serial Number 38214

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

○ STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

⊗ Alternate Laboratory Name/Location STL Burlington
208 S. Park Dr. Suite 1
Colchester, VT 05446
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
ENSafe Pensacola		FL
STL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Linda Wolfe	5443041	
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
CLIENT NAME	CLIENT E-MAIL	
STL Savannah		
CLIENT ADDRESS		
Sec attone		
COMPANY CONTRACTING THIS WORK (if applicable)		

MATRIX TYPE — COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT,...)

REQUIRED ANALYSIS: grain-size

PAGE: OF

STANDARD REPORT DELIVERY ⊗
DATE DUE II 9/14
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
4-8-4	1300	041M19A101			X			2	Contact Linda Wolfe w/ questions. Reference PO# on order & invoice
0004									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
							4/10/04	19
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
Jerry	4.10.04	1900	YES ○ NO ⊗			

SAMPLE RECEIPT INFORMATION FORM

Completed By: ____Abbie Page_____ **Date:** ___4/9/2004____

Client: _____Ensafe_____

STL Savannah Log # _____S443041_____

Courier: __X__ FedEx ____ UPS ____ Client ____ Other

Date Received: _____04/09/04_____

Cooler Temperature upon receipt: __1.7/1.7__Degrees C.___
(If >6C or frozen, notify client and document below.)

Cooler/Custody Seals: __X___ Intact _____ Broken _____ NA
(If broken, notify client and document below)

ANOMALY	CLIENT NOTIFIED: CONTACT / DATE / TIME	COMMENTS / DESCRIPTION
Sample container breakage		NA
Sample ID discrepancy between COC & container		NA
Sample listed on COC is not received		NA
Sample received is not listed on COC		NA
Incomplete COC		NA
Insufficient sample volume		NA
Improper container or preservation		NA
Other (Describe)*	Phil Hardy 04/09/04	Client submitted 3 vials for Trip blank, not 4 as per COC.

*Attach additional pages, if necessary.

PM: Review: _____

SEVERN TRENT STL

FAN089:10.21.03:2

Serial Number 37877

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
0036-001-00-130-00		FL
STL (LAB) PROJECT MANAGER	**P.O. NUMBER**	**CONTRACT NO.**
Linda Wolfe		
CLIENT (SITE) PM	**CLIENT PHONE**	**CLIENT FAX**
Allison Harris	901-352-7962	
CLIENT NAME	**CLIENT E-MAIL**	
EnSafe	AHarris@ensafe.com	
CLIENT ADDRESS		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ○
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID (SEDIMENT)	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT,...)	REQUIRED ANALYSIS: TAL Metals	TAL Filtered Metals	TCL VOCs	TAL HETAMS	TCL Pest/PCBs	TCL SVOCs	Low Conc PAHs	TCL VOCs	TOC	Grain Size	REMARKS
								PRESERVATIVE										
8 Apr 04	0900	041W061002		X				1	1	4								
	0930	033W000102		X				1	1									
	1015	041W63A202		X				1	1									
	1130	041W170102		X				1	1									
	1145	041W150102		X				1	1									
	0915	041EW00001		X				1	1	4								Rinsate Blank
	1300	041W19A102		X				1	1									
	1300	~~041MW19A102~~ 041MW19A101			X						1	one sample	1	1	1	1	2	Bags
	1400	041W720102		X				1	1									
	1400	041R720102		X				1	1									
	1610	041TB0002		X						4 3 if								Trip Blank

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
PB Hardy	4/8/04	1615						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES ○ NO ○	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
KLSC	4/9/04	10.00			54304	

L8240-680 (12/02)

Validation Worksheets - LEVEL II

Site: Pensacola Site 41 - Resampling Project No. 0036-001-00-130-00

SDG # PEN16 Matrix sediment + QC blanks Lab: STL Savannah

List Method(s)/Method number(s):

VOCs (8260B) Low Concentration PAHs (8270C) TOC (9060)

SVOCs minus PAHs (8270C) Pesticides/PCBs (8081A/8082) Total & Dissolved Metals (6010B/7470A/7471A)

CRITERIA MET? YES	NO		NONCOMPLIANCE NOTES
☐	☑	Hold Times Met	Attach list of samples which exceed hold times. Indicate total hold time and qualifiers. **041FE00001 RE was extracted 14 days outside of holding times due to poor surrogates. The original results were used because the surrogates did not improve.**
		System Monitoring Compounds Recovery	Attach list noncompliant %Rs or attach form. Indicate all noncompliances and qualifiers.
☐	☑	All recoveries within criteria	**All diluted pesticide surrogates were diluted out (0%). The undiluted surrogates were acceptable. Because the diluted surrogates were diluted out and undiluted surrogates were acceptable, the diluted results are acceptable without qualification per Method 8000B.** **All Low PAH samples (except 041M5B0401) were diluted at a factor of 10, due to elevated concentrations and had %Rs of 0%. The diluted results with 0% Rs are acceptable without qualification per Method 8000B.**
		Matrix Spike/Matrix Spike Duplicate ☑ Not Applicable Sample used for MS/MSD _____	List noncompliant %Rs and RPDs or attach form. Indicate all noncompliances and qualifiers.
☐	☐	Recoveries for MS within lab limits	
☐	☐	Recoveries for MSD within lab limits ☐NA	
☐	☐	RPDs within lab limits ☐NA	
		Lab Control Standard ☐ Not Applicable	List noncompliant %Rs or attach form. Indicate all noncompliances and qualifiers.
☐	☑	Recoveries within limits	LCS: 42931-19; Batch: 0415N; Parm: aldrin; LCS%R: 127*; Limits: 34-124; Action: none-bias is high and all aldrin was undetected (after blank assessment)
		Blanks: Method - Trip - Field	List all contaminants, concentrations and action level. **See attached**
☐	☑	Method blank clean?	**-naphthalene: no action - all results were undetected.**
☐	☑	Field blank clean? ☐NA	**-phenanthrene: 041M5B0202, 041M5B0301, 041N5B0301 & 041M5B0501 flagged "U".**
☐	☑	Equip. blank clean? ☐NA	**-aldrin: 041M5B0401, 041M5B0401DL, 041M5B0501, 041M5B0601, 041M5B0601 DL flagged "U".**
☐	☑	Trip blank clean? ☐NA	**--Metals were not flagged based on judgement**
☑	☐	***Comments Below Applies to Metals Blanks***	
		Field Duplicates ☐NA Sample IDs: 041M5B0301 , 041N5B0301	Identify field duplicate pair and attach list of all compounds with noncompliant RPDs. Indicate qualifiers. **See attached**
☐	☑	Within RPD Criteria	
		Sample Results ☐NA	Call (fax) lab for resubmittals. Attach all resubmittal correspondence to this review.
☑	☐	Reporting Limits adjusted for % moisture/dilutions	
☐	☐NA	Results > Calibration qualified E	
☑	☐	Dilutions/Reanalyses present (if necessary)	

COMMENTS: Lab, and Field QC blanks were assessed but no inorganics were flagged "U" because of blank contaminants. This was based on professional judgment and the fact that many elements are naturally occurring in potable water. Therefore, results represent worst-case.

Reviewer: Tina Cantwell Date 5/24/04

VALIDATION NOTES (Check all that apply)

☑ Sample(s) **All Pesticide samples were diluted because of DDT breakdown. Upon dilution, the surrogates were diluted out, but are acceptable per Method 8000B. The PCB samples were also diluted because lab analyzed it on the same run; however, the original (undiluted) results for PCBs were used becaus DDT breakdown does not affect PCB quantitation.**

were DILUTED due to:

- [ ] Surrogates outside QC limit
- [ ] Internal standard area counts outside QC limits
- [ ] Internal standard retention times outside QC limits
- [ ] Tuning criteria was not met
- [X] Other (specify) **DDT breakdown in performance evaluation mixture.**

Sample(s) **Undiluted results for pesticides & PCBs (other than DDD, DDE, & DDT), which were reported from the diluted results.**

are the PREFERRED analysis and will be reported on the data table as a primary (A) sample

☐ Sample(s) _____

were REANALYZED due to:

- [ ] Surrogates outside QC limit
- [ ] Internal standard area counts outside QC limits
- [ ] Internal standard retention times outside QC limits
- [ ] Tuning criteria was not met
- [ ] Other (specify) _____

Sample(s) _____

are the PREFERRED analysis and will be reported on the data table as a primary (A) sample

☐ Sample(s) _____

were DILUTED because one or more compounds exceeded the calibration range (flagged "E" by the lab). The values that exceeded the calibration range in the original sample were substituted by the diluted values. The "D" flag was left on the substituted values to alert the data user that the results were taken from a secondary dilution. The remaining values in the diluted sample should not be used for interpretation and will not appear on the data tables.

☐ In Sample(s) _____

One or more compounds exceeded the calibration range (flagged "E" by the lab) and the sample was diluted. However, the compound(s) were undetected upon dilution. The original result reported outside the calibration range was used and the estimated concentration flagged "J"

Holding Times

SDG	Method	Matrix	Lab ID	Sample ID	Ext	Sample Date	Date Extr	Date Anal	Days from Sample to Extraction	Holding Time to Extraction	Extr HT Met?	Days from Extraction to Analysis	Holding Time to Analysis	Analysis HT Met?
PEN16	LOW PAH	S	S442931*1	041M5B0202		4/6/2004	4/15/2004	4/16/2004	9	14	Yes	1	40	Yes
PEN16	LOW PAH	S	S442931*2	041M5B0301		4/6/2004	4/15/2004	4/16/2004	9	14	Yes	1	40	Yes
PEN16	LOW PAH	S	S442931*3	041N5B0301		4/6/2004	4/15/2004	4/16/2004	9	14	Yes	1	40	Yes
PEN16	LOW PAH	S	S442931*4	041M5B0401		4/6/2004	4/15/2004	4/17/2004	9	14	Yes	2	40	Yes
PEN16	LOW PAH	S	S442931*5	041M5B0501		4/6/2004	4/15/2004	4/16/2004	9	14	Yes	1	40	Yes
PEN16	LOW PAH	S	S442931*6	041M5B0601		4/6/2004	4/15/2004	4/16/2004	9	14	Yes	1	40	Yes
PEN16	PCB	S	S442931*1	041M5B0202		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*1*DL	041M5B0202	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*2	041M5B0301		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*2*DL	041M5B0301	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*3	041N5B0301		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*3*DL	041N5B0301	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*4	041M5B0401		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*4*DL	041M5B0401	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*5	041M5B0501		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*5*DL	041M5B0501	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*6	041M5B0601		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PCB	S	S442931*6*DL	041M5B0601	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*1	041M5B0202		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*1*DL	041M5B0202	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*2	041M5B0301		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*2*DL	041M5B0301	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*3	041N5B0301		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*3*DL	041N5B0301	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*4	041M5B0401		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*4*DL	041M5B0401	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*5	041M5B0501		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*5*DL	041M5B0501	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*6	041M5B0601		4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	PEST	S	S442931*6*DL	041M5B0601	DL	4/6/2004	4/15/2004	5/3/2004	9	14	Yes	18	40	Yes
PEN16	SVOA	S	S442931*1	041M5B0202		4/6/2004	4/15/2004	4/19/2004	9	14	Yes	4	40	Yes
PEN16	SVOA	S	S442931*2	041M5B0301		4/6/2004	4/15/2004	4/20/2004	9	14	Yes	5	40	Yes
PEN16	SVOA	S	S442931*3	041N5B0301		4/6/2004	4/15/2004	4/20/2004	9	14	Yes	5	40	Yes
PEN16	SVOA	S	S442931*4	041M5B0401		4/6/2004	4/15/2004	4/20/2004	9	14	Yes	5	40	Yes
PEN16	SVOA	S	S442931*5	041M5B0501		4/6/2004	4/15/2004	4/20/2004	9	14	Yes	5	40	Yes
PEN16	SVOA	S	S442931*6	041M5B0601		4/6/2004	4/15/2004	4/20/2004	9	14	Yes	5	40	Yes
PEN16	TOC	S	S442931*1	041M5B0202		4/6/2004	4/19/2004	4/20/2004	N/A	N/A	N/A	14	28	Yes
PEN16	TOC	S	S442931*2	041M5B0301		4/6/2004	4/19/2004	4/20/2004	N/A	N/A	N/A	14	28	Yes
PEN16	TOC	S	S442931*3	041N5B0301		4/6/2004	4/19/2004	4/20/2004	N/A	N/A	N/A	14	28	Yes
PEN16	TOC	S	S442931*4	041M5B0401		4/6/2004	4/19/2004	4/20/2004	N/A	N/A	N/A	14	28	Yes
PEN16	TOC	S	S442931*5	041M5B0501		4/6/2004	4/19/2004	4/20/2004	N/A	N/A	N/A	14	28	Yes
PEN16	TOC	S	S442931*6	041M5B0601		4/6/2004	4/19/2004	4/20/2004	N/A	N/A	N/A	14	28	Yes
PEN16	TOT METAL	S	S442931*1	041M5B0202		4/6/2004	4/12/2004	4/15/2004	N/A	N/A	N/A	9	28	Yes
PEN16	TOT METAL	S	S442931*2	041M5B0301		4/6/2004	4/12/2004	4/15/2004	N/A	N/A	N/A	9	28	Yes
PEN16	TOT METAL	S	S442931*3	041N5B0301		4/6/2004	4/12/2004	4/13/2004	N/A	N/A	N/A	7	28	Yes
PEN16	TOT METAL	S	S442931*4	041M5B0401		4/6/2004	4/12/2004	4/15/2004	N/A	N/A	N/A	9	28	Yes
PEN16	TOT METAL	S	S442931*5	041M5B0501		4/6/2004	4/12/2004	4/15/2004	N/A	N/A	N/A	9	28	Yes
PEN16	TOT METAL	S	S442931*6	041M5B0601		4/6/2004	4/12/2004	4/15/2004	N/A	N/A	N/A	9	28	Yes
PEN16	VOA	S	S442931*1	041M5B0202		4/6/2004	4/9/2004	4/9/2004	N/A	N/A	N/A	3	14	Yes

Holding Times

SDG	Method	Matrix	Lab ID	Sample ID	Ext	Sample Date	Date Extr	Date Anal	Days from Sample to Extraction	Holding Time to Extraction	Extr HT Met?	Days from Extraction to Analysis	Holding Time to Analysis	Analysis HT Met?
PEN16	VOA	S	S442931*2	041M5B0301		4/6/2004	4/9/2004	4/9/2004	N/A	N/A	N/A	3	14	Yes
PEN16	VOA	S	S442931*3	041N5B0301		4/6/2004	4/12/2004	4/12/2004	N/A	N/A	N/A	6	14	Yes
PEN16	VOA	S	S442931*4	041M5B0401		4/6/2004	4/12/2004	4/12/2004	N/A	N/A	N/A	6	14	Yes
PEN16	VOA	S	S442931*5	041M5B0501		4/6/2004	4/12/2004	4/12/2004	N/A	N/A	N/A	6	14	Yes
PEN16	VOA	S	S442931*6	041M5B0601		4/6/2004	4/12/2004	4/12/2004	N/A	N/A	N/A	6	14	Yes
PEN16	DISS METAL	W	S442931*7	041FE00001		4/6/2004	4/12/2004	4/13/2004	N/A	N/A	N/A	7	28	Yes
PEN16	DISS METAL	W	S442931*8	041EM00001		4/6/2004	4/12/2004	4/13/2004	N/A	N/A	N/A	7	28	Yes
PEN16	LOW PAH	W	S442931*7	041FE00001		4/6/2004	4/13/2004	4/14/2004	7	7	Yes	1	40	Yes
PEN16	LOW PAH	W	S442931*8	041EM00001		4/6/2004	4/13/2004	4/14/2004	7	7	Yes	1	40	Yes
PEN16	PCB	W	S442931*7	041FE00001		4/6/2004	4/12/2004	4/16/2004	6	7	Yes	4	40	Yes
PEN16	PCB	W	S442931*8	041EM00001		4/6/2004	4/12/2004	4/16/2004	6	7	Yes	4	40	Yes
PEN16	PEST	W	S442931*7	041FE00001		4/6/2004	4/12/2004	4/16/2004	6	7	Yes	4	40	Yes
PEN16	PEST	W	S442931*8	041EM00001		4/6/2004	4/12/2004	4/16/2004	6	7	Yes	4	40	Yes
PEN16	SVOA	W	S442931*7	041FE00001		4/6/2004	4/9/2004	4/22/2004	3	7	Yes	13	40	Yes
PEN16	SVOA	W	S442931*7*RE	041FE00001	RE	4/6/2004	4/27/2004	4/30/2004	21	7	**No**	3	40	Yes
PEN16	SVOA	W	S442931*8	041EM00001		4/6/2004	4/9/2004	4/22/2004	3	7	Yes	13	40	Yes
PEN16	TOT METAL	W	S442931*7	041FE00001		4/6/2004	4/12/2004	4/13/2004	N/A	N/A	N/A	7	28	Yes
PEN16	TOT METAL	W	S442931*8	041EM00001		4/6/2004	4/12/2004	4/13/2004	N/A	N/A	N/A	7	28	Yes
PEN16	VOA	W	S442931*7	041FE00001		4/6/2004	4/16/2004	4/16/2004	N/A	N/A	N/A	10	14	Yes
PEN16	VOA	W	S442931*8	041EM00001		4/6/2004	4/19/2004	4/19/2004	N/A	N/A	N/A	13	14	Yes
PEN16	VOA	W	S442931*9	041TB00001		4/6/2004	4/17/2004	4/17/2004	N/A	N/A	N/A	11	14	Yes

Field Dup'' -te Precision

SDG	Method	Parameter	Result	al	Result	Vqual	Units	RPD	RPD >50?	Flags
			041M5B0301		041N5B0301					
PEN16	LOW PAH	Naphthalene	13.0000	U	11.0000	U	UG/KG	-16.7	No	
PEN16	LOW PAH	Acenaphthylene	15.0000	U	13.0000	U	UG/KG	-14.3	No	
PEN16	LOW PAH	Acenaphthene	16.0000	U	14.0000	U	UG/KG	-13.3	No	
PEN16	LOW PAH	Fluorene	14.0000	U	12.0000	U	UG/KG	-15.4	No	
PEN16	LOW PAH	Phenanthrene	54.0000	U	70.0000	U	UG/KG	25.8	No	
PEN16	LOW PAH	Anthracene	17.0000	U	14.0000	U	UG/KG	-19.4	No	
PEN16	LOW PAH	Fluoranthene	200.0000		170.0000		UG/KG	-16.2	No	
PEN16	LOW PAH	Pyrene	160.0000		140.0000		UG/KG	-13.3	No	
PEN16	LOW PAH	Chrysene	120.0000		110.0000		UG/KG	-8.7	No	
PEN16	LOW PAH	Benzo(a)anthracene	98.0000	I	65.0000	I	UG/KG	-40.5	No	
PEN16	LOW PAH	Benzo(b)fluoranthene	17.0000	U	14.0000	U	UG/KG	-19.4	No	
PEN16	LOW PAH	Benzo(k)fluoranthene	17.0000	U	15.0000	U	UG/KG	-12.5	No	
PEN16	LOW PAH	Benzo(a)pyrene	16.0000	U	14.0000	U	UG/KG	-13.3	No	
PEN16	LOW PAH	Indeno(1,2,3-cd)pyrene	12.0000	U	9.8000	U	UG/KG	-20.2	No	
PEN16	LOW PAH	Dibenz(a,h)anthracene	16.0000	U	13.0000	U	UG/KG	-20.7	No	
PEN16	LOW PAH	Benzo(g,h,i)perylene	11.0000	U	9.2000	U	UG/KG	-17.8	No	
PEN16	LOW PAH	2-Methylnaphthalene	9.5000	U	8.0000	U	UG/KG	-17.1	No	
PEN16	LOW PAH	1-Methyl naphthalene	6.2000	U	5.3000	U	UG/KG	-15.7	No	
PEN16	PCB	Aroclor-1016	7.0000	U	5.9000	U	UG/KG	-17.1	No	
PEN16	PCB	Aroclor-1221	30.0000	U	26.0000	U	UG/KG	-14.3	No	
PEN16	PCB	Aroclor-1232	12.0000	U	10.0000	U	UG/KG	-18.2	No	
PEN16	PCB	Aroclor-1242	12.0000	U	10.0000	U	UG/KG	-18.2	No	
PEN16	PCB	Aroclor-1248	12.0000	U	9.8000	U	UG/KG	-20.2	No	
PEN16	PCB	Aroclor-1254	12.0000	U	10.0000	U	UG/KG	-18.2	No	
PEN16	PCB	Aroclor-1260	60.0000		62.0000		UG/KG	3.3	No	
PEN16	PEST	alpha-BHC	0.4300	U	0.3600	U	UG/KG	-17.7	No	
PEN16	PEST	beta-BHC	0.5200	U	0.4400	U	UG/KG	-16.7	No	
PEN16	PEST	delta-BHC	0.2100	U	0.1800	U	UG/KG	-15.4	No	
PEN16	PEST	gamma-BHC (Lindane)	0.2700	U	0.2300	U	UG/KG	-16.0	No	
PEN16	PEST	Heptachlor	0.5000	U	0.4200	U	UG/KG	-17.4	No	
PEN16	PEST	Aldrin	0.2000	U	0.1700	U	UG/KG	-16.2	No	
PEN16	PEST	Heptachlor epoxide	0.3000	U	0.2600	U	UG/KG	-14.3	No	
PEN16	PEST	Endosulfan I	0.3000	U	0.2600	U	UG/KG	-14.3	No	
PEN16	PEST	Dieldrin	14.0000		14.0000		UG/KG	0.0	No	
PEN16	PEST	**4,4'-DDE**	23.0000	I	12.0000	I	UG/KG	-62.9	Yes	None-already I-flagged
PEN16	PEST	Endrin	0.7700	U	0.6500	U	UG/KG	-16.9	No	
PEN16	PEST	Endrin aldehyde	0.5500	U	0.4700	U	UG/KG	-15.7	No	
PEN16	PEST	Endosulfan II	0.3900	U	0.3300	U	UG/KG	-16.7	No	
PEN16	PEST	4,4'-DDD	6.2000	U	5.3000	U	UG/KG	-15.7	No	
PEN16	PEST	Endosulfan sulfate	0.7800	U	0.6700	U	UG/KG	-15.2	No	
PEN16	PEST	4,4'-DDT	5.5000	U	4.7000	U	UG/KG	-15.7	No	
PEN16	PEST	Endrin ketone	0.6800	U	0.5800	U	UG/KG	-15.9	No	
PEN16	PEST	Methoxychlor	0.3600	U	0.3000	U	UG/KG	-18.2	No	
PEN16	PEST	alpha-Chlordane	0.2000	U	0.1700	U	UG/KG	-16.2	No	
PEN16	PEST	gamma-Chlordane	0.2300	U	0.2000	U	UG/KG	-14.0	No	
PEN16	PEST	Toxaphene	59.0000	U	50.0000	U	UG/KG	-16.5	No	
PEN16	SVOA	Phenol	73.0000	U	62.0000	U	UG/KG	-16.3	No	
PEN16	SVOA	bis(2-Chloroethyl)ether	66.0000	U	56.0000	U	UG/KG	-16.4	No	
PEN16	SVOA	2-Chlorophenol	73.0000	U	62.0000	U	UG/KG	-16.3	No	
PEN16	SVOA	1,3-Dichlorobenzene	41.0000	U	35.0000	U	UG/KG	-15.8	No	
PEN16	SVOA	1,4-Dichlorobenzene	43.0000	U	36.0000	U	UG/KG	-17.7	No	
PEN16	SVOA	1,2-Dichlorobenzene	41.0000	U	35.0000	U	UG/KG	-15.8	No	
PEN16	SVOA	2-Methylphenol (o-Cresol)	82.0000	U	70.0000	U	UG/KG	-15.8	No	
PEN16	SVOA	2,2'-oxybis(1-Chloropropane)/bis(2-chlor	57.0000	U	48.0000	U	UG/KG	-17.1	No	
PEN16	SVOA	**3-Methylphenol/4-Methylphenol**	73.0000	I	410.0000	I	UG/KG	139.5	Yes	None-already I-flagged

Field Duplicate Precision

SDG	Method	Parameter	Result	Vqual	Result	Vqual	Units	RPD	RPD >50?	Flags
			041M5B0301		041N5B0301					
PEN16	SVOA	N-Nitroso-di-n-propylamine	54.0000	U	45.0000	U	UG/KG	-18.2	No	
PEN16	SVOA	Hexachloroethane	34.0000	U	29.0000	U	UG/KG	-15.9	No	
PEN16	SVOA	Nitrobenzene	55.0000	U	47.0000	U	UG/KG	-15.7	No	
PEN16	SVOA	Isophorone	46.0000	U	39.0000	U	UG/KG	-16.5	No	
PEN16	SVOA	2-Nitrophenol	46.0000	U	39.0000	U	UG/KG	-16.5	No	
PEN16	SVOA	2,4-Dimethylphenol	50.0000	U	42.0000	U	UG/KG	-17.4	No	
PEN16	SVOA	bis(2-Chloroethoxy)methane	57.0000	U	48.0000	U	UG/KG	-17.1	No	
PEN16	SVOA	2,4-Dichlorophenol	52.0000	U	44.0000	U	UG/KG	-16.7	No	
PEN16	SVOA	1,2,4-Trichlorobenzene	68.0000	U	58.0000	U	UG/KG	-15.9	No	
PEN16	SVOA	4-Chloroaniline	52.0000	U	44.0000	U	UG/KG	-16.7	No	
PEN16	SVOA	Hexachlorobutadiene	48.0000	U	41.0000	U	UG/KG	-15.7	No	
PEN16	SVOA	4-Chloro-3-methylphenol	71.0000	U	61.0000	U	UG/KG	-15.2	No	
PEN16	SVOA	Hexachlorocyclopentadiene	480.0000	U	410.0000	U	UG/KG	-15.7	No	
PEN16	SVOA	2,4,6-Trichlorophenol	57.0000	U	48.0000	U	UG/KG	-17.1	No	
PEN16	SVOA	2,4,5-Trichlorophenol	55.0000	U	47.0000	U	UG/KG	-15.7	No	
PEN16	SVOA	2-Chloronaphthalene	66.0000	U	56.0000	U	UG/KG	-16.4	No	
PEN16	SVOA	2-Nitroaniline	45.0000	U	38.0000	U	UG/KG	-16.9	No	
PEN16	SVOA	Dimethylphthalate	62.0000	U	53.0000	U	UG/KG	-15.7	No	
PEN16	SVOA	3-Nitroaniline	54.0000	U	45.0000	U	UG/KG	-18.2	No	
PEN16	SVOA	2,4-Dinitrophenol	610.0000	U	520.0000	U	UG/KG	-15.9	No	
PEN16	SVOA	4-Nitrophenol	45.0000	U	38.0000	U	UG/KG	-16.9	No	
PEN16	SVOA	Dibenzofuran	61.0000	U	52.0000	U	UG/KG	-15.9	No	
PEN16	SVOA	2,4-Dinitrotoluene	39.0000	U	33.0000	U	UG/KG	-16.7	No	
PEN16	SVOA	2,6-Dinitrotoluene	52.0000	U	44.0000	U	UG/KG	-16.7	No	
PEN16	SVOA	Diethylphthalate	62.0000	U	53.0000	U	UG/KG	-15.7	No	
PEN16	SVOA	4-Chlorophenylphenyl ether	46.0000	U	39.0000	U	UG/KG	-16.5	No	
PEN16	SVOA	4-Nitroaniline	46.0000	U	39.0000	U	UG/KG	-16.5	No	
PEN16	SVOA	2-Methyl-4,6-Dinitrophenol	55.0000	U	47.0000	U	UG/KG	-15.7	No	
PEN16	SVOA	N-Nitrosodiphenylamine	54.0000	U	45.0000	U	UG/KG	-18.2	No	
PEN16	SVOA	4-Bromophenyl-phenylether	54.0000	U	45.0000	U	UG/KG	-18.2	No	
PEN16	SVOA	Hexachlorobenzene	68.0000	U	58.0000	U	UG/KG	-15.9	No	
PEN16	SVOA	Pentachlorophenol	61.0000	U	52.0000	U	UG/KG	-15.9	No	
PEN16	SVOA	**Di-n-butylphthalate**	330.0000	I	59.0000	U	UG/KG	-139.3	Yes	I (+) / UJ (ND)
PEN16	SVOA	Butylbenzylphthalate	57.0000	U	48.0000	U	UG/KG	-17.1	No	
PEN16	SVOA	3,3'-Dichlorobenzidine	46.0000	U	39.0000	U	UG/KG	-16.5	No	
PEN16	SVOA	bis(2-Ethylhexyl)phthalate (BEHP)	190.0000	I	180.0000	I	UG/KG	-5.4	No	
PEN16	SVOA	Di-n-octylphthalate	57.0000	U	48.0000	U	UG/KG	-17.1	No	
PEN16	SVOA	Carbazole	54.0000	U	45.0000	U	UG/KG	-18.2	No	
PEN16	TOC	Total Organic Carbon (TOC)	3800.0000		5700.0000		MG/KG	40.0	No	
PEN16	TOT METAL	**Aluminum**	860.0000		1500.0000		MG/KG	54.2	Yes	J both results
PEN16	TOT METAL	Antimony	2.2000	I	2.0000	I	MG/KG	-9.5	No	
PEN16	TOT METAL	Arsenic	0.5600	U	0.4600	U	MG/KG	-19.6	No	
PEN16	TOT METAL	**Barium**	3.3000		6.1000		MG/KG	59.6	Yes	J both results

SDG	Method	Parameter	Result	Qual	Result	Vqual	Units	RPD	RPD >50?	Flags
			041M5B0301		041N5B0301					
PEN16	TOT METAL	Beryllium	0.0680	I	0.0790	I	MG/KG	15.0	No	
PEN16	TOT METAL	**Cadmium**	1.0000		5.1000		MG/KG	134.4	Yes	J both results
PEN16	TOT METAL	Calcium	340.0000		330.0000		MG/KG	-3.0	No	
PEN16	TOT METAL	**Chromium**	24.0000		63.0000		MG/KG	89.7	Yes	
PEN16	TOT METAL	**Cobalt**	0.4000	I	1.0000	I	MG/KG	85.7	Yes	None-already I-flagged
PEN16	TOT METAL	**Copper**	12.0000		29.0000		MG/KG	82.9	Yes	J both results
PEN16	TOT METAL	**Iron**	470.0000		1600.0000		MG/KG	109.2	Yes	J both results
PEN16	TOT METAL	**Lead**	38.0000		94.0000		MG/KG	84.8	Yes	J both results
PEN16	TOT METAL	Magnesium	83.0000	I	81.0000		MG/KG	-2.4	No	
PEN16	TOT METAL	Manganese	2.8000		3.9000		MG/KG	32.8	No	
PEN16	TOT METAL	**Nickel**	1.2000	I	3.7000	I	MG/KG	102.0	Yes	None-already I-flagged
PEN16	TOT METAL	Potassium	27.0000	I	38.0000	I	MG/KG	33.8	No	
PEN16	TOT METAL	Selenium	0.8900	U	0.7400	U	MG/KG	-18.4	No	
PEN16	TOT METAL	**Silver**	0.1800	U	0.5800	I	MG/KG	105.3	Yes	UJ (ND) / I(+)
PEN16	TOT METAL	Sodium	12.0000	I	15.0000	I	MG/KG	22.2	No	
PEN16	TOT METAL	Thallium	1.3000	U	1.1000	U	MG/KG	-16.7	No	
PEN16	TOT METAL	**Vanadium**	1.1000	I	2.5000		MG/KG	77.8	Yes	I (+) / J (+)
PEN16	TOT METAL	**Zinc**	45.0000		120.0000		MG/KG	90.9	Yes	J both results
PEN16	TOT METAL	Mercury	0.0860		0.0820		MG/KG	-4.8	No	
PEN16	VOA	Chloromethane	2.4000	U	2.2000	U	UG/KG	-8.7	No	
PEN16	VOA	Bromomethane	6.0000	U	5.4000	U	UG/KG	-10.5	No	
PEN16	VOA	Vinyl chloride	2.4000	U	2.2000	U	UG/KG	-8.7	No	
PEN16	VOA	Chloroethane	3.0000	U	2.7000	U	UG/KG	-10.5	No	
PEN16	VOA	Methylene chloride	4.2000	U	3.8000	U	UG/KG	-10.0	No	
PEN16	VOA	Acetone	21.0000	I	13.0000	U	UG/KG	-47.1	No	
PEN16	VOA	Carbon disulfide	3.5000	U	3.2000	U	UG/KG	-9.0	No	
PEN16	VOA	1,1-Dichloroethene	3.0000	U	2.7000	U	UG/KG	-10.5	No	
PEN16	VOA	1,1-Dichloroethane	1.8000	U	1.6000	U	UG/KG	-11.8	No	
PEN16	VOA	cis-1,2-Dichloroethene	1.9000	U	1.7000	U	UG/KG	-11.1	No	
PEN16	VOA	trans-1,2-Dichloroethene	2.1000	U	1.9000	U	UG/KG	-10.0	No	
PEN16	VOA	Chloroform	2.1000	U	1.9000	U	UG/KG	-10.0	No	
PEN16	VOA	1,2-Dichloroethane	2.6000	U	2.4000	U	UG/KG	-8.0	No	
PEN16	VOA	2-Butanone (MEK)	8.2000	U	7.4000	U	UG/KG	-10.3	No	
PEN16	VOA	1,1,1-Trichloroethane	1.4000	U	1.3000	U	UG/KG	-7.4	No	
PEN16	VOA	Carbon tetrachloride	1.6000	U	1.5000	U	UG/KG	-6.5	No	
PEN16	VOA	Bromodichloromethane	2.3000	U	2.0000	U	UG/KG	-14.0	No	
PEN16	VOA	1,1,2,2-Tetrachloroethane	3.5000	U	3.2000	U	UG/KG	-9.0	No	
PEN16	VOA	1,2-Dichloropropane	2.1000	U	1.9000	U	UG/KG	-10.0	No	
PEN16	VOA	trans-1,3-Dichloropropene	2.8000	U	2.5000	U	UG/KG	-11.3	No	
PEN16	VOA	Trichloroethene	1.9000	U	1.7000	U	UG/KG	-11.1	No	
PEN16	VOA	Dibromochloromethane	2.4000	U	2.2000	U	UG/KG	-8.7	No	
PEN16	VOA	1,1,2-Trichloroethane	3.2000	U	2.8000	U	UG/KG	-13.3	No	
PEN16	VOA	Benzene	1.9000	U	1.7000	U	UG/KG	-11.1	No	
PEN16	VOA	cis-1,3-Dichloropropene	2.1000	U	1.9000	U	UG/KG	-10.0	No	
PEN16	VOA	Bromoform	3.0000	U	2.7000	U	UG/KG	-10.5	No	
PEN16	VOA	2-Hexanone	8.9000	U	8.0000	U	UG/KG	-10.7	No	
PEN16	VOA	4-Methyl-2-Pentanone (MIBK)	8.8000	U	7.9000	U	UG/KG	-10.8	No	
PEN16	VOA	Tetrachloroethene	2.6000	U	2.4000	U	UG/KG	-8.0	No	
PEN16	VOA	Toluene	3.2000	U	2.8000	U	UG/KG	-13.3	No	
PEN16	VOA	Chlorobenzene	2.3000	U	2.0000	U	UG/KG	-14.0	No	
PEN16	VOA	Ethylbenzene	1.8000	U	1.6000	U	UG/KG	-11.8	No	
PEN16	VOA	Styrene	1.9000	U	1.7000	U	UG/KG	-11.1	No	
PEN16	VOA	Xylene (Total)	5.2000	U	4.7000	U	UG/KG	-10.1	No	

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SDG	Method	Sample Id	Type	Samp Date	Date Extract	Date Anal	Parameter	Result	Qual	Units	AL	Units
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Aluminum	7.6000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Barium	0.3600	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Barium	0.3400	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Barium	0.5200	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Calcium	18.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Calcium	18.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Calcium	12.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Chromium	1.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Iron	50.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Magnesium	17.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Manganese	0.8600	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Sodium	310.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Zinc	4.7000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Zinc	4.6000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Zinc	2.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Aluminum	2.0000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Aluminum	12.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Aluminum	9.8000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Aluminum	7.7000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Antimony	0.9000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Barium	0.0460	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Beryllium	0.0230	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Cadmium	0.0830	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Calcium	8.5000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Calcium	16.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Calcium	7.1000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Iron	2.8000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Lead	0.3400	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Magnesium	0.8800	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Manganese	0.7200	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Manganese	0.2400	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Mercury	0.1200	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Potassium	2.5000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Potassium	27.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Sodium	0.7700	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Vanadium	0.0970	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Zinc	0.5100	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Zinc	1.1000	I	UG/L	No action taken on metals, based on judgement	
PEN16	LOW PAH	041FE00001	**Field**	4/6/2004	4/13/2004	4/14/2004	**Naphthalene**	0.1100	I	UG/L	**18.15**	UG/KG
PEN16	LOW PAH	041FE00001	**Field**	4/6/2004	4/13/2004	4/14/2004	**Phenanthrene**	0.0520	I	UG/L	**8.58**	UG/KG
PEN16	PEST	BLK0EN1614	**Lab**		4/15/2004	4/29/2004	**Aldrin**	1.4000	I	UG/KG	**7**	UG/KG
PEN16	PEST	BLK0EN1623	**Lab**		4/12/2004	4/16/2004	**Aldrin**	0.0260	I	UG/L	**4.29**	UG/KG

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SDG	Method	Sample Id	Type	Samp Date	Date Extract	Date Anal	Parameter	Result	Qual	Units	AL	Units
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Aluminum	39.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Aluminum	13.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Arsenic	3.7000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Barium	0.3000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Barium	0.7000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Beryllium	0.8200	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Beryllium	0.3000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Calcium	11.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Calcium	31.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Cobalt	1.4000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Iron	21.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Manganese	0.4500	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Mercury	0.1000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Potassium	12.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Silver	1.5000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Sodium	67.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Sodium	59.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Zinc	3.9000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Aluminum	2.0000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Aluminum	13.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Aluminum	23.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Antimony	0.9000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Barium	0.0460	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Barium	0.4200	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Beryllium	0.0230	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Beryllium	0.3100	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Beryllium	0.3100	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Cadmium	0.0830	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Calcium	43.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Calcium	15.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Iron	2.8000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Iron	31.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Lead	0.3400	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Magnesium	0.8800	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Manganese	0.4500	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Potassium	2.5000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Potassium	23.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Silver	1.5000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Sodium	0.7700	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Sodium	23.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Sodium	21.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Vanadium	0.0970	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Zinc	0.5100	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Zinc	0.7200	I	UG/L	No action taken on metals, based on judgement	
PEN17	VOA	BLK0EN1725	**Lab**		4/15/2004	4/15/2004	**2-Butanone (MEK)**	5.7000	I	UG/L	**57**	UG/KG or UG/L
PEN17	VOA	041EW00001	**Equip**	4/8/2004	4/15/2004	4/15/2004	**2-Butanone (MEK)**	6.1000	IV	UG/L	**61**	UG/KG or UG/L
PEN17	VOA	041TB00002	**Trip**	4/8/2004	4/15/2004	4/15/2004	**2-Butanone (MEK)**	7.3000	IV	UG/L	**73**	UG/KG or UG/L
PEN17	VOA	041TB00002	**Trip**	4/8/2004	4/15/2004	4/15/2004	**Acetone**	8.7000	I	UG/L	**87**	UG/KG or UG/L
PEN17	PEST	BLK0EN1716	**Lab**		4/15/2004	4/29/2004	**Aldrin**	0.0260	I	UG/KG	**0.13**	UG/KG

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 DISS METAL									
SAMPLE ID ------>	041-F-E000-01		041-E-M000-01		BLK-0-EN16-23				
ORIGINAL ID ----->	041FE00001		041EM00001		MBLANK23				
LAB SAMPLE ID --->	S442931*7		S442931*8		S442931*23				
SAMPLE DATE ----->	04/06/04		04/06/04						
DATE EXTRACTED -->	04/12/04		04/12/04		04/12/04				
DATE ANALYZED --->	04/13/04		04/13/04		04/13/04				
MATRIX ---------->	Water		Water		Water				
UNITS ---------->	UG/L	B	UG/L	B	UG/L	D			
CAS # Parameter									
7429-90-5 Aluminum	7.2	U	7.2	U	7.6	I			
7440-36-0 Antimony	5.	U	5.	U	5.	U			
7440-38-2 Arsenic	4.6	U	4.6	U	4.6	U			
7440-39-3 Barium	0.52	I	0.34	I	0.36	I			
7440-41-7 Beryllium	0.1	U	0.1	U	0.1	U			
7440-43-9 Cadmium	0.6	U	0.6	U	0.6	U			
7440-70-2 Calcium	12.	I	18.	I	18.	I			
7440-47-3 Chromium	0.9	U	0.9	U	1.	I			
7440-48-4 Cobalt	1.	U	1.	U	1.	U			
7440-50-8 Copper	0.6	U	0.6	U	0.6	U			
7439-89-6 Iron	32.	U	50.	I	32.	U			
7439-92-1 Lead	2.8	U	2.8	U	2.8	U			
7439-95-4 Magnesium	6.6	U	17.	I	6.6	U			
7439-96-5 Manganese	0.2	U	0.86	I	0.2	U			
7440-02-0 Nickel	2.	U	2.	U	2.	U			
7440-09-7 Potassium	17.	U	17.	U	17.	U			
7782-49-2 Selenium	3.6	U	3.6	U	3.6	U			
7440-22-4 Silver	0.9	U	0.9	U	0.9	U			
7440-23-5 Sodium	310.	I	230.	U	230.	U			
7440-28-0 Thallium	8.4	U	8.4	U	8.4	U			
7440-62-2 Vanadium	1.4	U	1.4	U	1.4	U			
7440-66-6 Zinc	2.	I	4.6	I	4.7	I			
7439-97-6 Mercury	0.078	U	0.078	U	0.078	U			

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 LOW PAH													
	SAMPLE ID ------>	041-M-5B02-02		041-M-5B03-01		041-N-5B03-01		041-M-5B04-01		041-M-5B05-01		041-M-5B06-01	
	ORIGINAL ID ----->	041M5B0202		041M5B0301		041N5B0301		041M5B0401		041M5B0501		041M5B0601	
	LAB SAMPLE ID --->	S442931*1		S442931*2		S442931*3		S442931*4		S442931*5		S442931*6	
	SAMPLE DATE ----->	04/06/04		04/06/04		04/06/04		04/06/04		04/06/04		04/06/04	
	DATE EXTRACTED -->	04/15/04		04/15/04		04/15/04		04/15/04		04/15/04		04/15/04	
	DATE ANALYZED --->	04/16/04		04/16/04		04/16/04		04/17/04		04/16/04		04/16/04	
	MATRIX ---------->	Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter												
91-20-3	Naphthalene	16.	U	13.	U	11.	U	4.1	U	10.	U	16.	U
208-96-8	Acenaphthylene	19.	U	15.	U	13.	U	5.	U	13.	U	20.	U
83-32-9	Acenaphthene	20.	U	16.	U	14.	U	5.2	U	14.	U	20.	U
86-73-7	Fluorene	17.	U	14.	U	12.	U	4.5	U	12.	U	18.	U
85-01-8	Phenanthrene	(FB) 140.	J U	(FB) 54.	J U	(FB) 70.	J U	(FB) 7.9	J U	12.	U	18.	U
120-12-7	Anthracene	21.	U	17.	U	14.	U	5.6	U	15.	U	22.	U
206-44-0	Fluoranthene	290.		200.		170.		15.	I	39.	I	69.	I
129-00-0	Pyrene	210.		160.		140.		13.	I	37.	I	59.	I
218-01-9	Chrysene	160.		120.		110.		5.8	U	15.	U	56.	I
56-55-3	Benzo(a)anthracene	120.	I	98.	I	65.	I	4.4	U	12.	U	17.	U
205-99-2	Benzo(b)fluoranthene	21.	U	17.	U	14.	U	5.6	U	15.	U	22.	U
207-08-9	Benzo(k)fluoranthene	22.	U	17.	U	15.	U	5.7	U	15.	U	22.	U
50-32-8	Benzo(a)pyrene	20.	U	16.	U	14.	U	5.2	U	14.	U	20.	U
193-39-5	Indeno(1,2,3-cd)pyrene	14.	U	12.	U	9.8	U	3.8	U	10.	U	15.	U
53-70-3	Dibenz(a,h)anthracene	20.	U	16.	U	13.	U	5.1	U	14.	U	20.	U
191-24-2	Benzo(g,h,i)perylene	14.	U	11.	U	9.2	U	3.5	U	9.4	U	14.	U
91-57-6	2-Methylnaphthalene	12.	U	9.5	U	8.	U	3.1	U	8.2	U	12.	U
90-12-0	1-Methyl naphthalene	7.8	U	6.2	U	5.3	U	2.	U	5.4	U	8.	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 LOW PAH												
	SAMPLE ID ------>	041-F-E000-01		041-E-M000-01		BLK-0-EN16-14		BLK-0-EN16-23				
	ORIGINAL ID ----->	041FE00001		041EM00001		MBLANK14		MBLANK23				
	LAB SAMPLE ID --->	S442931*7		S442931*8		S442931*14		S442931*23				
	SAMPLE DATE ----->	04/06/04		04/06/04								
	DATE EXTRACTED -->	04/13/04		04/13/04		04/15/04		04/13/04				
	DATE ANALYZED --->	04/14/04		04/14/04		04/16/04		04/14/04				
	MATRIX ---------->	Water		Water		Soil		Water				
	UNITS ---------->	UG/L	B	UG/L	B	UG/KG	D	UG/L	D			
CAS #	Parameter											
91-20-3	Naphthalene	0.11	I	0.028	U	0.71	U	0.028	U			
208-96-8	Acenaphthylene	0.024	U	0.024	U	0.86	U	0.024	U			
83-32-9	Acenaphthene	0.025	U	0.025	U	0.9	U	0.025	U			
86-73-7	Fluorene	0.026	U	0.026	U	0.78	U	0.026	U			
85-01-8	Phenanthrene	0.052	I	0.025	U	0.8	U	0.025	U			
120-12-7	Anthracene	0.031	U	0.031	U	0.96	U	0.031	U			
206-44-0	Fluoranthene	0.061	U	0.061	U	0.86	U	0.061	U			
129-00-0	Pyrene	0.042	U	0.042	U	1.2	U	0.042	U			
218-01-9	Chrysene	0.088	U	0.088	U	1.	U	0.088	U			
56-55-3	Benzo(a)anthracene	0.07	U	0.07	U	0.76	U	0.07	U			
205-99-2	Benzo(b)fluoranthene	0.074	U	0.074	U	0.96	U	0.074	U			
207-08-9	Benzo(k)fluoranthene	0.058	U	0.058	U	0.98	U	0.058	U			
50-32-8	Benzo(a)pyrene	0.06	U	0.06	U	0.9	U	0.06	U			
193-39-5	Indeno(1,2,3-cd)pyrene	0.08	U	0.08	U	0.65	U	0.08	U			
53-70-3	Dibenz(a,h)anthracene	0.065	U	0.065	U	0.88	U	0.065	U			
191-24-2	Benzo(g,h,i)perylene	0.096	U	0.096	U	0.61	U	0.096	U			
91-57-6	2-Methylnaphthalene	0.022	U	0.022	U	0.53	U	0.022	U			
90-12-0	1-Methyl naphthalene	0.028	U	0.028	U	0.35	U	0.028	U			

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 PCB						
SAMPLE ID ------->	041-M-5B02-02	041-M-5B02-02DL	041-M-5B03-01	041-N-5B03-01	041-M-5B03-01DL	041-N-5B03-01DL
ORIGINAL ID ----->	041M5B0202	041M5B0202	041M5B0301	041N5B0301	041M5B0301	041N5B0301
LAB SAMPLE ID --->	S442931*1	S442931*1*DL	S442931*2	S442931*3	S442931*2*DL	S442931*3*DL
SAMPLE DATE ----->	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04
DATE EXTRACTED -->	04/15/04	04/15/04 Not	04/15/04	04/15/04	04/15/04	04/15/04
DATE ANALYZED --->	05/03/04	05/03/04 used	05/03/04	05/03/04	05/03/04	05/03/04
MATRIX ---------->	Sedmnt	Sedmnt	Sedmnt	Sedmnt	Sedmnt Not	Sedmnt used
UNITS ---------->	UG/KG A	UG/KG C	UG/KG A	UG/KG A	UG/KG C	UG/KG C

CAS #	Parameter												
12674-11-2	Aroclor-1016	8.7	U	87.	U	7.	U	5.9	U	70.	U	59.	U
11104-28-2	Aroclor-1221	38.	U	380.	U	30.	U	26.	U	300.	U	260.	U
11141-16-5	Aroclor-1232	15.	U	150.	U	12.	U	10.	U	120.	U	100.	U
53469-21-9	Aroclor-1242	15.	U	150.	U	12.	U	10.	U	120.	U	100.	U
12672-29-6	Aroclor-1248	14.	U	140.	U	12.	U	9.8	U	120.	U	98.	U
11097-69-1	Aroclor-1254	15.	U	150.	U	12.	U	10.	U	120.	U	100.	U
11096-82-5	Aroclor-1260	150.		98.	U	60.		62.		78.	U	67.	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 PCB								
SAMPLE ID ------->	041-M-5B04-01	041-M-5B04-01DL	041-M-5B05-01	041-M-5B05-01DL	041-M-5B06-01	041-M-5B06-01DL
ORIGINAL ID ----->	041M5B0401	041M5B0401	041M5B0501	041M5B0501	041M5B0601	041M5B0601
LAB SAMPLE ID --->	S442931*4	S442931*4*DL	S442931*5	S442931*5*DL	S442931*6	S442931*6*DL
SAMPLE DATE ----->	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04
DATE EXTRACTED -->	04/15/04	04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
DATE ANALYZED --->	05/03/04	05/03/04	05/03/04	05/03/04	05/03/04	05/03/04
MATRIX ---------->	Sedmnt	Sedmnt	Sedmnt	Sedmnt	Sedmnt	Sedmnt
UNITS ---------->	UG/KG A	UG/KG C	UG/KG A	UG/KG C	UG/KG A	UG/KG C
CAS # Parameter						
12674-11-2 Aroclor-1016	5.6 U	56. U	6. U	60. U	8.9 U	89. U
11104-28-2 Aroclor-1221	25. U	250. U	26. U	260. U	39. U	390. U
11141-16-5 Aroclor-1232	9.7 U	97. U	10. U	100. U	15. U	150. U
53469-21-9 Aroclor-1242	9.7 U	97. U	10. U	100. U	15. U	150. U
12672-29-6 Aroclor-1248	9.4 U	94. U	10. U	100. U	15. U	150. U
11097-69-1 Aroclor-1254	9.7 U	97. U	10. U	100. U	15. U	150. U
11096-82-5 Aroclor-1260	6.4 U	64. U	20. I	68. U	96.	100. U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 PCB													
	SAMPLE ID ------>	041-F-E000-01		041-E-M000-01		BLK-0-EN16-14		BLK-0-EN16-23					
	ORIGINAL ID ----->	041FE00001		041EM00001		MBLANK14		MBLANK23					
	LAB SAMPLE ID --->	S442931*7		S442931*8		S442931*14		S442931*23					
	SAMPLE DATE ----->	04/06/04		04/06/04									
	DATE EXTRACTED -->	04/12/04		04/12/04		04/15/04		04/12/04					
	DATE ANALYZED --->	04/16/04		04/16/04		04/29/04		04/16/04					
	MATRIX ---------->	Water		Water		Soil		Water					
	UNITS ---------->	UG/L	B	UG/L	B	UG/KG	D	UG/L	D				
CAS #	Parameter												
12674-11-2	Aroclor-1016	0.11	U	0.11	U	3.9	U	0.11	U				
11104-28-2	Aroclor-1221	0.5	U	0.5	U	17.	U	0.5	U				
11141-16-5	Aroclor-1232	0.18	U	0.18	U	6.7	U	0.18	U				
53469-21-9	Aroclor-1242	0.14	U	0.14	U	6.7	U	0.14	U				
12672-29-6	Aroclor-1248	0.11	U	0.11	U	6.5	U	0.11	U				
11097-69-1	Aroclor-1254	0.2	U	0.2	U	6.7	U	0.2	U				
11096-82-5	Aroclor-1260	0.11	U	0.11	U	4.4	U	0.11	U				

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 PEST						
SAMPLE ID ------>	041-M-5B02-02	041-M-5B02-02DL	041-M-5B03-01	041-N-5B03-01	041-M-5B03-01DL	041-N-5B03-01DL
ORIGINAL ID ----->	041M5B0202	041M5B0202	041M5B0301	041N5B0301	041M5B0301	041N5B0301
LAB SAMPLE ID --->	S442931*1	S442931*1*DL	S442931*2	S442931*3	S442931*2*DL	S442931*3*DL
SAMPLE DATE ----->	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04
DATE EXTRACTED -->	04/15/04	04/15/04 Not used except circled	04/15/04	04/15/04	04/15/04 Not used except circled	04/15/04 Not used except circled
DATE ANALYZED --->	05/03/04	05/03/04	05/03/04	05/03/04	05/03/04	05/03/04
MATRIX ---------->	Sedmnt	Sedmnt	Sedmnt	Sedmnt	Sedmnt	Sedmnt
UNITS ---------->	UG/KG A	UG/KG C	UG/KG A	UG/KG A	UG/KG C	UG/KG C
CAS # Parameter			← Field dups →			
319-84-6 alpha-BHC	0.53 U~~J~~	5.3 U	0.43 U~~J~~	0.36 U~~J~~	4.3 U	3.6 U
319-85-7 beta-BHC	0.64 U	6.4 U	0.52 U	0.44 U	5.2 U	4.4 U
319-86-8 delta-BHC	0.27 U	2.7 U	0.21 U	0.18 U	2.1 U	1.8 U
58-89-9 gamma-BHC (Lindane)	0.33 U	3.3 U	0.27 U	0.23 U	2.7 U	2.3 U
76-44-8 Heptachlor	0.62 U	6.2 U	0.5 U	0.42 U	5. U	4.2 U
309-00-2 Aldrin	0.24 U	2.4 U	0.2 U	0.17 U	2. U	1.7 U
1024-57-3 Heptachlor epoxide	0.38 U	3.8 U	0.3 U	0.26 U	3. U	2.6 U
959-98-8 Endosulfan I	0.38 U	3.8 U	0.3 U	0.26 U	3. U	2.6 U
60-57-1 Dieldrin	~~29.~~	25. I	14.	14.	21. I	8.2
72-55-9 4,4'-DDE	18 ~~14.~~ I	18. I	23 ~~15.~~ I	12 ~~9.5~~ I	23. I	12. I
72-20-8 Endrin	0.96 U	9.6 U	0.77 U	0.65 U	7.7 U	6.5 U
7421-93-4 Endrin aldehyde	0.69 U	6.9 U	0.55 U	0.47 U	5.5 U	4.7 U
33213-65-9 Endosulfan II	0.49 U	4.9 U	0.39 U	0.33 U	3.9 U	3.3 U
72-54-8 4,4'-DDD	7.8 ~~6.5~~ I U	7.8 U	6.2 ~~4.6~~ I U	5.3 ~~3.1~~ I U	6.2 U	5.3 U
1031-07-8 Endosulfan sulfate	0.98 U	9.8 U	0.78 U	0.67 U	7.8 U	6.7 U
50-29-3 4,4'-DDT	6.9 ~~0.69~~ U U	6.9 U	5.5 ~~0.55~~ U U	4.7 ~~0.47~~ U U	5.5 U	4.7 U
53494-70-5 Endrin ketone	0.84 U	8.4 U	0.68 U	0.58 U	6.8 U	5.8 U
72-43-5 Methoxychlor	0.44 U	4.4 U	0.36 U	0.3 U	3.6 U	3. U
5103-71-9 alpha-Chlordane	0.24 U	2.4 U	0.2 U	0.17 U	2. U	1.7 U
5103-74-2 gamma-Chlordane	0.29 U	2.9 U	0.23 U	0.2 U	2.3 U	2. U
8001-35-2 Toxaphene	73. U	730. U	59. U	50. U	590. U	500. U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 PEST													
	SAMPLE ID ------>	041-M-5B04-01		041-M-5B04-01DL		041-M-5B05-01		041-M-5B05-01DL		041-M-5B06-01		041-M-5B06-01DL	
	ORIGINAL ID ----->	041M5B0401		041M5B0401		041M5B0501		041M5B0501		041M5B0601		041M5B0601	
	LAB SAMPLE ID --->	S442931*4		S442931*4*DL		S442931*5		S442931*5*DL		S442931*6		S442931*6*DL	
	SAMPLE DATE ----->	04/06/04		04/06/04		04/06/04		04/06/04		04/06/04		04/06/04	
	DATE EXTRACTED -->	04/15/04		04/15/04		04/15/04		04/15/04		04/15/04		04/15/04	
	DATE ANALYZED --->	05/03/04		05/03/04		05/03/04		05/03/04		05/03/04		05/03/04	
	MATRIX ---------->	Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt	
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C
CAS #	Parameter												
319-84-6	alpha-BHC	0.35	U*J+	3.5	U	0.37	U*J+	3.7	U	0.54	U*J+	5.4	U
319-85-7	beta-BHC	0.42	U	4.2	U	0.45	U	4.5	U	2.9	I	6.6	U
319-86-8	delta-BHC	0.17	U	1.7	U	0.18	U	1.8	U	0.27	U	2.7	U
58-89-9	gamma-BHC (Lindane)	0.22	U	2.2	U	0.23	U	2.3	U	0.34	U	3.4	U
76-44-8	Heptachlor	0.4	U	4.	U	0.43	U	4.3	U	0.64	U	6.4	U
309-00-2	Aldrin	5.6	J+ U	7.	J+ U	0.24	J+ U	1.7	U	7.	J+ U	3.8	J+ U
1024-57-3	Heptachlor epoxide	0.25	U	2.5	U	0.26	U	2.6	U	0.39	U	3.9	U
959-98-8	Endosulfan I	0.25	U	2.5	U	0.26	U	2.6	U	0.39	U	3.9	U
60-57-1	Dieldrin	8.6		4.5	U	9.		8.5	I	100.		120.	
72-55-9	4,4'-DDE	3.8	I U	7.8	U	3.3	I U	8.3	U	16.	I	24.	I
72-20-8	Endrin	0.62	U	6.2	U	0.66	U	6.6	U	0.98	U	9.8	U
7421-93-4	Endrin aldehyde	0.45	U	4.5	U	0.48	U	4.8	U	0.7	U	7.	U
33213-65-9	Endosulfan II	0.32	U	3.2	U	0.34	U	3.4	U	0.5	U	5.	U
72-54-8	4,4'-DDD	0.51	U U	5.1	U	0.54	U U	5.4	U	2.3	I U	8.	U
1031-07-8	Endosulfan sulfate	0.64	U	6.4	U	0.68	U	6.8	U	1.	U	10.	U
50-29-3	4,4'-DDT	0.45	U U	4.5	U	0.48	U U	4.8	U	0.7	U U	7.	U
53494-70-5	Endrin ketone	0.55	U	5.5	U	0.58	U	5.8	U	0.86	U	8.6	U
72-43-5	Methoxychlor	0.29	U	2.9	U	0.31	U	3.1	U	0.45	U	4.5	U
5103-71-9	alpha-Chlordane	0.16	U	1.6	U	0.17	U	1.7	U	0.25	U	2.5	U
5103-74-2	gamma-Chlordane	0.19	U	1.9	U	0.2	U	2.	U	0.3	U	3.	U
8001-35-2	Toxaphene	48.	U	480.	U	51.	U	510.	U	75.	U	750.	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 PEST	SAMPLE ID ------->	041-F-E000-01	041-E-M000-01	BLK-0-EN16-14	BLK-0-EN16-23		
	ORIGINAL ID ----->	041FE00001	041EM00001	MBLANK14	MBLANK23		
	LAB SAMPLE ID --->	S442931*7	S442931*8	S442931*14	S442931*23		
	SAMPLE DATE ----->	04/06/04	04/06/04				
	DATE EXTRACTED -->	04/12/04	04/12/04	04/15/04	04/12/04		
	DATE ANALYZED --->	04/16/04	04/16/04	04/29/04	04/16/04		
	MATRIX ---------->	Water	Water	Soil	Water		
	UNITS ---------->	UG/L B	UG/L B	UG/KG D	UG/L D		
CAS #	Parameter						
319-84-6	alpha-BHC	0.0035 U	0.0035 U	0.24 U	0.0035 U		
319-85-7	beta-BHC	0.0035 U	0.0035 U	0.29 U	0.0035 U		
319-86-8	delta-BHC	0.009 U	0.009 U	0.12 U	0.009 U		
58-89-9	gamma-BHC (Lindane)	0.003 U	0.003 U	0.15 U	0.003 U		
76-44-8	Heptachlor	0.014 U	0.014 U	0.28 U	0.014 U		
309-00-2	Aldrin	0.0086 U	0.0086 U	1.4 I	0.026 I		
1024-57-3	Heptachlor epoxide	0.0026 U	0.0026 U	0.17 U	0.0026 U		
959-98-8	Endosulfan I	0.0099 U	0.0099 U	0.17 U	0.0099 U		
60-57-1	Dieldrin	0.006 U	0.006 U	0.31 U	0.006 U		
72-55-9	4,4'-DDE	0.01 U	0.01 U	0.54 U	0.01 U		
72-20-8	Endrin	0.0097 U	0.0097 U	0.43 U	0.0097 U		
7421-93-4	Endrin aldehyde	0.014 U	0.014 U	0.31 U	0.014 U		
33213-65-9	Endosulfan II	0.0084 U	0.0084 U	0.22 U	0.0084 U		
72-54-8	4,4'-DDD	0.016 U	0.016 U	0.35 U	0.016 U		
1031-07-8	Endosulfan sulfate	0.0085 U	0.0085 U	0.44 U	0.0085 U		
50-29-3	4,4'-DDT	0.014 U	0.014 U	0.31 U	0.014 U		
53494-70-5	Endrin ketone	0.0072 U	0.0072 U	0.38 U	0.0072 U		
72-43-5	Methoxychlor	0.007 U	0.007 U	0.2 U	0.007 U		
5103-71-9	alpha-Chlordane	0.0084 U	0.0084 U	0.11 U	0.0084 U		
5103-74-2	gamma-Chlordane	0.007 U	0.007 U	0.13 U	0.007 U		
8001-35-2	Toxaphene	0.77 U	0.77 U	33. U	0.77 U		

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 SVOA	SAMPLE ID ------>	041-M-5B02-02		041-M-5B03-01		041-N-5B03-01		041-M-5B04-01		041-M-5B05-01		041-M-5B06-01	
	ORIGINAL ID ----->	041M5B0202		041M5B0301		041N5B0301		041M5B0401		041M5B0501		041M5B0601	
	LAB SAMPLE ID --->	S442931*1		S442931*2		S442931*3		S442931*4		S442931*5		S442931*6	
	SAMPLE DATE ----->	04/06/04		04/06/04		04/06/04		04/06/04		04/06/04		04/06/04	
	DATE EXTRACTED -->	04/15/04		04/15/04		04/15/04		04/15/04		04/15/04		04/15/04	
	DATE ANALYZED --->	04/19/04		04/20/04		04/20/04		04/20/04		04/20/04		04/20/04	
	MATRIX ---------->	Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter			← Field dups →									
108-95-2	Phenol	91.	U	73.	U	62.	U	59.	U	63.	U	93.	U
111-44-4	bis(2-Chloroethyl)ether	82.	U	66.	U	56.	U	54.	U	57.	U	84.	U
95-57-8	2-Chlorophenol	91.	U	73.	U	62.	U	59.	U	63.	U	93.	U
541-73-1	1,3-Dichlorobenzene	51.	U	41.	U	35.	U	33.	U	35.	U	52.	U
106-46-7	1,4-Dichlorobenzene	53.	U	43.	U	36.	U	35.	U	37.	U	54.	U
95-50-1	1,2-Dichlorobenzene	51.	U	41.	U	35.	U	33.	U	35.	U	52.	U
95-48-7	2-Methylphenol (o-Cresol)	100.	U	82.	U	70.	U	67.	U	71.	U	100.	U
108-60-1	2,2'-oxybis(1-Chloropropane)/bis(2-chlor	71.	U	57.	U	48.	U	46.	U	49.	U	73.	U
9999900-32-2	3-Methylphenol/4-Methylphenol	89.	U	73.	I	410.	I	58.	U	62.	U	200.	I
621-64-7	N-Nitroso-di-n-propylamine	67.	U	54.	U	45.	U	43.	U	46.	U	68.	U
67-72-1	Hexachloroethane	42.	U	34.	U	29.	U	28.	U	29.	U	43.	U
98-95-3	Nitrobenzene	69.	U	55.	U	47.	U	45.	U	48.	U	70.	U
78-59-1	Isophorone	58.	U	46.	U	39.	U	38.	U	40.	U	59.	U
88-75-5	2-Nitrophenol	58.	U	46.	U	39.	U	38.	U	40.	U	59.	U
105-67-9	2,4-Dimethylphenol	62.	U	50.	U	42.	U	40.	U	43.	U	64.	U
111-91-1	bis(2-Chloroethoxy)methane	71.	U	57.	U	48.	U	46.	U	49.	U	73.	U
120-83-2	2,4-Dichlorophenol	64.	U	52.	U	44.	U	42.	U	45.	U	66.	U
120-82-1	1,2,4-Trichlorobenzene	84.	U	68.	U	58.	U	55.	U	58.	U	86.	U
106-47-8	4-Chloroaniline	64.	U	52.	U	44.	U	42.	U	45.	U	66.	U
87-68-3	Hexachlorobutadiene	60.	U	48.	U	41.	U	39.	U	42.	U	61.	U
59-50-7	4-Chloro-3-methylphenol	89.	U	71.	U	61.	U	58.	U	62.	U	91.	U
77-47-4	Hexachlorocyclopentadiene	600.	U	480.	U	410.	U	390.	U	420.	U	610.	U
88-06-2	2,4,6-Trichlorophenol	71.	U	57.	U	48.	U	46.	U	49.	U	73.	U
95-95-4	2,4,5-Trichlorophenol	69.	U	55.	U	47.	U	45.	U	48.	U	70.	U
91-58-7	2-Chloronaphthalene	82.	U	66.	U	56.	U	54.	U	57.	U	84.	U
88-74-4	2-Nitroaniline	56.	U	45.	U	38.	U	36.	U	38.	U	57.	U
131-11-3	Dimethylphthalate	78.	U	62.	U	53.	U	51.	U	54.	U	80.	U
99-09-2	3-Nitroaniline	67.	U	54.	U	45.	U	43.	U	46.	U	68.	U
51-28-5	2,4-Dinitrophenol	760.	U	610.	U	520.	U	490.	U	520.	U	770.	U
100-02-7	4-Nitrophenol	56.	U	45.	U	38.	U	36.	U	38.	U	57.	U
132-64-9	Dibenzofuran	76.	U	61.	U	52.	U	49.	U	52.	U	77.	U
121-14-2	2,4-Dinitrotoluene	49.	U	39.	U	33.	U	32.	U	34.	U	50.	U
606-20-2	2,6-Dinitrotoluene	64.	U	52.	U	44.	U	42.	U	45.	U	66.	U
84-66-2	Diethylphthalate	78.	U	62.	U	53.	U	51.	U	54.	U	80.	U
7005-72-3	4-Chlorophenylphenyl ether	58.	U	46.	U	39.	U	38.	U	40.	U	59.	U
100-01-6	4-Nitroaniline	58.	U	46.	U	39.	U	38.	U	40.	U	59.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	69.	U	55.	U	47.	U	45.	U	48.	U	70.	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 SVOA	SAMPLE ID ------->	041-M-5B02-02		041-M-5B03-01		041-N-5B03-01		041-M-5B04-01		041-M-5B05-01		041-M-5B06-01	
	ORIGINAL ID ----->	041M5B0202		041M5B0301		041N5B0301		041M5B0401		041M5B0501		041M5B0601	
	LAB SAMPLE ID --->	S442931*1		S442931*2		S442931*3		S442931*4		S442931*5		S442931*6	
	SAMPLE DATE ----->	04/06/04		04/06/04		04/06/04		04/06/04		04/06/04		04/06/04	
	DATE EXTRACTED -->	04/15/04		04/15/04		04/15/04		04/15/04		04/15/04		04/15/04	
	DATE ANALYZED --->	04/19/04		04/20/04		04/20/04		04/20/04		04/20/04		04/20/04	
	MATRIX ---------->	Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter			← Field dups →									
86-30-6	N-Nitrosodiphenylamine	67.	U	54.	U	45.	U	43.	U	46.	U	68.	U
101-55-3	4-Bromophenyl-phenylether	67.	U	54.	U	45.	U	43.	U	46.	U	68.	U
118-74-1	Hexachlorobenzene	84.	U	68.	U	58.	U	55.	U	58.	U	86.	U
87-86-5	Pentachlorophenol	76.	U	61.	U	52.	U	49.	U	52.	U	77.	U
84-74-2	Di-n-butylphthalate	87.	U	330.	I	59.	U J	56.	U	60.	U	89.	U
85-68-7	Butylbenzylphthalate	71.	U	57.	U	48.	U	46.	U	49.	U	73.	U
91-94-1	3,3'-Dichlorobenzidine	58.	U	46.	U	39.	U	38.	U	40.	U	59.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	190.	I	190.	I	180.	I	64.	U	68.	U	150.	I
117-84-0	Di-n-octylphthalate	71.	U	57.	U	48.	U	46.	U	49.	U	73.	U
86-74-8	Carbazole	67.	U	54.	U	45.	U	43.	U	46.	U	68.	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16
SVOA

SAMPLE ID ------->	041-F-E000-01	041-F-E000-01RE	041-E-M000-01	BLK-0-EN16-14	BLK-0-EN16-23	BLK-0-EN16-33
ORIGINAL ID ----->	041FE00001	041FE00001	041EM00001	MBLANK14	MBLANK23	MBLANK33
LAB SAMPLE ID --->	S442931*7	S442931*7*RE	S442931*8	S442931*14	S442931*23	S442931*33
SAMPLE DATE ----->	04/06/04	04/06/04	04/06/04			
DATE EXTRACTED -->	04/09/04	04/27/04	04/09/04	04/15/04	04/09/04	04/27/04
DATE ANALYZED --->	04/22/04	04/30/04	04/22/04	04/19/04	04/15/04	04/30/04
MATRIX ---------->	Water	Water	Water	Soil	Water	Water
UNITS ---------->	UG/L B	UG/L C	UG/L B	UG/KG D	UG/L D	UG/L D

CAS #	Parameter																	
108-95-2	Phenol	1.	U	1.	U	1.	U	41.	U	1.	U	1.	U
111-44-4	bis(2-Chloroethyl)ether	1.	U	1.	U	1.	U	37.	U	1.	U	1.	U
95-57-8	2-Chlorophenol	0.79	U	0.79	U	0.79	U	41.	U	0.79	U	0.79	U
541-73-1	1,3-Dichlorobenzene	1.	U	1.	U	1.	U	23.	U	1.	U	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U	1.	U	1.	U	24.	U	1.	U	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U	1.	U	1.	U	23.	U	1.	U	1.	U
95-48-7	2-Methylphenol (o-Cresol)	0.59	U	0.59	U	0.59	U	46.	U	0.59	U	0.59	U
108-60-1	2,2'-oxybis(1-Chloropropane)/bis(2-chlor	0.58	U	0.58	U	0.58	U	32.	U	0.58	U	0.58	U
9999900-32-2	3-Methylphenol/4-Methylphenol	1.	U	1.	U	1.	U	40.	U	1.	U	1.	U
621-64-7	N-Nitroso-di-n-propylamine	1.	U	1.	U	1.	U	30.	U	1.	U	1.	U
67-72-1	Hexachloroethane	0.7	U	0.7	U	0.7	U	19.	U	0.7	U	0.7	U
98-95-3	Nitrobenzene	1.	U	1.	U	1.	U	31.	U	1.	U	1.	U
78-59-1	Isophorone	1.	U	1.	U	1.	U	26.	U	1.	U	1.	U
88-75-5	2-Nitrophenol	1.1	U	1.1	U	1.1	U	26.	U	1.1	U	1.1	U
105-67-9	2,4-Dimethylphenol	1.1	U	1.1	U	1.1	U	28.	U	1.1	U	1.1	U
111-91-1	bis(2-Chloroethoxy)methane	1.	U	1.	U	1.	U	32.	U	1.	U	1.	U
120-83-2	2,4-Dichlorophenol	0.76	U	0.76	U	0.76	U	29.	U	0.76	U	0.76	U
120-82-1	1,2,4-Trichlorobenzene	0.51	U	0.51	U	0.51	U	38.	U	0.51	U	0.51	U
106-47-8	4-Chloroaniline	1.	U	1.	U	1.	U	29.	U	1.	U	1.	U
87-68-3	Hexachlorobutadiene	0.5	U	0.5	U	0.5	U	27.	U	0.5	U	0.5	U
59-50-7	4-Chloro-3-methylphenol	1.	U	1.	U	1.	U	40.	U	1.	U	1.	U
77-47-4	Hexachlorocyclopentadiene	1.1	U	1.1	U	1.1	U	270.	U	1.1	U	1.1	U
88-06-2	2,4,6-Trichlorophenol	1.1	U	1.1	U	1.1	U	32.	U	1.1	U	1.1	U
95-95-4	2,4,5-Trichlorophenol	1.1	U	1.1	U	1.1	U	31.	U	1.1	U	1.1	U
91-58-7	2-Chloronaphthalene	1.	U	1.	U	1.	U	37.	U	1.	U	1.	U
88-74-4	2-Nitroaniline	0.72	U	0.72	U	0.72	U	25.	U	0.72	U	0.72	U
131-11-3	Dimethylphthalate	0.57	U	0.57	U	0.57	U	35.	U	0.57	U	0.57	U
99-09-2	3-Nitroaniline	0.64	U	0.64	U	0.64	U	30.	U	0.64	U	0.64	U
51-28-5	2,4-Dinitrophenol	10.	U	10.	U	10.	U	340.	U	10.	U	10.	U
100-02-7	4-Nitrophenol	5.	U	5.	U	5.	U	25.	U	5.	U	5.	U
132-64-9	Dibenzofuran	1.	U	1.	U	1.	U	34.	U	1.	U	1.	U
121-14-2	2,4-Dinitrotoluene	1.1	U	1.1	U	1.1	U	22.	U	1.1	U	1.1	U
606-20-2	2,6-Dinitrotoluene	0.87	U	0.87	U	0.87	U	29.	U	0.87	U	0.87	U
84-66-2	Diethylphthalate	1.	U	1.	U	1.	U	35.	U	1.	U	1.	U
7005-72-3	4-Chlorophenylphenyl ether	0.7	U	0.7	U	0.7	U	26.	U	0.7	U	0.7	U
100-01-6	4-Nitroaniline	0.86	U	0.86	U	0.86	U	26.	U	0.86	U	0.86	U
534-52-1	2-Methyl-4,6-Dinitrophenol	10.	U	10.	U	10.	U	31.	U	10.	U	10.	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 SVOA	SAMPLE ID ------>	041-F-E000-01	041-F-E000-01RE	041-E-M000-01	BLK-0-EN16-14	BLK-0-EN16-23	BLK-0-EN16-33
	ORIGINAL ID ----->	041FE00001	041FE00001	041EM00001	MBLANK14	MBLANK23	MBLANK33
	LAB SAMPLE ID --->	S442931*7	S442931*7*RE	S442931*8	S442931*14	S442931*23	S442931*33
	SAMPLE DATE ----->	04/06/04	04/06/04	04/06/04			
	DATE EXTRACTED -->	04/09/04	04/27/04	04/09/04	04/15/04	04/09/04	04/27/04
	DATE ANALYZED --->	04/22/04	04/30/04	04/22/04	04/19/04	04/15/04	04/30/04
	MATRIX ---------->	Water	Water	Water	Soil	Water	Water
	UNITS ---------->	UG/L B	UG/L C	UG/L B	UG/KG D	UG/L D	UG/L D
CAS #	Parameter						
86-30-6	N-Nitrosodiphenylamine	1. U	1. U	1. U	30. U	1. U	1. U
101-55-3	4-Bromophenyl-phenylether	1. U	1. U	1. U	30. U	1. U	1. U
118-74-1	Hexachlorobenzene	0.61 U	0.61 U	0.61 U	38. U	0.61 U	0.61 U
87-86-5	Pentachlorophenol	2. U	2. U	2. U	34. U	2. U	2. U
84-74-2	Di-n-butylphthalate	1. U	1. U	1. U	39. U	1. U	1. U
85-68-7	Butylbenzylphthalate	0.74 U	0.74 U	0.74 U	32. U	0.74 U	0.74 U
91-94-1	3,3'-Dichlorobenzidine	1. U	1. U	1. U	26. U	1. U	1. U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	2.4 U	2.4 U	2.4 U	44. U	2.4 U	2.4 U
117-84-0	Di-n-octylphthalate	1.2 U	1.2 U	1.2 U	32. U	1.2 U	1.2 U
86-74-8	Carbazole	0.54 U	0.54 U	0.54 U	30. U	0.54 U	0.54 U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 TOC							
	SAMPLE ID ------>	041-M-5B02-02	041-M-5B03-01	041-N-5B03-01	041-M-5B04-01	041-M-5B05-01	041-M-5B06-01
	ORIGINAL ID ----->	041M5B0202	041M5B0301	041N5B0301	041M5B0401	041M5B0501	041M5B0601
	LAB SAMPLE ID --->	S442931*1	S442931*2	S442931*3	S442931*4	S442931*5	S442931*6
	SAMPLE DATE ----->	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04	04/06/04
	DATE EXTRACTED -->	04/19/04	04/19/04	04/19/04	04/19/04	04/19/04	04/19/04
	DATE ANALYZED --->	04/20/04	04/20/04	04/20/04	04/20/04	04/20/04	04/20/04
	MATRIX ---------->	Sedmnt	Sedmnt	Sedmnt	Sedmnt	Sedmnt	Sedmnt
	UNITS ---------->	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A
CAS #	Parameter						
9999900-01-4	Total Organic Carbon (TOC)	15000.	3800.	5700.	3500.	14000.	4100.

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 TOC	SAMPLE ID ------->	BLK-0-EN16-14					
	ORIGINAL ID ----->	MBLANK14					
	LAB SAMPLE ID --->	S442931*14					
	SAMPLE DATE ----->						
	DATE EXTRACTED -->	04/20/04					
	DATE ANALYZED --->	04/20/04					
	MATRIX ---------->	Soil					
	UNITS ---------->	MG/KG D					
CAS #	Parameter						
9999900-01-4	Total Organic Carbon (TOC)	390. U					

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 TOT METAL													
	SAMPLE ID ------>	041-M-5B02-02		041-M-5B03-01		041-N-5B03-01		041-M-5B04-01		041-M-5B05-01		041-M-5B06-01	
	ORIGINAL ID ----->	041M5B0202		041M5B0301		041N5B0301		041M5B0401		041M5B0501		041M5B0601	
	LAB SAMPLE ID --->	S442931*1		S442931*2		S442931*3		S442931*4		S442931*5		S442931*6	
	SAMPLE DATE ----->	04/06/04		04/06/04		04/06/04		04/06/04		04/06/04		04/06/04	
	DATE EXTRACTED -->	04/12/04		04/12/04		04/12/04		04/12/04		04/12/04		04/12/04	
	DATE ANALYZED --->	04/15/04		04/15/04		04/13/04		04/15/04		04/15/04		04/15/04	
	MATRIX ---------->	Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt	
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A
CAS #	Parameter			← Field dups →									
7429-90-5	Aluminum	3400.		860.	J	1500.	J	300.		420.		760.	
7440-36-0	Antimony	3.6	I	2.2	I	2.	I	1.8	I	1.1	I	2.5	I
7440-38-2	Arsenic	0.84	I	0.56	U	0.46	U	0.46	U	0.46	U	0.66	U
7440-39-3	Barium	18.		3.3	J	6.1	J	1.5		1.8		4.5	
7440-41-7	Beryllium	0.15	I	0.068	I	0.079	I	0.038	I	0.036	I	0.066	I
7440-43-9	Cadmium	31.		1.	J	5.1	J	0.95		1.1		5.1	
7440-70-2	Calcium	1100.		340.		330.		100.		140.		380.	
7440-47-3	Chromium	470.		24.	J	63.	J	14.		23.		55.	
7440-48-4	Cobalt	4.1		0.4	I	1.	I	0.3	I	0.39	I	1.1	I
7440-50-8	Copper	90.		12.	J	29.	J	5.3		7.8		16.	
7439-89-6	Iron	1800.		470.	J	1600.	J	210.		290.		800.	
7439-92-1	Lead	420.		38.	J	94.	J	19.		24.		48.	
7439-95-4	Magnesium	210.		83.	I	81.		26.	I	28.	I	58.	I
7439-96-5	Manganese	11.		2.8		3.9		1.1	I	4.7		21.	
7440-02-0	Nickel	20.		1.2	I	3.7	I	0.61	I	0.97	I	3.	I
7440-09-7	Potassium	74.	I	27.	I	38.	I	12.	I	17.	I	30.	I
7782-49-2	Selenium	1.	U	0.89	U	0.74	U	0.74	U	0.74	U	1.1	U
7440-22-4	Silver	6.4		0.18	UJ	0.58	I	0.15	U	0.15	U	0.38	I
7440-23-5	Sodium	38.	I	12.	I	15.	I	8.3	I	7.5	I	14.	I
7440-28-0	Thallium	1.4	U	1.3	U	1.1	U	1.1	U	1.1	U	1.5	U
7440-62-2	Vanadium	6.7		1.1	I	2.5	J	0.55	I	0.86	I	1.2	I
7440-66-6	Zinc	200.		45.	J	120.	J	28.		19.		60.	
7439-97-6	Mercury	0.22		0.086		0.082		0.0068	U	0.019	I	0.12	

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 TOT METAL													
	SAMPLE ID ------>	041-F-E000-01			041-E-M000-01			BLK-0-EN16-14			BLK-0-EN16-23				
	ORIGINAL ID ----->	041FE00001			041EM00001			MBLANK14			MBLANK23				
	LAB SAMPLE ID --->	S442931*7			S442931*8			S442931*14			S442931*23				
	SAMPLE DATE ----->	04/06/04			04/06/04										
	DATE EXTRACTED -->	04/12/04			04/12/04			04/12/04			04/12/04				
	DATE ANALYZED --->	04/13/04			04/13/04			04/15/04			04/13/04				
	MATRIX ---------->	Water			Water			Soil			Water				
	UNITS ---------->	UG/L		B	UG/L		B	MG/KG		D	UG/L		D		
CAS #	Parameter														
7429-90-5	Aluminum	7.7	I		9.8	I		2.	I		12.	I			
7440-36-0	Antimony	5.	U		5.	U		0.9	I		5.	U			
7440-38-2	Arsenic	4.6	U		4.6	U		0.33	U		4.6	U			
7440-39-3	Barium	0.2	U		0.2	U		0.046	I		0.2	U			
7440-41-7	Beryllium	0.1	U		0.1	U		0.023	I		0.1	U			
7440-43-9	Cadmium	0.6	U		0.6	U		0.083	I		0.6	U			
7440-70-2	Calcium	7.1	I		16.	I		0.74	U		8.5	I			
7440-47-3	Chromium	0.9	U		0.9	U		0.14	U		0.9	U			
7440-48-4	Cobalt	1.	U		1.	U		0.12	U		1.	U			
7440-50-8	Copper	0.6	U		0.6	U		0.06	U		0.6	U			
7439-89-6	Iron	32.	U		32.	U		2.8	I		32.	U			
7439-92-1	Lead	2.8	U		2.8	U		0.34	I		2.8	U			
7439-95-4	Magnesium	6.6	U		6.6	U		0.88	I		6.6	U			
7439-96-5	Manganese	0.24	I		0.72	I		0.04	U		0.2	U			
7440-02-0	Nickel	2.	U		2.	U		0.15	U		2.	U			
7440-09-7	Potassium	17.	U		27.	I		2.5	I		17.	U			
7782-49-2	Selenium	3.6	U		3.6	U		0.53	U		3.6	U			
7440-22-4	Silver	0.9	U		0.9	U		0.11	U		0.9	U			
7440-23-5	Sodium	230.	U		230.	U		0.77	I		230.	U			
7440-28-0	Thallium	8.4	U		8.4	U		0.76	U		8.4	U			
7440-62-2	Vanadium	1.4	U		1.4	U		0.097	I		1.4	U			
7440-66-6	Zinc	0.9	U		1.1	I		0.51	I		0.9	U			
7439-97-6	Mercury	0.078	U		0.12	I		0.02	U		0.078	U			

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 VOA	SAMPLE ID ------>	041-M-5B02-02		041-M-5B03-01		041-N-5B03-01		041-M-5B04-01		041-M-5B05-01		041-M-5B06-01	
	ORIGINAL ID ----->	041M5B0202		041M5B0301		041N5B0301		041M5B0401		041M5B0501		041M5B0601	
	LAB SAMPLE ID --->	S442931*1		S442931*2		S442931*3		S442931*4		S442931*5		S442931*6	
	SAMPLE DATE ----->	04/06/04		04/06/04		04/06/04		04/06/04		04/06/04		04/06/04	
	DATE EXTRACTED -->	04/09/04		04/09/04		04/12/04		04/12/04		04/12/04		04/12/04	
	DATE ANALYZED --->	04/09/04		04/09/04		04/12/04		04/12/04		04/12/04		04/12/04	
	MATRIX ---------->	Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt		Sedmnt	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter												
74-87-3	Chloromethane	3.	U	2.4	U	2.2	U	2.1	U	2.3	U	3.5	U
74-83-9	Bromomethane	7.4	U	6.	U	5.4	U	5.1	U	5.6	U	8.6	U
75-01-4	Vinyl chloride	3.7	I	2.4	U	2.2	U	2.1	U	2.3	U	3.5	U
75-00-3	Chloroethane	3.7	U	3.	U	2.7	U	2.6	U	2.8	U	4.3	U
75-09-2	Methylene chloride	5.2	U	4.2	U	3.8	U	3.6	U	3.9	U	6.1	U
67-64-1	Acetone	28.	I	21.	I	13.	U	12.	U	13.	U	20.	U
75-15-0	Carbon disulfide	4.4	U	3.5	U	3.2	U	3.	U	3.3	U	5.	U
75-35-4	1,1-Dichloroethene	3.7	U	3.	U	2.7	U	2.6	U	2.8	U	4.3	U
75-34-3	1,1-Dichloroethane	2.2	U	1.8	U	1.6	U	1.5	U	1.6	U	2.5	U
156-59-2	cis-1,2-Dichloroethene	2.4	U	1.9	U	1.7	U	1.7	U	1.8	U	7.7	I
156-60-5	trans-1,2-Dichloroethene	2.6	U	2.1	U	1.9	U	1.8	U	2.	U	3.	U
67-66-3	Chloroform	2.6	U	2.1	U	1.9	U	1.8	U	2.	U	3.	U
107-06-2	1,2-Dichloroethane	3.3	U	2.6	U	2.4	U	2.3	U	2.4	U	3.8	U
78-93-3	2-Butanone (MEK)	10.	U	8.2	U	7.4	U	7.1	U	7.7	U	12.	U
71-55-6	1,1,1-Trichloroethane	1.8	U	1.4	U	1.3	U	1.2	U	1.3	U	2.	U
56-23-5	Carbon tetrachloride	2.	U	1.6	U	1.5	U	1.4	U	1.5	U	2.4	U
75-27-4	Bromodichloromethane	2.8	U	2.3	U	2.	U	2.	U	2.1	U	3.3	U
79-34-5	1,1,2,2-Tetrachloroethane	4.4	U	3.5	U	3.2	U	3.	U	3.3	U	5.	U
78-87-5	1,2-Dichloropropane	2.6	U	2.1	U	1.9	U	1.8	U	2.	U	3.	U
10061-02-6	trans-1,3-Dichloropropene	3.5	U	2.8	U	2.5	U	2.4	U	2.6	U	4.	U
79-01-6	Trichloroethene	2.4	U	1.9	U	1.7	U	1.7	U	1.8	U	2.8	U
124-48-1	Dibromochloromethane	3.	U	2.4	U	2.2	U	2.1	U	2.3	U	3.5	U
79-00-5	1,1,2-Trichloroethane	3.9	U	3.2	U	2.8	U	2.7	U	2.9	U	4.5	U
71-43-2	Benzene	2.4	U	1.9	U	1.7	U	1.7	U	1.8	U	2.8	U
10061-01-5	cis-1,3-Dichloropropene	2.6	U	2.1	U	1.9	U	1.8	U	2.	U	3.	U
75-25-2	Bromoform	3.7	U	3.	U	2.7	U	2.6	U	2.8	U	4.3	U
591-78-6	2-Hexanone	11.	U	8.9	U	8.	U	7.7	U	8.3	U	13.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	11.	U	8.8	U	7.9	U	7.5	U	8.2	U	13.	U
127-18-4	Tetrachloroethene	3.3	U	2.6	U	2.4	U	2.3	U	2.4	U	3.8	U
108-88-3	Toluene	3.9	U	3.2	U	2.8	U	3.5	I	2.9	U	4.5	U
108-90-7	Chlorobenzene	2.8	U	2.3	U	2.	U	2.	U	2.1	U	3.3	U
100-41-4	Ethylbenzene	2.2	U	1.8	U	1.6	U	1.5	U	1.6	U	2.5	U
100-42-5	Styrene	2.4	U	1.9	U	1.7	U	1.7	U	1.8	U	2.8	U
1330-20-7	Xylene (Total)	6.5	U	5.2	U	4.7	U	4.5	U	4.9	U	7.6	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16 VOA	SAMPLE ID ------>	041-T-B000-01		041-F-E000-01		041-E-M000-01		BLK-0-EN16-14		BLK-0-EN16-23		BLK-0-EN16-30	
	ORIGINAL ID ----->	041TB00001		041FE00001		041EM00001		MBLANK14		MBLANK23		MBLANK30	
	LAB SAMPLE ID --->	S442931*9		S442931*7		S442931*8		S442931*14		S442931*23		S442931*30	
	SAMPLE DATE ----->	04/06/04		04/06/04		04/06/04							
	DATE EXTRACTED -->	04/17/04		04/16/04		04/19/04		04/09/04		04/16/04		04/12/04	
	DATE ANALYZED --->	04/17/04		04/16/04		04/19/04		04/09/04		04/16/04		04/12/04	
	MATRIX ---------->	Water		Water		Water		Soil		Water		Soil	
	UNITS ---------->	UG/L	B	UG/L	B	UG/L	B	UG/KG	D	UG/L	D	UG/KG	D
CAS #	Parameter												
74-87-3	Chloromethane	0.39	U	0.39	U	0.39	U	1.4	U	0.39	U	1.4	U
74-83-9	Bromomethane	0.62	U	0.62	U	0.62	U	3.4	U	0.62	U	3.4	U
75-01-4	Vinyl chloride	0.56	U	0.56	U	0.56	U	1.4	U	0.56	U	1.4	U
75-00-3	Chloroethane	0.78	U	0.78	U	0.78	U	1.7	U	0.78	U	1.7	U
75-09-2	Methylene chloride	0.64	U	0.64	U	0.64	U	2.4	U	0.64	U	2.4	U
67-64-1	Acetone	5.	U	5.	U	5.	U	8.	U	5.	U	8.	U
75-15-0	Carbon disulfide	0.66	U	0.66	U	0.66	U	2.	U	0.66	U	2.	U
75-35-4	1,1-Dichloroethene	0.36	U	0.36	U	0.36	U	1.7	U	0.36	U	1.7	U
75-34-3	1,1-Dichloroethane	0.36	U	0.36	U	0.36	U	1.	U	0.36	U	1.	U
156-59-2	cis-1,2-Dichloroethene	0.38	U	0.38	U	0.38	U	1.1	U	0.38	U	1.1	U
156-60-5	trans-1,2-Dichloroethene	0.4	U	0.4	U	0.4	U	1.2	U	0.4	U	1.2	U
67-66-3	Chloroform	0.37	U	0.37	U	0.37	U	1.2	U	0.37	U	1.2	U
107-06-2	1,2-Dichloroethane	0.26	U	0.26	U	0.26	U	1.5	U	0.26	U	1.5	U
78-93-3	2-Butanone (MEK)	1.3	U	1.3	U	1.3	U	4.7	U	1.3	U	4.7	U
71-55-6	1,1,1-Trichloroethane	0.32	U	0.32	U	0.32	U	0.81	U	0.32	U	0.81	U
56-23-5	Carbon tetrachloride	0.31	U	0.31	U	0.31	U	0.94	U	0.31	U	0.94	U
75-27-4	Bromodichloromethane	0.14	U	0.14	U	0.14	U	1.3	U	0.14	U	1.3	U
79-34-5	1,1,2,2-Tetrachloroethane	0.18	U	0.18	U	0.18	U	2.	U	0.18	U	2.	U
78-87-5	1,2-Dichloropropane	0.33	U	0.33	U	0.33	U	1.2	U	0.33	U	1.2	U
10061-02-6	trans-1,3-Dichloropropene	0.26	U	0.26	U	0.26	U	1.6	U	0.26	U	1.6	U
79-01-6	Trichloroethene	0.37	U	0.37	U	0.37	U	1.1	U	0.37	U	1.1	U
124-48-1	Dibromochloromethane	0.5	U	0.5	U	0.5	U	1.4	U	0.5	U	1.4	U
79-00-5	1,1,2-Trichloroethane	0.22	U	0.22	U	0.22	U	1.8	U	0.22	U	1.8	U
71-43-2	Benzene	0.36	U	0.36	U	0.36	U	1.1	U	0.36	U	1.1	U
10061-01-5	cis-1,3-Dichloropropene	0.23	U	0.23	U	0.23	U	1.2	U	0.23	U	1.2	U
75-25-2	Bromoform	0.33	U	0.33	U	0.33	U	1.7	U	0.33	U	1.7	U
591-78-6	2-Hexanone	0.93	U	0.93	U	0.93	U	5.1	U	0.93	U	5.1	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.65	U	0.65	U	0.65	U	5.	U	0.65	U	5.	U
127-18-4	Tetrachloroethene	0.35	U	0.35	U	0.35	U	1.5	U	0.35	U	1.5	U
108-88-3	Toluene	0.54	U	0.54	U	0.54	U	1.8	U	0.54	U	1.8	U
108-90-7	Chlorobenzene	0.34	U	0.34	U	0.34	U	1.3	U	0.34	U	1.3	U
100-41-4	Ethylbenzene	0.34	U	0.34	U	0.34	U	1.	U	0.34	U	1.	U
100-42-5	Styrene	0.25	U	0.25	U	0.25	U	1.1	U	0.25	U	1.1	U
1330-20-7	Xylene (Total)	1.3	U	1.3	U	1.3	U	3.	U	1.3	U	3.	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN16	SAMPLE ID ------->	BLK-0-EN16-33					
VOA	ORIGINAL ID ----->	MBLANK33					
	LAB SAMPLE ID --->	S442931*33					
	SAMPLE DATE ----->						
	DATE EXTRACTED -->	04/19/04					
	DATE ANALYZED --->	04/19/04					
	MATRIX ---------->	Water					
	UNITS ----------->	UG/L	D				
CAS #	Parameter						
74-87-3	Chloromethane	0.39	U				
74-83-9	Bromomethane	0.62	U				
75-01-4	Vinyl chloride	0.56	U				
75-00-3	Chloroethane	0.78	U				
75-09-2	Methylene chloride	0.64	U				
67-64-1	Acetone	5.	U				
75-15-0	Carbon disulfide	0.66	U				
75-35-4	1,1-Dichloroethene	0.36	U				
75-34-3	1,1-Dichloroethane	0.36	U				
156-59-2	cis-1,2-Dichloroethene	0.38	U				
156-60-5	trans-1,2-Dichloroethene	0.4	U				
67-66-3	Chloroform	0.37	U				
107-06-2	1,2-Dichloroethane	0.26	U				
78-93-3	2-Butanone (MEK)	1.3	U				
71-55-6	1,1,1-Trichloroethane	0.32	U				
56-23-5	Carbon tetrachloride	0.31	U				
75-27-4	Bromodichloromethane	0.14	U				
79-34-5	1,1,2,2-Tetrachloroethane	0.18	U				
78-87-5	1,2-Dichloropropane	0.33	U				
10061-02-6	trans-1,3-Dichloropropene	0.26	U				
79-01-6	Trichloroethene	0.37	U				
124-48-1	Dibromochloromethane	0.5	U				
79-00-5	1,1,2-Trichloroethane	0.22	U				
71-43-2	Benzene	0.36	U				
10061-01-5	cis-1,3-Dichloropropene	0.23	U				
75-25-2	Bromoform	0.33	U				
591-78-6	2-Hexanone	0.93	U				
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.65	U				
127-18-4	Tetrachloroethene	0.35	U				
108-88-3	Toluene	0.54	U				
108-90-7	Chlorobenzene	0.34	U				
100-41-4	Ethylbenzene	0.34	U				
100-42-5	Styrene	0.25	U				
1330-20-7	Xylene (Total)	1.3	U				

Validation Worksheets - LEVEL II

Site: Pensacola Site 41 - Resampling Project No. 0036-001-00-130-00

SDG # PEN17 Matrix sediment + QC blanks Lab: STL Savannah

List Method(s)/Method number(s):

VOCs (8260B) Low Concentration PAHs (8270C) TOC (9060)

SVOCs minus PAHs (8270C) Pesticides/PCBs (8081A/8082) Total & Dissolved Metals (6010B/7470A/7471A)

CRITERIA MET? YES	NO		NONCOMPLIANCE NOTES
☑	☐	Hold Times Met	Attach list of samples which exceed hold times. Indicate total hold time and qualifiers.
System Monitoring Compounds Recovery			Attach list noncompliant %Rs or attach form. Indicate all noncompliances and qualifiers.
☑	☐	All recoveries within criteria	
Matrix Spike/Matrix Spike Duplicate		☑ Not Applicable	List noncompliant %Rs and RPDs or attach form. Indicate all noncompliances and qualifiers.
Sample used for MS/MSD _____			
☐	☐	Recoveries for MS within lab limits	
☐	☐	Recoveries for MSD within lab limits ☐NA	
☐	☐	RPDs within lab limits ☐NA	
Lab Control Standard	☐	Not Applicable	List noncompliant %Rs or attach form. Indicate all noncompliances and qualifiers.
☐	☑	Recoveries within limits	LCS 42931-19 / Batch 0415N / Parm aldrin / LCS%R 127* / Limits 34-124 / Action none-bias is high and all aldrin was undetected
Blanks: Method - Trip - Field			List all contaminants, concentrations and action level.
☐	☑	Method blank clean?	**See attached**
☐	☑	Field blank clean? ☐NA	**-aldrin: no action - all results were undetected.**
☐	☑	Equip. blank clean? ☐NA	**-acetone: no action - all results were undetected.**
☐	☑	Trip blank clean? ☐NA	**-MEK: 041W061002 flagged "U".**
☑	☐	***Comments Below Applies to Metals Blanks***	**--Metals were not flagged based on judgement**
Field Duplicates		☐NA	Identify field duplicate pair and attach list of all compounds with noncompliant RPDs. Indicate qualifiers.
Sample IDs: 041W720102 , 041R720102			**See attached**
☐	☑	Within RPD Criteria	
Sample Results		☐NA	Call (fax) lab for resubmittals. Attach all resubmittal correspondence to this review.
☑	☐	Reporting Limits adjusted for % moisture/dilutions	
☐	☐NA	Results > Calibration qualified E	
☑	☐	Dilutions/Reanalyses present (if necessary)	

COMMENTS: Lab, and Field QC blanks were assessed but no inorganics were flagged "U" because of blank contaminants. This was based on professional judgment and the fact that many elements are naturally occurring in potable water. Therefore, results represent worst-case.

Reviewer: Tina Cantwell Date 5 / 25 / 04

VALIDATION NOTES (Check all that apply)

☑ Sample(s) **Pesticide sample 041M19A101 was diluted because of DDT breakdown. Because DDT, DDD & DDE were undetected, no effect on results is expected. Therefore, the original pesticide results were used. The PCB samples were also diluted because lab analyzed it on the same run; however, the original (undiluted) results for PCBs were used because DDT breakdown does not affect PCB quantitation.**

were DILUTED due to:

- [ ] Surrogates outside QC limit
- [ ] Internal standard area counts outside QC limits
- [ ] Internal standard retention times outside QC limits
- [ ] Tuning criteria was not met
- [X] Other (specify) **DDT breakdown in performance evaluation mixture.**

Sample(s) **Undiluted results for pesticides & PCBs which were reported from the diluted results.**

are the PREFERRED analysis and will be reported on the data table as a primary (A) sample

☐ Sample(s) _____

were REANALYZED due to:

- [ ] Surrogates outside QC limit
- [ ] Internal standard area counts outside QC limits
- [ ] Internal standard retention times outside QC limits
- [ ] Tuning criteria was not met
- [ ] Other (specify) _____

Sample(s) _____

are the PREFERRED analysis and will be reported on the data table as a primary (A) sample

☐ Sample(s) _____

were DILUTED because one or more compounds exceeded the calibration range (flagged "E" by the lab). The values that exceeded the calibration range in the original sample were substituted by the diluted values. The "D" flag was left on the substituted values to alert the data user that the results were taken from a secondary dilution. The remaining values in the diluted sample should not be used for interpretation and will not appear on the data tables.

☐ In Sample(s) _____

One or more compounds exceeded the calibration range (flagged "E" by the lab) and the sample was diluted. However, the compound(s) were undetected upon dilution. The original result reported outside the calibration range was used and the estimated concentration flagged "J"

Holding Times

SDG	Method	Matrix	Lab ID	Sample ID	Ext	Sample Date	Date Extr	Date Anal	Days from Sample to Extraction	Holding Time to Extraction	Extr HT Met?	Days from Extraction to Analysis	Holding Time to Analysis	Analysis HT Met?
PEN17	LOW PAH	S	S443041*1	041M19A101		4/8/2004	4/15/2004	4/17/2004	7	14	Yes	2	40	Yes
PEN17	PCB	S	S443041*1	041M19A101		4/8/2004	4/15/2004	4/29/2004	7	14	Yes	14	40	Yes
PEN17	PCB	S	S443041*1*DL	041M19A101	DL	4/8/2004	4/15/2004	4/29/2004	7	14	Yes	14	40	Yes
PEN17	PEST	S	S443041*1	041M19A101		4/8/2004	4/15/2004	4/29/2004	7	14	Yes	14	40	Yes
PEN17	PEST	S	S443041*1*DL	041M19A101	DL	4/8/2004	4/15/2004	4/29/2004	7	14	Yes	14	40	Yes
PEN17	SVOA	S	S443041*1	041M19A101		4/8/2004	4/15/2004	4/22/2004	7	14	Yes	7	40	Yes
PEN17	TOC	S	S443041*1	041M19A101		4/8/2004	4/19/2004	4/20/2004	N/A	N/A	N/A	12	28	Yes
PEN17	TOT METAL	S	S443041*1	041M19A101		4/8/2004	4/12/2004	4/15/2004	N/A	N/A	N/A	7	28	Yes
PEN17	VOA	S	S443041*1	041M19A101		4/8/2004	4/19/2004	4/19/2004	N/A	N/A	N/A	11	14	Yes
PEN17	DISS METAL	W	S443041*10	041W720102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*11	041R720102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*2	041W061002		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*3	041EW00001		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*5	033W000102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*6	041W63A202		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*7	041W170102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*8	041W150102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	DISS METAL	W	S443041*9	041W19A102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*10	041W720102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*11	041R720102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*2	041W061002		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*3	041EW00001		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*5	033W000102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*6	041W63A202		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*7	041W170102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*8	041W150102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	TOT METAL	W	S443041*9	041W19A102		4/8/2004	4/13/2004	4/14/2004	N/A	N/A	N/A	6	28	Yes
PEN17	VOA	W	S443041*2	041W061002		4/8/2004	4/15/2004	4/15/2004	N/A	N/A	N/A	7	14	Yes
PEN17	VOA	W	S443041*3	041EW00001		4/8/2004	4/15/2004	4/15/2004	N/A	N/A	N/A	7	14	Yes
PEN17	VOA	W	S443041*4	041TB00002		4/8/2004	4/15/2004	4/15/2004	N/A	N/A	N/A	7	14	Yes

Blank Outliers

SDG	Method	Sample Id	Type	Samp Date	Date Extract	Date Anal	Parameter	Result	Qual	Units	AL	Units
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Aluminum	39.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Aluminum	13.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Arsenic	3.7000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Barium	0.3000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Barium	0.7000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Beryllium	0.8200	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Beryllium	0.3000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Calcium	11.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Calcium	31.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Cobalt	1.4000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Iron	21.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Manganese	0.4500	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Mercury	0.1000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Potassium	12.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Silver	1.5000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Sodium	67.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Sodium	59.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	DISS METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Zinc	3.9000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Aluminum	2.0000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Aluminum	13.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Aluminum	23.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Antimony	0.9000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Barium	0.0460	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Barium	0.4200	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Beryllium	0.0230	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Beryllium	0.3100	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Beryllium	0.3100	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Cadmium	0.0830	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Calcium	43.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Calcium	15.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Iron	2.8000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Iron	31.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Lead	0.3400	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Magnesium	0.8800	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Manganese	0.4500	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Potassium	2.5000	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Potassium	23.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Silver	1.5000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Sodium	0.7700	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Sodium	23.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	041EW00001	Equip	4/8/2004	4/13/2004	4/14/2004	Sodium	21.0000	I	UG/L	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Vanadium	0.0970	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1716	Lab		4/12/2004	4/15/2004	Zinc	0.5100	I	MG/KG	No action taken on metals, based on judgement	
PEN17	TOT METAL	BLK0EN1725	Lab		4/13/2004	4/14/2004	Zinc	0.7200	I	UG/L	No action taken on metals, based on judgement	
PEN17	VOA	BLK0EN1725	**Lab**		4/15/2004	4/15/2004	**2-Butanone (MEK)**	5.7000	I	UG/L	**57**	UG/KG or UG/L
PEN17	VOA	041EW00001	**Equip**	4/8/2004	4/15/2004	4/15/2004	**2-Butanone (MEK)**	6.1000	IV	UG/L	**61**	UG/KG or UG/L
PEN17	VOA	041TB00002	**Trip**	4/8/2004	4/15/2004	4/15/2004	**2-Butanone (MEK)**	7.3000	IV	UG/L	**73**	UG/KG or UG/L
PEN17	VOA	041TB00002	**Trip**	4/8/2004	4/15/2004	4/15/2004	**Acetone**	8.7000	I	UG/L	**87**	UG/KG or UG/L
PEN17	PEST	BLK0EN1716	**Lab**		4/15/2004	4/29/2004	**Aldrin**	0.0260	I	UG/KG	**0.13**	UG/KG

Blank Outliers

SDG	Method	Sample Id	Type	Samp Date	Date Extract	Date Anal	Parameter	Result	Qual	Units	AL	Units
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Aluminum	7.6000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Barium	0.3600	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Barium	0.3400	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Barium	0.5200	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Calcium	18.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Calcium	18.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Calcium	12.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Chromium	1.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Iron	50.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Magnesium	17.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Manganese	0.8600	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Sodium	310.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Zinc	4.7000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Zinc	4.6000	I	UG/L	No action taken on metals, based on judgement	
PEN16	DISS METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Zinc	2.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Aluminum	2.0000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Aluminum	12.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Aluminum	9.8000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Aluminum	7.7000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Antimony	0.9000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Barium	0.0460	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Beryllium	0.0230	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Cadmium	0.0830	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1623	Lab		4/12/2004	4/13/2004	Calcium	8.5000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Calcium	16.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Calcium	7.1000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Iron	2.8000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Lead	0.3400	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Magnesium	0.8800	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Manganese	0.7200	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041FE00001	Field	4/6/2004	4/12/2004	4/13/2004	Manganese	0.2400	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Mercury	0.1200	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Potassium	2.5000	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Potassium	27.0000	I	UG/L	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Sodium	0.7700	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Vanadium	0.0970	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	BLK0EN1614	Lab		4/12/2004	4/15/2004	Zinc	0.5100	I	MG/KG	No action taken on metals, based on judgement	
PEN16	TOT METAL	041EM00001	Equip	4/6/2004	4/12/2004	4/13/2004	Zinc	1.1000	I	UG/L	No action taken on metals, based on judgement	
PEN16	LOW PAH	041FE00001	**Field**	4/6/2004	4/13/2004	4/14/2004	**Naphthalene**	0.1100	I	UG/L	**18.15**	UG/KG
PEN16	LOW PAH	041FE00001	**Field**	4/6/2004	4/13/2004	4/14/2004	**Phenanthrene**	0.0520	I	UG/L	**8.58**	UG/KG
PEN16	PEST	BLK0EN1614	**Lab**		4/15/2004	4/29/2004	**Aldrin**	1.4000	I	UG/KG	**7**	UG/KG
PEN16	PEST	BLK0EN1623	**Lab**		4/12/2004	4/16/2004	**Aldrin**	0.0260	I	UG/L	**4.29**	UG/KG

Field Dup Precision

SDG	Method	Parameter	Result	Vqual	Result	Vqual	Units	RPD	RPD >50?	Flags
			041W720102		041R720102					
PEN17	DISS METAL	Aluminum	220.0000		210.0000		UG/L	-4.7	No	
PEN17	DISS METAL	Antimony	3.9000	U	3.9000	U	UG/L	0.0	No	
PEN17	DISS METAL	Arsenic	3.3000	U	3.3000	U	UG/L	0.0	No	
PEN17	DISS METAL	Barium	11.0000		11.0000		UG/L	0.0	No	
PEN17	DISS METAL	Beryllium	0.3100	I	0.3200	I	UG/L	3.2	No	
PEN17	DISS METAL	Cadmium	0.6000	U	0.6000	U	UG/L	0.0	No	
PEN17	DISS METAL	Calcium	11000.0000		11000.0000		UG/L	0.0	No	
PEN17	DISS METAL	Chromium	1.4000	U	1.4000	U	UG/L	0.0	No	
PEN17	DISS METAL	Cobalt	1.2000	U	1.2000	U	UG/L	0.0	No	
PEN17	DISS METAL	Copper	0.6000	U	0.6000	U	UG/L	0.0	No	
PEN17	DISS METAL	Iron	110.0000		110.0000		UG/L	0.0	No	
PEN17	DISS METAL	Lead	1.9000	U	1.9000	U	UG/L	0.0	No	
PEN17	DISS METAL	Magnesium	1500.0000		1400.0000		UG/L	-6.9	No	
PEN17	DISS METAL	Manganese	3.9000	I	4.8000	I	UG/L	20.7	No	
PEN17	DISS METAL	Nickel	1.5000	U	1.5000	U	UG/L	0.0	No	
PEN17	DISS METAL	Potassium	920.0000	I	910.0000	I	UG/L	-1.1	No	
PEN17	DISS METAL	Selenium	5.3000	U	5.3000	U	UG/L	0.0	No	
PEN17	DISS METAL	Silver	1.1000	U	1.1000	U	UG/L	0.0	No	
PEN17	DISS METAL	Sodium	5200.0000		5100.0000		UG/L	-1.9	No	
PEN17	DISS METAL	Thallium	7.6000	U	7.6000	U	UG/L	0.0	No	
PEN17	DISS METAL	Vanadium	0.9400	I	1.2000	I	UG/L	24.3	No	
PEN17	DISS METAL	Zinc	3.0000	I	1.9000	I	UG/L	-44.9	No	
PEN17	DISS METAL	Mercury	0.0780	U	0.0780	U	UG/L	0.0	No	
PEN17	TOT METAL	Aluminum	830.0000		740.0000		UG/L	-11.5	No	
PEN17	TOT METAL	Antimony	3.9000	U	3.9000	U	UG/L	0.0	No	
PEN17	TOT METAL	Arsenic	3.3000	U	3.3000	U	UG/L	0.0	No	
PEN17	TOT METAL	Barium	12.0000		12.0000		UG/L	0.0	No	
PEN17	TOT METAL	**Beryllium**	0.7800	I	0.4100	I	UG/L	-62.2	Yes	None-already I-flagged
PEN17	TOT METAL	Cadmium	0.6000	U	0.6000	U	UG/L	0.0	No	
PEN17	TOT METAL	Calcium	9700.0000		10000.0000		UG/L	3.0	No	
PEN17	TOT METAL	Chromium	1.4000	U	1.4000	U	UG/L	0.0	No	
PEN17	TOT METAL	Cobalt	1.2000	U	1.2000	U	UG/L	0.0	No	
PEN17	TOT METAL	Copper	0.6000	U	0.6000	U	UG/L	0.0	No	
PEN17	TOT METAL	Iron	1200.0000		1000.0000		UG/L	-18.2	No	
PEN17	TOT METAL	Lead	2.3000	I	2.5000	I	UG/L	8.3	No	
PEN17	TOT METAL	Magnesium	1400.0000		1400.0000		UG/L	0.0	No	
PEN17	TOT METAL	Manganese	7.7000	I	7.7000	I	UG/L	0.0	No	
PEN17	TOT METAL	Nickel	1.5000	U	1.5000	U	UG/L	0.0	No	
PEN17	TOT METAL	Potassium	990.0000	I	930.0000	I	UG/L	-6.3	No	
PEN17	TOT METAL	Selenium	5.3000	U	5.3000	U	UG/L	0.0	No	
PEN17	TOT METAL	Silver	1.1000	U	1.1000	U	UG/L	0.0	No	
PEN17	TOT METAL	Sodium	5400.0000		5100.0000		UG/L	-5.7	No	
PEN17	TOT METAL	Thallium	7.6000	U	7.6000	U	UG/L	0.0	No	
PEN17	TOT METAL	Vanadium	3.7000	I	2.9000	I	UG/L	-24.2	No	
PEN17	TOT METAL	**Zinc**	1.7000	I	0.6000	U	UG/L	-95.7	Yes	I (+) / UJ (ND)
PEN17	TOT METAL	Mercury	0.0780	U	0.0780	U	UG/L	0.0	No	

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17 DISS METAL													
	SAMPLE ID ------->	033-W-0001-02		041-W-0610-02		041-W-1501-02		041-W-1701-02		041-W-19A1-02		041-W-63A2-02	
	ORIGINAL ID ----->	033W000102		041W061002		041W150102		041W170102		041W19A102		041W63A202	
	LAB SAMPLE ID --->	S443041*5		S443041*2		S443041*8		S443041*7		S443041*9		S443041*6	
	SAMPLE DATE ----->	04/08/04		04/08/04		04/08/04		04/08/04		04/08/04		04/08/04	
	DATE EXTRACTED -->	04/13/04		04/13/04		04/13/04		04/13/04		04/13/04		04/13/04	
	DATE ANALYZED --->	04/14/04		04/14/04		04/14/04		04/14/04		04/14/04		04/14/04	
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	UG/L	A	UG/L	A	UG/L	A	UG/L	A	UG/L	A	UG/L	A
CAS #	Parameter												
7429-90-5	Aluminum	32.	I	53.	I	35.	I	44.	I	57.	I	17.	I
7440-36-0	Antimony	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U
7440-38-2	Arsenic	3.3	U	3.3	U	3.6	I	3.3	U	3.3	U	3.9	I
7440-39-3	Barium	12.		40.		40.		17.		5.4	I	58.	
7440-41-7	Beryllium	0.3	I	0.94	I	0.57	I	0.66	I	0.28	I	0.33	I
7440-43-9	Cadmium	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
7440-70-2	Calcium	44000.		24000.		170000.		230000.		6900.		74000.	
7440-47-3	Chromium	1.4	U	1.7	I	1.4	U	1.4	U	1.4	U	1.4	U
7440-48-4	Cobalt	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
7440-50-8	Copper	0.6	U	1.3	I	0.6	U	0.6	U	0.6	U	0.6	U
7439-89-6	Iron	24.	I	450.		18.	U	18.	U	190.		22.	I
7439-92-1	Lead	1.9	U	3.6	I	1.9	U	1.9	U	1.9	U	1.9	U
7439-95-4	Magnesium	6600.		3500.		440000.		700000.		1100.		5700.	
7439-96-5	Manganese	1.9	I	6.8	I	3.4	I	19.		2.2	I	0.4	U
7440-02-0	Nickel	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
7440-09-7	Potassium	3800.		2600.		160000.		250000.		690.	I	1300.	
7782-49-2	Selenium	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U
7440-22-4	Silver	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
7440-23-5	Sodium	31000.		13000.		3400000.		5100000.		5400.		14000.	
7440-28-0	Thallium	7.6	U	7.6	U	8.9	I	8.7	I	7.6	U	7.6	U
7440-62-2	Vanadium	0.7	U	0.94	I	0.7	U	0.7	U	0.7	U	1.2	I
7440-66-6	Zinc	0.6	U	17.	I	5.6	I	2.7	I	1.9	I	3.8	I
7439-97-6	Mercury	0.11	I	0.078	U	0.093	I	0.081	I	0.078	U	0.078	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17
DISS METAL

	SAMPLE ID ------->	041-W-7201-02	041-R-7201-02	041-E-W000-01	BLK-0-EN17-25		
	ORIGINAL ID ----->	041W720102	041R720102	041EW00001	MBLANK25		
	LAB SAMPLE ID --->	S443041*10	S443041*11	S443041*3	S443041*25		
	SAMPLE DATE ----->	04/08/04	04/08/04	04/08/04			
	DATE EXTRACTED -->	04/13/04	04/13/04	04/13/04	04/13/04		
	DATE ANALYZED --->	04/14/04	04/14/04	04/14/04	04/14/04		
	MATRIX ---------->	Water	Water	Water	Water		
	UNITS ---------->	UG/L A	UG/L A	UG/L B	UG/L D		
CAS #	Parameter						
7429-90-5	Aluminum	220.	210.	13. I	39. I		
7440-36-0	Antimony	3.9 U	3.9 U	3.9 U	3.9 U		
7440-38-2	Arsenic	3.3 U	3.3 U	3.3 U	3.7 I		
7440-39-3	Barium	11.	11.	0.7 I	0.3 I		
7440-41-7	Beryllium	0.31 I	0.32 I	0.3 I	0.82 I		
7440-43-9	Cadmium	0.6 U	0.6 U	0.6 U	0.6 U		
7440-70-2	Calcium	11000.	11000.	31. I	11. I		
7440-47-3	Chromium	1.4 U	1.4 U	1.4 U	1.4 U		
7440-48-4	Cobalt	1.2 U	1.2 U	1.2 U	1.4 I		
7440-50-8	Copper	0.6 U	0.6 U	0.6 U	0.6 U		
7439-89-6	Iron	110.	110.	18. U	21. I		
7439-92-1	Lead	1.9 U	1.9 U	1.9 U	1.9 U		
7439-95-4	Magnesium	1500.	1400.	8.5 U	8.5 U		
7439-96-5	Manganese	3.9 I	4.8 I	0.4 U	0.45 I		
7440-02-0	Nickel	1.5 U	1.5 U	1.5 U	1.5 U		
7440-09-7	Potassium	920. I	910. I	12. I	8.9 U		
7782-49-2	Selenium	5.3 U	5.3 U	5.3 U	5.3 U		
7440-22-4	Silver	1.1 U	1.1 U	1.1 U	1.5 I		
7440-23-5	Sodium	5200.	5100.	59. I	67. I		
7440-28-0	Thallium	7.6 U	7.6 U	7.6 U	7.6 U		
7440-62-2	Vanadium	0.94 I	1.2 I	0.7 U	0.7 U		
7440-66-6	Zinc	3. I	1.9 I	0.6 U	3.9 I		
7439-97-6	Mercury	0.078 U	0.078 U	0.078 U	0.1 I		

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17 LOW PAH								
	SAMPLE ID ------>	041-M-19A1-01		BLK-0-EN17-16				
	ORIGINAL ID ----->	041M19A101		MBLANK16				
	LAB SAMPLE ID --->	S443041*1		S443041*16				
	SAMPLE DATE ----->	04/08/04						
	DATE EXTRACTED -->	04/15/04		04/15/04				
	DATE ANALYZED --->	04/17/04		04/16/04				
	MATRIX ---------->	Sedmnt		Soil				
	UNITS ---------->	UG/KG	A	UG/KG	D			
CAS #	Parameter							
91-20-3	Naphthalene	3.7	U	0.71	U			
208-96-8	Acenaphthylene	4.5	U	0.86	U			
83-32-9	Acenaphthene	4.7	U	0.9	U			
86-73-7	Fluorene	4.1	U	0.78	U			
85-01-8	Phenanthrene	5.6	I	0.8	U			
120-12-7	Anthracene	5.	U	0.96	U			
206-44-0	Fluoranthene	4.5	U	0.86	U			
129-00-0	Pyrene	6.3	U	1.2	U			
218-01-9	Chrysene	5.3	U	1.	U			
56-55-3	Benzo(a)anthracene	4.	U	0.76	U			
205-99-2	Benzo(b)fluoranthene	5.	U	0.96	U			
207-08-9	Benzo(k)fluoranthene	5.2	U	0.98	U			
50-32-8	Benzo(a)pyrene	4.7	U	0.9	U			
193-39-5	Indeno(1,2,3-cd)pyrene	3.4	U	0.65	U			
53-70-3	Dibenz(a,h)anthracene	4.6	U	0.88	U			
191-24-2	Benzo(g,h,i)perylene	3.2	U	0.61	U			
91-57-6	2-Methylnaphthalene	2.8	U	0.53	U			
90-12-0	1-Methyl naphthalene	1.8	U	0.35	U			

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17 PCB	SAMPLE ID ------->	041-M-19A1-01	041-M-19A1-01DL	BLK-0-EN17-16			
	ORIGINAL ID ----->	041M19A101	041M19A101	MBLANK16			
	LAB SAMPLE ID --->	S443041*1	S443041*1*DL	S443041*16			
	SAMPLE DATE ----->	04/08/04	04/08/04				
	DATE EXTRACTED -->	04/15/04	04/15/04	04/15/04			
	DATE ANALYZED --->	04/29/04	04/29/04	04/29/04			
	MATRIX ---------->	Sedmnt	Sedmnt	Soil			
	UNITS ---------->	UG/KG A	UG/KG C	UG/KG D			
CAS #	Parameter						
12674-11-2	Aroclor-1016	5.1 U	26. U	3.9 U			
11104-28-2	Aroclor-1221	22. U	110. U	17. U			
11141-16-5	Aroclor-1232	8.8 U	44. U	6.7 U			
53469-21-9	Aroclor-1242	8.8 U	44. U	6.7 U			
12672-29-6	Aroclor-1248	8.6 U	43. U	6.5 U			
11097-69-1	Aroclor-1254	8.8 U	44. U	6.7 U			
11096-82-5	Aroclor-1260	5.8 U	29. U	4.4 U			

NOT Used

PEN17 PEST										
	SAMPLE ID ------->	041-M-19A1-01		041-M-19A1-01DL		BLK-0-EN17-16				
	ORIGINAL ID ----->	041M19A101		041M19A101		MBLANK16				
	LAB SAMPLE ID --->	S443041*1		S443041*1*DL		S443041*16				
	SAMPLE DATE ----->	04/08/04		04/08/04						
	DATE EXTRACTED -->	04/15/04		04/15/04		04/15/04				
	DATE ANALYZED --->	04/29/04		04/29/04		04/29/04				
	MATRIX ---------->	Sedmnt		Sedmnt		Soil				
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	D			
CAS #	Parameter									
319-84-6	alpha-BHC	0.32	U*J4	1.6	U	0.24	U			
319-85-7	beta-BHC	0.38	U	1.9	U	0.29	U			
319-86-8	delta-BHC	0.16	U	0.79	U	0.12	U			
58-89-9	gamma-BHC (Lindane)	0.2	U	0.99	U	0.15	U			
76-44-8	Heptachlor	0.37	U	1.8	U	0.28	U			
309-00-2	Aldrin	0.14	U	0.72	U	0.026	I			
1024-57-3	Heptachlor epoxide	0.22	U	1.1	U	0.17	U			
959-98-8	Endosulfan I	0.22	U	1.1	U	0.17	U			
60-57-1	Dieldrin	0.41	U	2.	U	0.31	U			
72-55-9	4,4'-DDE	0.71	U	3.6	U	0.54	U			
72-20-8	Endrin	0.56	U	2.8	U	0.43	U			
7421-93-4	Endrin aldehyde	0.41	U	2.	U	0.31	U			
33213-65-9	Endosulfan II	0.29	U	1.4	U	0.22	U			
72-54-8	4,4'-DDD	0.46	U	2.3	U	0.35	U			
1031-07-8	Endosulfan sulfate	0.58	U	2.9	U	0.44	U			
50-29-3	4,4'-DDT	0.41	U	2.	U	0.31	U			
53494-70-5	Endrin ketone	0.5	U	2.5	U	0.38	U			
72-43-5	Methoxychlor	0.26	U	1.3	U	0.2	U			
5103-71-9	alpha-Chlordane	0.14	U	0.72	U	0.11	U			
5103-74-2	gamma-Chlordane	0.17	U	0.86	U	0.13	U			
8001-35-2	Toxaphene	43.	U	220.	U	33.	U			

Not used

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17	SAMPLE ID ------>	041-M-19A1-01		BLK-0-EN17-16							
SVOA	ORIGINAL ID ----->	041M19A101		MBLANK16							
	LAB SAMPLE ID --->	S443041*1		S443041*16							
	SAMPLE DATE ----->	04/08/04									
	DATE EXTRACTED -->	04/15/04		04/15/04							
	DATE ANALYZED --->	04/22/04		04/19/04							
	MATRIX ---------->	Sedmnt		Soil							
	UNITS ---------->	UG/KG	A	UG/KG	D						
CAS #	Parameter										
108-95-2	Phenol	54.	U	41.	U						
111-44-4	bis(2-Chloroethyl)ether	49.	U	37.	U						
95-57-8	2-Chlorophenol	54.	U	41.	U						
541-73-1	1,3-Dichlorobenzene	30.	U	23.	U						
106-46-7	1,4-Dichlorobenzene	32.	U	24.	U						
95-50-1	1,2-Dichlorobenzene	30.	U	23.	U						
95-48-7	2-Methylphenol (o-Cresol)	60.	U	46.	U						
108-60-1	2,2'-oxybis(1-Chloropropane)/bis(2-chlor	42.	U	32.	U						
9999900-32-2	3-Methylphenol/4-Methylphenol	53.	U	40.	U						
621-64-7	N-Nitroso-di-n-propylamine	39.	U	30.	U						
67-72-1	Hexachloroethane	25.	U	19.	U						
98-95-3	Nitrobenzene	41.	U	31.	U						
78-59-1	Isophorone	34.	U	26.	U						
88-75-5	2-Nitrophenol	34.	U	26.	U						
105-67-9	2,4-Dimethylphenol	37.	U	28.	U						
111-91-1	bis(2-Chloroethoxy)methane	42.	U	32.	U						
120-83-2	2,4-Dichlorophenol	38.	U	29.	U						
120-82-1	1,2,4-Trichlorobenzene	50.	U	38.	U						
106-47-8	4-Chloroaniline	38.	U	29.	U						
87-68-3	Hexachlorobutadiene	36.	U	27.	U						
59-50-7	4-Chloro-3-methylphenol	53.	U	40.	U						
77-47-4	Hexachlorocyclopentadiene	360.	U	270.	U						
88-06-2	2,4,6-Trichlorophenol	42.	U	32.	U						
95-95-4	2,4,5-Trichlorophenol	41.	U	31.	U						
91-58-7	2-Chloronaphthalene	49.	U	37.	U						
88-74-4	2-Nitroaniline	33.	U	25.	U						
131-11-3	Dimethylphthalate	46.	U	35.	U						
99-09-2	3-Nitroaniline	39.	U	30.	U						
51-28-5	2,4-Dinitrophenol	450.	U	340.	U						
100-02-7	4-Nitrophenol	33.	U	25.	U						
132-64-9	Dibenzofuran	45.	U	34.	U						
121-14-2	2,4-Dinitrotoluene	29.	U	22.	U						
606-20-2	2,6-Dinitrotoluene	38.	U	29.	U						
84-66-2	Diethylphthalate	46.	U	35.	U						
7005-72-3	4-Chlorophenylphenyl ether	34.	U	26.	U						
100-01-6	4-Nitrosniline	34.	U	26.	U						
534-52-1	2-Methyl-4,6-Dinitrophenol	41.	U	31.	U						

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17	SAMPLE ID ------->	041-M-19A1-01		BLK-0-EN17-16			
SVOA	ORIGINAL ID ----->	041M19A101		MBLANK16			
	LAB SAMPLE ID --->	S443041*1		S443041*16			
	SAMPLE DATE ----->	04/08/04					
	DATE EXTRACTED -->	04/15/04		04/15/04			
	DATE ANALYZED --->	04/22/04		04/19/04			
	MATRIX ---------->	Sedmnt		Soil			
	UNITS ---------->	UG/KG	A	UG/KG	D		
CAS #	Parameter						
86-30-6	N-Nitrosodiphenylamine	39.	U	30.	U		
101-55-3	4-Bromophenyl-phenylether	39.	U	30.	U		
118-74-1	Hexachlorobenzene	50.	U	38.	U		
87-86-5	Pentachlorophenol	68.	J	34.	U		
84-74-2	Di-n-butylphthalate	51.	U	39.	U		
85-68-7	Butylbenzylphthalate	42.	U	32.	U		
91-94-1	3,3'-Dichlorobenzidine	34.	U	26.	U		
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	58.	U	44.	U		
117-84-0	Di-n-octylphthalate	42.	U	32.	U		
86-74-8	Carbazole	39.	U	30.	U		

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17 TOC	SAMPLE ID ------->	041-M-19A1-01	BLK-0-EN17-16				
	ORIGINAL ID ----->	041M19A101	MBLANK16				
	LAB SAMPLE ID --->	S443041*1	S443041*16				
	SAMPLE DATE ----->	04/08/04					
	DATE EXTRACTED -->	04/19/04	04/20/04				
	DATE ANALYZED --->	04/20/04	04/20/04				
	MATRIX ---------->	Sedmnt	Soil				
	UNITS ---------->	MG/KG A	MG/KG D				
CAS #	Parameter						
9999900-01-4	Total Organic Carbon (TOC)	1700.	390. U				

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17 TOT METAL													
	SAMPLE ID ------>	033-W-0001-02		041-W-0610-02		041-W-1501-02		041-W-1701-02		041-M-19A1-01		041-W-19A1-02	
	ORIGINAL ID ----->	033W000102		041W061002		041W150102		041W170102		041M19A101		041W19A102	
	LAB SAMPLE ID --->	S443041*5		S443041*2		S443041*8		S443041*7		S443041*1		S443041*9	
	SAMPLE DATE ----->	04/08/04		04/08/04		04/08/04		04/08/04		04/08/04		04/08/04	
	DATE EXTRACTED -->	04/13/04		04/13/04		04/13/04		04/13/04		04/12/04		04/13/04	
	DATE ANALYZED --->	04/14/04		04/14/04		04/14/04		04/14/04		04/15/04		04/14/04	
	MATRIX ---------->	Water		Water		Water		Water		Sedmnt		Water	
	UNITS ---------->	UG/L	A	UG/L	A	UG/L	A	UG/L	A	MG/KG	A	UG/L	A
CAS #	Parameter												
7429-90-5	Aluminum	480.		1200.		500.		66.	I	910.		330.	
7440-36-0	Antimony	3.9	U	3.9	U	11.	I	3.9	U	1.1	I	3.9	U
7440-38-2	Arsenic	3.3	U	5.7	I	5.5	I	4.8	I	0.56	I	3.3	U
7440-39-3	Barium	15.		46.		43.		18.		0.99	I	8.5	I
7440-41-7	Beryllium	0.5	I	0.34	I	0.67	I	0.62	I	0.036	I	0.74	I
7440-43-9	Cadmium	0.82	I	2.5	I	0.6	U	0.6	U	0.067	U	0.6	U
7440-70-2	Calcium	46000.		30000.		180000.		240000.		50.	I	6400.	
7440-47-3	Chromium	1.4	U	21.		2.5	I	1.4	U	0.95	I	1.4	U
7440-48-4	Cobalt	1.2	U	1.2	U	1.2	U	1.2	U	0.13	U	1.2	U
7440-50-8	Copper	1.6	I	19.	I	0.6	U	0.6	U	0.47	I	0.6	U
7439-89-6	Iron	900.		3300.		2600.		110.		540.		1000.	
7439-92-1	Lead	1.9	U	40.		1.9	U	1.9	U	1.5		1.9	U
7439-95-4	Magnesium	6900.		3800.		480000.		740000.		27.	I	1100.	
7439-96-5	Manganese	290.		110.		210.		26.		1.6		18.	
7440-02-0	Nickel	2.7	I	2.5	I	1.5	U	1.5	U	0.26	I	1.5	U
7440-09-7	Potassium	4000.		2400.		200000.		280000.		21.	I	780.	I
7782-49-2	Selenium	8.9	I	6.9	I	5.3	U	5.9	I	0.59	U	5.3	U
7440-22-4	Silver	1.1	U	1.1	U	1.1	U	1.1	U	0.12	U	1.1	U
7440-23-5	Sodium	33000.		13000.		3600000.		5600000.		3.5	I	5800.	
7440-28-0	Thallium	7.6	U	7.6	U	17.		8.3	I	0.85	U	7.6	U
7440-62-2	Vanadium	3.3	I	3.4	I	2.3	I	0.7	U	1.5		3.	I
7440-66-6	Zinc	2.	I	78.		13.	I	0.6	U	1.3	I	1.6	I
7439-97-6	Mercury	0.078	U	0.078	U	0.078	U	0.078	U	0.0048	U	0.078	U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17 TOT METAL	SAMPLE ID ------->	041-W-63A2-02	041-W-7201-02	041-R-7201-02	041-E-W000-01	BLK-0-EN17-16	BLK-0-EN17-25
	ORIGINAL ID ----->	041W63A202	041W720102	041R720102	041EW00001	MBLANK16	MBLANK25
	LAB SAMPLE ID --->	S443041*6	S443041*10	S443041*11	S443041*3	S443041*16	S443041*25
	SAMPLE DATE ----->	04/08/04	04/08/04	04/08/04	04/08/04		
	DATE EXTRACTED -->	04/13/04	04/13/04	04/13/04	04/13/04	04/12/04	04/13/04
	DATE ANALYZED --->	04/14/04	04/14/04	04/14/04	04/14/04	04/15/04	04/14/04
	MATRIX ---------->	Water	Water	Water	Water	Soil	Water
	UNITS ---------->	UG/L A	UG/L A	UG/L A	UG/L B	MG/KG D	UG/L D
CAS #	Parameter		← Field dups →				
7429-90-5	Aluminum	25. I	830.	740.	23. I	2. I	13. I
7440-36-0	Antimony	3.9 U	3.9 U	3.9 U	3.9 U	0.9 I	3.9 U
7440-38-2	Arsenic	3.3 U	3.3 U	3.3 U	3.3 U	0.33 U	3.3 U
7440-39-3	Barium	61.	12.	12.	0.42 I	0.046 I	0.2 U
7440-41-7	Beryllium	0.44 I	0.78 I	0.41 I	0.31 I	0.023 I	0.31 I
7440-43-9	Cadmium	0.6 U	0.6 U	0.6 U	0.6 U	0.083 I	0.6 U
7440-70-2	Calcium	76000.	9700.	10000.	15. I	0.74 U	43. I
7440-47-3	Chromium	1.4 U	1.4 U	1.4 U	1.4 U	0.14 U	1.4 U
7440-48-4	Cobalt	1.2 U	1.2 U	1.2 U	1.2 U	0.12 U	1.2 U
7440-50-8	Copper	0.98 I	0.6 U	0.6 U	0.6 U	0.06 U	0.6 U
7439-89-6	Iron	140.	1200.	1000.	31. I	2.8 I	18. U
7439-92-1	Lead	1.9 U	2.3 I	2.5 I	1.9 U	0.34 I	1.9 U
7439-95-4	Magnesium	5800.	1400.	1400.	8.5 U	0.88 I	8.5 U
7439-96-5	Manganese	15.	7.7 I	7.7 I	0.4 U	0.04 U	0.45 I
7440-02-0	Nickel	1.5 U	1.5 U	1.5 U	1.5 U	0.15 U	1.5 U
7440-09-7	Potassium	1400.	990. I	930. I	23. I	2.5 I	8.9 U
7782-49-2	Selenium	5.3 U	5.3 U	5.3 U	5.3 U	0.53 U	5.3 U
7440-22-4	Silver	1.1 U	1.1 U	1.1 U	1.1 U	0.11 U	1.5 I
7440-23-5	Sodium	14000.	5400.	5100.	21. I	0.77 I	23. I
7440-28-0	Thallium	7.6 U	7.6 U	7.6 U	7.6 U	0.76 U	7.6 U
7440-62-2	Vanadium	1.7 I	3.7 I	2.9 I	0.7 U	0.097 I	0.7 U
7440-66-6	Zinc	1.8 I	1.7 I	0.6 U J	0.6 U	0.51 I	0.72 I
7439-97-6	Mercury	0.078 U	0.078 U	0.078 U	0.078 U	0.0043 U	0.078 U

PENSACOLA, SITE 41
PENSACOLA, SITE 41 RESAMPLING

PEN17 VOA	SAMPLE ID ------>	041-W-0610-02	041-M-19A1-01	041-T-B000-02	041-E-W000-01	BLK-0-EN17-16	BLK-0-EN17-25
	ORIGINAL ID ----->	041W061002	041M19A101	041TB00002	041EW00001	MBLANK16	MBLANK25
	LAB SAMPLE ID --->	S443041*2	S443041*1	S443041*4	S443041*3	S443041*16	S443041*25
	SAMPLE DATE ----->	04/08/04	04/08/04	04/08/04	04/08/04		
	DATE EXTRACTED -->	04/15/04	04/19/04	04/15/04	04/15/04	04/19/04	04/15/04
	DATE ANALYZED --->	04/15/04	04/19/04	04/15/04	04/15/04	04/19/04	04/15/04
	MATRIX ---------->	Water	Sedmnt	Water	Water	Soil	Water
	UNITS ---------->	UG/L A	UG/KG A	UG/L B	UG/L B	UG/KG D	UG/L D
CAS #	Parameter						
74-87-3	Chloromethane	0.39 U	1.7 U	0.39 U	0.39 U	1.4 U	0.39 U
74-83-9	Bromomethane	0.62 U	4.2 U	0.62 U	0.62 U	3.4 U	0.62 U
75-01-4	Vinyl chloride	0.56 U	1.7 U	0.56 U	0.56 U	1.4 U	0.56 U
75-00-3	Chloroethane	0.78 U	2.1 U	0.78 U	0.78 U	1.7 U	0.78 U
75-09-2	Methylene chloride	0.64 U	3. U	0.64 U	0.64 U	2.4 U	0.64 U
67-64-1	Acetone	5. U	9.9 U	8.7 I	5. U	8. U	5. U
75-15-0	Carbon disulfide	0.66 U	2.5 U	0.66 U	0.66 U	2. U	0.66 U
75-35-4	1,1-Dichloroethene	0.98 I	2.1 U	0.36 U	0.36 U	1.7 U	0.36 U
75-34-3	1,1-Dichloroethane	0.8 I	1.2 U	0.36 U	0.36 U	1. U	0.36 U
156-59-2	cis-1,2-Dichloroethene	5.1	1.4 U	0.38 U	0.38 U	1.1 U	0.38 U
156-60-5	trans-1,2-Dichloroethene	0.4 U	1.5 U	0.4 U	0.4 U	1.2 U	0.4 U
67-66-3	Chloroform	0.37 U	3.4 I	0.37 U	0.37 U	1.2 U	0.37 U
107-06-2	1,2-Dichloroethane	0.26 U	1.9 U	0.26 U	0.26 U	1.5 U	0.26 U
78-93-3	2-Butanone (MEK)	5.6 IV U	5.8 U	7.3 IV U	6.1 IV	4.7 U	5.7 I
71-55-6	1,1,1-Trichloroethane	0.32 U	1. U	0.32 U	0.32 U	0.81 U	0.32 U
56-23-5	Carbon tetrachloride	0.31 U	2.3 I	0.31 U	0.31 U	0.94 U	0.31 U
75-27-4	Bromodichloromethane	0.14 U	1.6 U	0.14 U	0.14 U	1.3 U	0.14 U
79-34-5	1,1,2,2-Tetrachloroethane	0.18 U	2.5 U	0.18 U	0.18 U	2. U	0.18 U
78-87-5	1,2-Dichloropropane	0.33 U	1.5 U	0.33 U	0.33 U	1.2 U	0.33 U
10061-02-6	trans-1,3-Dichloropropene	0.26 U	2. U	0.26 U	0.26 U	1.6 U	0.26 U
79-01-6	Trichloroethene	1.3	1.4 U	0.37 U	0.37 U	1.1 U	0.37 U
124-48-1	Dibromochloromethane	0.5 U	1.7 U	0.5 U	0.5 U	1.4 U	0.5 U
79-00-5	1,1,2-Trichloroethane	0.22 U	2.2 U	0.22 U	0.22 U	1.8 U	0.22 U
71-43-2	Benzene	0.36 U	1.4 U	0.36 U	0.36 U	1.1 U	0.36 U
10061-01-5	cis-1,3-Dichloropropene	0.23 U	1.5 U	0.23 U	0.23 U	1.2 U	0.23 U
75-25-2	Bromoform	0.33 U	2.1 U	0.33 U	0.33 U	1.7 U	0.33 U
591-78-6	2-Hexanone	0.93 U	6.3 U	0.93 U	0.93 U	5.1 U	0.93 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.65 U	6.2 U	0.65 U	0.65 U	5. U	0.65 U
127-18-4	Tetrachloroethene	0.35 U	1.9 U	0.35 U	0.35 U	1.5 U	0.35 U
108-88-3	Toluene	0.54 U	2.2 U	0.54 U	0.54 U	1.8 U	0.54 U
108-90-7	Chlorobenzene	11.	1.6 U	0.34 U	0.34 U	1.3 U	0.34 U
100-41-4	Ethylbenzene	0.34 U	1.2 U	0.34 U	0.34 U	1. U	0.34 U
100-42-5	Styrene	0.25 U	1.4 U	0.25 U	0.25 U	1.1 U	0.25 U
1330-20-7	Xylene (Total)	1.3 U	3.7 U	1.3 U	1.3 U	3. U	1.3 U

SEVERN TRENT STL

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Analytical Report

For: Ms. Allison Harris
EnSafe, Inc.
5724 Summer Trees Drive
Memphis, TN 38134
CC:

Order Number: S442931
SDG Number: PEN16
Client Project ID: 0036-001-00-130-00
Project: NAS Pensacola Site 41 Resampling/PEN16
Report Date: 05/11/2004
Sampled By: Client
Sample Received Date: 04/07/2004
Requisition Number:
Purchase Order: PO 6071

Linda A Wolfe

Linda A. Wolfe, Project Manager
lwolfe@stl-inc.com

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

SEVERN TRENT STL

L Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Sample Summary

Order: S442931
Date Received: 04/07/2004

Client: EnSafe, Inc.
Project: NAS Pensacola Site 41 Resampling/PEN16

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
041M5B0202	S442931*1	Solid	04/06/2004 10:45
041M5B0202	S442931*1-DL	Solid	04/06/2004 10:45
041M5B0301	S442931*2	Solid	04/06/2004 10:45
041M5B0301	S442931*2-DL	Solid	04/06/2004 10:45
041N5B0301	S442931*3	Solid	04/06/2004 10:45
041N5B0301	S442931*3-DL	Solid	04/06/2004 10:45
041M5B0401	S442931*4	Solid	04/06/2004 11:00
041M5B0401	S442931*4-DL	Solid	04/06/2004 11:00
041M5B0501	S442931*5	Solid	04/06/2004 11:15
041M5B0501	S442931*5-DL	Solid	04/06/2004 11:15
041M5B0601	S442931*6	Solid	04/06/2004 11:30
041M5B0601	S442931*6-DL	Solid	04/06/2004 11:30
041FE00001	S442931*7	Liquid	04/06/2004 10:30
041FE00001	S442931*7-RE	Liquid	04/06/2004 10:30
041EM00001	S442931*8	Liquid	04/06/2004 12:00
041TB00001	S442931*9	Liquid	04/06/2004

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

Parameter	Units	Lab Sample IDs 42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
TAL Metals (6010)						
Aluminum	mg/kg dw	3400		860		1500
Antimony	mg/kg dw	3.6I		2.2I		2.0I
Arsenic	mg/kg dw	0.84I		0.56U		0.46U
Barium	mg/kg dw	18		3.3		6.1
Beryllium	mg/kg dw	0.15I		0.068I		0.079I
Cadmium	mg/kg dw	31		1.0		5.1
Calcium	mg/kg dw	1100		340		330
Chromium	mg/kg dw	470		24		63
Cobalt	mg/kg dw	4.1		0.40I		1.0I
Copper	mg/kg dw	90		12		29
Iron	mg/kg dw	1800		470		1600
Lead	mg/kg dw	420		38		94
Magnesium	mg/kg dw	210		83I		81
Manganese	mg/kg dw	11		2.8		3.9
Nickel	mg/kg dw	20		1.2I		3.7I
Potassium	mg/kg dw	74I		27I		38I
Selenium	mg/kg dw	1.0U		0.89U		0.74U
Silver	mg/kg dw	6.4		0.18U		0.58I
Sodium	mg/kg dw	38I		12I		15I
Thallium	mg/kg dw	1.4U		1.3U		1.1U
Vanadium	mg/kg dw	6.7		1.1I		2.5
Zinc	mg/kg dw	200		45		120
Percent Solids		45	45	56	56	66
Dilution Factor		1		1		1
Prep Date		04/12/04		04/12/04		04/12/04
Prep Time		07:00		07:00		07:00
Analysis Date		04/15/04		04/15/04		04/15/04
Analysis Time		13:36		13:51		13:56
Batch ID		0412C		0412C		0412C
Quantitation Factor		0.8474		0.9434		0.9259

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

		Lab Sample IDs				
Parameter	Units	42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
Mercury (7471)						
Mercury	mg/kg dw	0.22		0.086		0.082
Percent Solids		45	45	56	56	66
Dilution Factor		1		1		1
Prep Date		04/12/04		04/12/04		04/12/04
Prep Time		12:00		12:00		12:00
Analysis Date		04/13/04		04/13/04		04/13/04
Analysis Time		16:58		17:05		17:08
Batch ID		0412S		0412S		0412S
Correlation Factor		0.9434		0.8547		0.8474
TCL Pesticides (8081)						
alpha-BHC	ug/kg dw	0.53U*J4	5.3U	0.43U*J4	4.3U	0.36U*J4
beta-BHC	ug/kg dw	0.64U	6.4U	0.52U	5.2U	0.44U
delta-BHC	ug/kg dw	0.27U	2.7U	0.21U	2.1U	0.18U
gamma-BHC (Lindane)	ug/kg dw	0.33U	3.3U	0.27U	2.7U	0.23U
Heptachlor	ug/kg dw	0.62U	6.2U	0.50U	5.0U	0.42U
Aldrin	ug/kg dw	0.24U	2.4U	0.20U	2.0U	0.17U
Heptachlor epoxide	ug/kg dw	0.38U	3.8U	0.30U	3.0U	0.26U
Endosulfan I	ug/kg dw	0.38U	3.8U	0.30U	3.0U	0.26U
Dieldrin	ug/kg dw	29	25I	14	21I	14
4,4'-DDE	ug/kg dw	14	18I	15	23I	9.5
Endrin	ug/kg dw	0.96U	9.6U	0.77U	7.7U	0.65U
Endrin aldehyde	ug/kg dw	0.69U	6.9U	0.55U	5.5U	0.47U
Endosulfan II	ug/kg dw	0.49U	4.9U	0.39U	3.9U	0.33U
4,4'-DDD	ug/kg dw	6.5I	7.8U	4.6I	6.2U	3.1I

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

		Lab Sample IDs				
Parameter	Units	42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
TCL Pesticides (8081)						
Endosulfan sulfate	ug/kg dw	0.98U	9.8U	0.78U	7.8U	0.67U
4,4'-DDT	ug/kg dw	0.69U	6.9U	0.55U	5.5U	0.47U
Endrin ketone	ug/kg dw	0.84U	8.4U	0.68U	6.8U	0.58U
Methoxychlor	ug/kg dw	0.44U	4.4U	0.36U	3.6U	0.30U
alpha-Chlordane	ug/kg dw	0.24U	2.4U	0.20U	2.0U	0.17U
gamma-Chlordane	ug/kg dw	0.29U	2.9U	0.23U	2.3U	0.20U
Toxaphene	ug/kg dw	73U	730U	59U	590U	50U
Surrogate - DCB *	%	54 %	0 %	83 %	0 %	48 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	54 %	0 %	83 %	0 %	60 %
Percent Solids		45	45	56	56	66
Dilution Factor		1	10	1	10	1
Prep Date		04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
Prep Time		13:00	13:00	13:00	13:00	13:00
Analysis Date		05/03/04	05/03/04	05/03/04	05/03/04	05/03/04
Analysis Time		05:48	00:05	06:24	00:41	07:00
Batch ID		0415N	0415N	0415N	0415N	0415N
Quantitation Factor		1.000	10.00	1.000	10.00	1.000
PCB's (8082)						
Aroclor-1016	ug/kg dw	8.7U	87U	7.0U	70U	5.9U
Aroclor-1221	ug/kg dw	38U	380U	30U	300U	26U
Aroclor-1232	ug/kg dw	15U	150U	12U	120U	10U
Aroclor-1242	ug/kg dw	15U	150U	12U	120U	10U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

		Lab Sample IDs				
Parameter	Units	42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
PCB's (8082)						
Aroclor-1248	ug/kg dw	14U	140U	12U	120U	9.8U
Aroclor-1254	ug/kg dw	15U	150U	12U	120U	10U
Aroclor-1260	ug/kg dw	150	98U	60	78U	62
Surrogate - TCX *	%	54 %	0 %	83 %	0 %	60 %
Surrogate - DCB *	%	54 %	0 %	83 %	0 %	48 %
Percent Solids		45	45	56	56	66
Dilution Factor		1	10	1	10	1
Prep Date		04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
Analysis Date		05/03/04	05/03/04	05/03/04	05/03/04	05/03/04
Analysis Time		05:48	00:05	06:24	00:41	07:00
Batch ID		0415N	0415N	0415N	0415N	0415N
Quantitation Factor		1.000	10.00	1.000	10.00	1.000
TCL Semivolatiles (8270)						
Phenol	ug/kg dw	91U		73U		62U
bis(2-Chloroethyl)ether	ug/kg dw	82U		66U		56U
2-Chlorophenol	ug/kg dw	91U		73U		62U
1,3-Dichlorobenzene	ug/kg dw	51U		41U		35U
1,4-Dichlorobenzene	ug/kg dw	53U		43U		36U
1,2-Dichlorobenzene	ug/kg dw	51U		41U		35U
2-Methylphenol (o-Cresol)	ug/kg dw	100U		82U		70U
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw	71U		57U		48U
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw	89U		73I		410I

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

Parameter	Units	Lab Sample IDs 42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
TCL Semivolatiles (8270)						
N-Nitroso-di-n-propylamine	ug/kg dw	67U		54U		45U
Hexachloroethane	ug/kg dw	42U		34U		29U
Nitrobenzene	ug/kg dw	69U		55U		47U
Isophorone	ug/kg dw	58U		46U		39U
2-Nitrophenol	ug/kg dw	58U		46U		39U
2,4-Dimethylphenol	ug/kg dw	62U		50U		42U
bis(2-Chloroethoxy)methane	ug/kg dw	71U		57U		48U
2,4-Dichlorophenol	ug/kg dw	64U		52U		44U
1,2,4-Trichlorobenzene	ug/kg dw	84U		68U		58U
4-Chloroaniline	ug/kg dw	64U		52U		44U
Hexachlorobutadiene	ug/kg dw	60U		48U		41U
4-Chloro-3-methylphenol	ug/kg dw	89U		71U		61U
Hexachlorocyclopentadiene	ug/kg dw	600U		480U		410U
2,4,6-Trichlorophenol	ug/kg dw	71U		57U		48U
2,4,5-Trichlorophenol	ug/kg dw	69U		55U		47U
2-Chloronaphthalene	ug/kg dw	82U		66U		56U
2-Nitroaniline	ug/kg dw	56U		45U		38U
Dimethylphthalate	ug/kg dw	78U		62U		53U
3-Nitroaniline	ug/kg dw	67U		54U		45U
2,4-Dinitrophenol	ug/kg dw	760U		610U		520U
4-Nitrophenol	ug/kg dw	56U		45U		38U
Dibenzofuran	ug/kg dw	76U		61U		52U
2,4-Dinitrotoluene	ug/kg dw	49U		39U		33U
2,6-Dinitrotoluene	ug/kg dw	64U		52U		44U
Diethylphthalate	ug/kg dw	78U		62U		53U
4-Chlorophenylphenyl ether	ug/kg dw	58U		46U		39U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

Parameter	Units	Lab Sample IDs 42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
TCL Semivolatiles (8270)						
4-Nitroaniline	ug/kg dw	58U		46U		39U
4,6-Dinitro-2-methylphenol	ug/kg dw	69U		55U		47U
N-Nitrosodiphenylamine	ug/kg dw	67U		54U		45U
4-Bromophenylphenyl ether	ug/kg dw	67U		54U		45U
Hexachlorobenzene	ug/kg dw	84U		68U		58U
Pentachlorophenol	ug/kg dw	76U		61U		52U
Di-n-butylphthalate	ug/kg dw	87U		330I		59U
Butylbenzylphthalate	ug/kg dw	71U		57U		48U
Dichlorobenzidine	ug/kg dw	58U		46U		39U
bis(2-Ethylhexyl)phthalate	ug/kg dw	190I		190I		180I
Di-n-octylphthalate	ug/kg dw	71U		57U		48U
Carbazole	ug/kg dw	67U		54U		45U
Surrogate - Phenol-d5 *	%	50 %		47 %		41 %
Surrogate - 2-Fluorophenol *	%	47 %		45 %		38 %
Surrogate - 2,4,6-Tribromophenol *	%	58 %		57 %		54 %
Surrogate - Nitrobenzene - d5 *	%	43 %		43 %		36 %
Surrogate - 2-Fluorobiphenyl *	%	54 %		50 %		44 %
Surrogate - Terphenyl-d14 *	%	62 %		60 %		50 %
Percent Solids		45	45	56	56	66
Dilution Factor		1		1		1
Prep Date		04/15/04		04/15/04		04/15/04
Prep Time		12:55		12:55		12:55
Analysis Date		04/19/04		04/20/04		04/20/04
Analysis Time		23:33		00:02		00:31
Batch ID		0415C		0415C		0415C
Quantitation Factor		1.000		1.000		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

Parameter	Units	Lab Sample IDs 42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
Low Level PAH (8270)						
Naphthalene	ug/kg dw	16U		13U		11U
Acenaphthylene	ug/kg dw	19U		15U		13U
Acenaphthene	ug/kg dw	20U		16U		14U
Fluorene	ug/kg dw	17U		14U		12U
Phenanthrene	ug/kg dw	140I		54I		70I
Anthracene	ug/kg dw	21U		17U		14U
Fluoranthene	ug/kg dw	290		200		170
Pyrene	ug/kg dw	210		160		140
Chrysene	ug/kg dw	160		120		110
Benzo(a)anthracene	ug/kg dw	120I		98I		65I
Benzo(b)fluoranthene	ug/kg dw	21U		17U		14U
Benzo(k)fluoranthene	ug/kg dw	22U		17U		15U
Benzo(a)pyrene	ug/kg dw	20U		16U		14U
Indeno(1,2,3-cd)pyrene	ug/kg dw	14U		12U		9.8U
Dibenzo(a,h)anthracene	ug/kg dw	20U		16U		13U
Benzo(g,h,i)perylene	ug/kg dw	14U		11U		9.2U
2-Methylnaphthalene	ug/kg dw	12U		9.5U		8.0U
1-Methylnaphthalene	ug/kg dw	7.8U		6.2U		5.3U
Surrogate - o-Terphenyl *	%	0 %		0 %		0 %
Percent Solids		45	45	56	56	66
Dilution Factor		10		10		10
Prep Date		04/15/04		04/15/04		04/15/04
Prep Time		15:00		15:00		15:00
Analysis Date		04/16/04		04/16/04		04/16/04
Analysis Time		12:07		12:36		13:04
Batch ID		0415B		0415B		0415B
Quantitation Factor		10.00		10.00		10.00

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

Parameter	Units	Lab Sample IDs 42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
Volatiles by GC/MS (8260)						
Chloromethane	ug/kg dw	3.0U		2.4U		2.2U
Bromomethane (Methyl bromide)	ug/kg dw	7.4U		6.0U		5.4U
Vinyl chloride	ug/kg dw	3.7I		2.4U		2.2U
Chloroethane	ug/kg dw	3.7U		3.0U		2.7U
Methylene chloride (Dichloromethane)	ug/kg dw	5.2U		4.2U		3.8U
Acetone	ug/kg dw	28I		21I		13U
Carbon disulfide	ug/kg dw	4.4U		3.5U		3.2U
Dichloroethene	ug/kg dw	3.7U		3.0U		2.7U
1,1-Dichloroethane	ug/kg dw	2.2U		1.8U		1.6U
cis-1,2-Dichloroethene	ug/kg dw	2.4U		1.9U		1.7U
trans-1,2-Dichloroethene	ug/kg dw	2.6U		2.1U		1.9U
Chloroform	ug/kg dw	2.6U		2.1U		1.9U
1,2-Dichloroethane	ug/kg dw	3.3U		2.6U		2.4U
2-Butanone (MEK)	ug/kg dw	10U		8.2U		7.4U
1,1,1-Trichloroethane	ug/kg dw	1.8U		1.4U		1.3U
Carbon tetrachloride	ug/kg dw	2.0U		1.6U		1.5U
Bromodichloromethane	ug/kg dw	2.8U		2.3U		2.0U
1,1,2,2-Tetrachloroethane	ug/kg dw	4.4U		3.5U		3.2U
1,2-Dichloropropane	ug/kg dw	2.6U		2.1U		1.9U
trans-1,3-Dichloropropene	ug/kg dw	3.5U		2.8U		2.5U
Trichloroethene	ug/kg dw	2.4U		1.9U		1.7U
Dibromochloromethane	ug/kg dw	3.0U		2.4U		2.2U
1,1,2-Trichloroethane	ug/kg dw	3.9U		3.2U		2.8U
Benzene	ug/kg dw	2.4U		1.9U		1.7U
cis-1,3-Dichloropropene	ug/kg dw	2.6U		2.1U		1.9U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

		Lab Sample IDs				
Parameter	**Units**	**42931-1**	**42931-1-DL**	**42931-2**	**42931-2-DL**	**42931-3**
Volatiles by GC/MS (8260)						
Bromoform	ug/kg dw	3.7U		3.0U		2.7U
2-Hexanone	ug/kg dw	11U		8.9U		8.0U
4-Methyl-2-pentanone (MIBK)	ug/kg dw	11U		8.8U		7.9U
Tetrachloroethene	ug/kg dw	3.3U		2.6U		2.4U
Toluene	ug/kg dw	3.9U		3.2U		2.8U
Chlorobenzene	ug/kg dw	2.8U		2.3U		2.0U
Ethylbenzene	ug/kg dw	2.2U		1.8U		1.6U
Styrene	ug/kg dw	2.4U		1.9U		1.7U
Xylenes, Total	ug/kg dw	6.5U		5.2U		4.7U
Surrogate - Toluene-d8 *	%	85 %		85 %		87 %
Surrogate - 4-Bromofluorobenzene *	%	83 %		90 %		95 %
Surrogate - Dibromofluoromethane *	%	100 %		90 %		101 %
Percent Solids		45	45	56	56	66
Dilution Factor		1		1		1
Prep Date		04/09/04		04/09/04		04/12/04
Prep Time		19:34		19:59		17:17
Analysis Date		04/09/04		04/09/04		04/12/04
Analysis Time		19:34		19:59		17:17
Batch ID		1L0409		1L0409		1L0412
Quantitation Factor		0.9804		0.9804		1.042

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-1	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-1-DL	041M5B0202	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-2-DL	041M5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-3	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16

		Lab Sample IDs				
Parameter	Units	42931-1	42931-1-DL	42931-2	42931-2-DL	42931-3
Total Organic Carbon (9060)						
Total Organic Carbon	mg/kg dw	15000		3800		5700
Percent Solids		45	45	56	56	66
Dilution Factor		1		1		1
Prep Date		04/19/04		04/19/04		04/19/04
Prep Time		16:00		16:00		18:55
Analysis Date		04/20/04		04/20/04		04/20/04
Analysis Time		16:18		18:45		18:55
Batch ID		0420X		0420X		0420X
Dilution Factor		1.000		1.000		1.000
Grain Size * (D422)						
Grain Size *		Attached		Attached		Attached
Percent Solids		45	45	56	56	66

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
TAL Metals (6010)						
Aluminum	mg/kg dw		300		420	
Antimony	mg/kg dw		1.8I		1.1I	
Arsenic	mg/kg dw		0.46U		0.46U	
Barium	mg/kg dw		1.5		1.8	
Beryllium	mg/kg dw		0.038I		0.036I	
Cadmium	mg/kg dw		0.95		1.1	
Calcium	mg/kg dw		100		140	
Chromium	mg/kg dw		14		23	
Cobalt	mg/kg dw		0.30I		0.39I	
Copper	mg/kg dw		5.3		7.8	
Iron	mg/kg dw		210		290	
Lead	mg/kg dw		19		24	
Magnesium	mg/kg dw		26I		28I	
Manganese	mg/kg dw		1.1I		4.7	
Nickel	mg/kg dw		0.61I		0.97I	
Potassium	mg/kg dw		12I		17I	
Selenium	mg/kg dw		0.74U		0.74U	
Silver	mg/kg dw		0.15U		0.15U	
Sodium	mg/kg dw		8.3I		7.5I	
Thallium	mg/kg dw		1.1U		1.1U	
Vanadium	mg/kg dw		0.55I		0.86I	
Zinc	mg/kg dw		28		19	
Percent Solids		66	69	69	65	65
Dilution Factor			1		1	
Prep Date			04/12/04		04/12/04	
Prep Time			07:00		07:00	
Analysis Date			04/15/04		04/15/04	
Analysis Time			14:01		14:06	
Batch ID			0412C		0412C	
Quantitation Factor			0.9615		0.9091	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
Mercury (7471)						
Mercury	mg/kg dw		0.0068U		0.019I	
Percent Solids		66	69	69	65	65
Dilution Factor			1		1	
Prep Date			04/12/04		04/12/04	
Prep Time			12:00		12:00	
Analysis Date			04/13/04		04/13/04	
Analysis Time			17:10		17:12	
Batch ID			0412S		0412S	
[illegible]citation Factor			0.9346		0.9009	
TCL Pesticides (8081)						
alpha-BHC	ug/kg dw	3.6U	0.35U*J4	3.5U	0.37U*J4	3.7U
beta-BHC	ug/kg dw	4.4U	0.42U	4.2U	0.45U	4.5U
delta-BHC	ug/kg dw	1.8U	0.17U	1.7U	0.18U	1.8U
gamma-BHC (Lindane)	ug/kg dw	2.3U	0.22U	2.2U	0.23U	2.3U
Heptachlor	ug/kg dw	4.2U	0.40U	4.0U	0.43U	4.3U
Aldrin	ug/kg dw	1.7U	5.6V	7.0IV	0.24IV	1.7U
Heptachlor epoxide	ug/kg dw	2.6U	0.25U	2.5U	0.26U	2.6U
Endosulfan I	ug/kg dw	2.6U	0.25U	2.5U	0.26U	2.6U
Dieldrin	ug/kg dw	8.2IP	8.6	4.5U	9.0	8.5I
4,4'-DDE	ug/kg dw	12I	3.8I	7.8U	3.3I	8.3U
Endrin	ug/kg dw	6.5U	0.62U	6.2U	0.66U	6.6U
Endrin aldehyde	ug/kg dw	4.7U	0.45U	4.5U	0.48U	4.8U
Endosulfan II	ug/kg dw	3.3U	0.32U	3.2U	0.34U	3.4U
4,4'-DDD	ug/kg dw	5.3U	0.51U	5.1U	0.54U	5.4U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
TCL Pesticides (8081)						
Endosulfan sulfate	ug/kg dw	6.7U	0.64U	6.4U	0.68U	6.8U
4,4'-DDT	ug/kg dw	4.7U	0.45U	4.5U	0.48U	4.8U
Endrin ketone	ug/kg dw	5.8U	0.55U	5.5U	0.58U	5.8U
Methoxychlor	ug/kg dw	3.0U	0.29U	2.9U	0.31U	3.1U
alpha-Chlordane	ug/kg dw	1.7U	0.16U	1.6U	0.17U	1.7U
gamma-Chlordane	ug/kg dw	2.0U	0.19U	1.9U	0.20U	2.0U
Toxaphene	ug/kg dw	500U	48U	480U	51U	510U
Surrogate - DCB *	%	0 %	62 %	0 %	73 %	0 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	0 %	67 %	0 %	62 %	0 %
Percent Solids		66	69	69	65	65
Dilution Factor		10	1	10	1	10
Prep Date		04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
Prep Time		13:00	13:00	13:00	13:00	13:00
Analysis Date		05/03/04	05/03/04	05/03/04	05/03/04	05/03/04
Analysis Time		01:17	07:36	01:53	08:12	02:29
Batch ID		0415N	0415N	0415N	0415N	0415N
Quantitation Factor		10.00	1.000	10.00	1.000	10.00
PCB's (8082)						
Aroclor-1016	ug/kg dw	59U	5.6U	56U	6.0U	60U
Aroclor-1221	ug/kg dw	260U	25U	250U	26U	260U
Aroclor-1232	ug/kg dw	100U	9.7U	97U	10U	100U
Aroclor-1242	ug/kg dw	100U	9.7U	97U	10U	100U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
PCB's (8082)						
Aroclor-1248	ug/kg dw	98U	9.4U	94U	10U	100U
Aroclor-1254	ug/kg dw	100U	9.7U	97U	10U	100U
Aroclor-1260	ug/kg dw	67U	6.4U	64U	20I	68U
Surrogate - TCX *	%	0 %	67 %	0 %	62 %	0 %
Surrogate - DCB *	%	0 %	62 %	0 %	73 %	0 %
Percent Solids		66	69	69	65	65
Dilution Factor		10	1	10	1	10
Prep Date		04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
Analysis Date		05/03/04	05/03/04	05/03/04	05/03/04	05/03/04
Analysis Time		01:17	07:36	01:53	08:12	02:29
Batch ID		0415N	0415N	0415N	0415N	0415N
Quantitation Factor		10.00	1.000	10.00	1.000	10.00
TCL Semivolatiles (8270)						
Phenol	ug/kg dw		59U		63U	
bis(2-Chloroethyl)ether	ug/kg dw		54U		57U	
2-Chlorophenol	ug/kg dw		59U		63U	
1,3-Dichlorobenzene	ug/kg dw		33U		35U	
1,4-Dichlorobenzene	ug/kg dw		35U		37U	
1,2-Dichlorobenzene	ug/kg dw		33U		35U	
2-Methylphenol (o-Cresol)	ug/kg dw		67U		71U	
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw		46U		49U	
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw		58U		62U	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
TCL Semivolatiles (8270)						
N-Nitroso-di-n-propylamine	ug/kg dw		43U		46U	
Hexachloroethane	ug/kg dw		28U		29U	
Nitrobenzene	ug/kg dw		45U		48U	
Isophorone	ug/kg dw		38U		40U	
2-Nitrophenol	ug/kg dw		38U		40U	
2,4-Dimethylphenol	ug/kg dw		40U		43U	
bis(2-Chloroethoxy)methane	ug/kg dw		46U		49U	
2,4-Dichlorophenol	ug/kg dw		42U		45U	
1,2,4-Trichlorobenzene	ug/kg dw		55U		58U	
4-Chloroaniline	ug/kg dw		42U		45U	
Hexachlorobutadiene	ug/kg dw		39U		42U	
4-Chloro-3-methylphenol	ug/kg dw		58U		62U	
Hexachlorocyclopentadiene	ug/kg dw		390U		420U	
2,4,6-Trichlorophenol	ug/kg dw		46U		49U	
2,4,5-Trichlorophenol	ug/kg dw		45U		48U	
2-Chloronaphthalene	ug/kg dw		54U		57U	
2-Nitroaniline	ug/kg dw		36U		38U	
Dimethylphthalate	ug/kg dw		51U		54U	
3-Nitroaniline	ug/kg dw		43U		46U	
2,4-Dinitrophenol	ug/kg dw		490U		520U	
4-Nitrophenol	ug/kg dw		36U		38U	
Dibenzofuran	ug/kg dw		49U		52U	
2,4-Dinitrotoluene	ug/kg dw		32U		34U	
2,6-Dinitrotoluene	ug/kg dw		42U		45U	
Diethylphthalate	ug/kg dw		51U		54U	
4-Chlorophenylphenyl ether	ug/kg dw		38U		40U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
TCL Semivolatiles (8270)						
4-Nitroaniline	ug/kg dw		38U		40U	
4,6-Dinitro-2-methylphenol	ug/kg dw		45U		48U	
N-Nitrosodiphenylamine	ug/kg dw		43U		46U	
4-Bromophenylphenyl ether	ug/kg dw		43U		46U	
Hexachlorobenzene	ug/kg dw		55U		58U	
Pentachlorophenol	ug/kg dw		49U		52U	
Di-n-butylphthalate	ug/kg dw		56U		60U	
Butylbenzylphthalate	ug/kg dw		46U		49U	
Dichlorobenzidine	ug/kg dw		38U		40U	
bis(2-Ethylhexyl)phthalate	ug/kg dw		64U		68U	
Di-n-octylphthalate	ug/kg dw		46U		49U	
Carbazole	ug/kg dw		43U		46U	
Surrogate - Phenol-d5 *	%		52 %		57 %	
Surrogate - 2-Fluorophenol *	%		50 %		55 %	
Surrogate - 2,4,6-Tribromophenol *	%		64 %		72 %	
Surrogate - Nitrobenzene - d5 *	%		46 %		50 %	
Surrogate - 2-Fluorobiphenyl *	%		58 %		58 %	
Surrogate - Terphenyl-d14 *	%		71 %		73 %	
Percent Solids		66	69	69	65	65
Dilution Factor			1		1	
Prep Date			04/15/04		04/15/04	
Prep Time			12:55		12:55	
Analysis Date			04/20/04		04/20/04	
Analysis Time			01:00		01:29	
Batch ID			0415C		0415C	
Quantitation Factor			1.000		1.000	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
Low Level PAH (8270)						
Naphthalene	ug/kg dw		4.1U		10U	
Acenaphthylene	ug/kg dw		5.0U		13U	
Acenaphthene	ug/kg dw		5.2U		14U	
Fluorene	ug/kg dw		4.5U		12U	
Phenanthrene	ug/kg dw		7.9I		12U	
Anthracene	ug/kg dw		5.6U		15U	
Fluoranthene	ug/kg dw		15I		39I	
Pyrene	ug/kg dw		13I		37I	
Chrysene	ug/kg dw		5.8U		15U	
Benzo(a)anthracene	ug/kg dw		4.4U		12U	
Benzo(b)fluoranthene	ug/kg dw		5.6U		15U	
Benzo(k)fluoranthene	ug/kg dw		5.7U		15U	
Benzo(a)pyrene	ug/kg dw		5.2U		14U	
Indeno(1,2,3-cd)pyrene	ug/kg dw		3.8U		10U	
Dibenzo(a,h)anthracene	ug/kg dw		5.1U		14U	
Benzo(g,h,i)perylene	ug/kg dw		3.5U		9.4U	
2-Methylnaphthalene	ug/kg dw		3.1U		8.2U	
1-Methylnaphthalene	ug/kg dw		2.0U		5.4U	
Surrogate - o-Terphenyl *	%		78 %		0 %	
Percent Solids		66	69	69	65	65
Dilution Factor			4		10	
Prep Date			04/15/04		04/15/04	
Prep Time			15:00		15:00	
Analysis Date			04/17/04		04/16/04	
Analysis Time			15:55		14:01	
Batch ID			0415B		0415B	
Quantitation Factor			4.000		10.00	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
Volatiles by GC/MS (8260)						
Chloromethane	ug/kg dw		2.1U		2.3U	
Bromomethane (Methyl bromide)	ug/kg dw		5.1U		5.6U	
Vinyl chloride	ug/kg dw		2.1U		2.3U	
Chloroethane	ug/kg dw		2.6U		2.8U	
Methylene chloride (Dichloromethane)	ug/kg dw		3.6U		3.9U	
Acetone	ug/kg dw		12U		13U	
Carbon disulfide	ug/kg dw		3.0U		3.3U	
1,1-Dichloroethene	ug/kg dw		2.6U		2.8U	
1,1-Dichloroethane	ug/kg dw		1.5U		1.6U	
cis-1,2-Dichloroethene	ug/kg dw		1.7U		1.8U	
trans-1,2-Dichloroethene	ug/kg dw		1.8U		2.0U	
Chloroform	ug/kg dw		1.8U		2.0U	
1,2-Dichloroethane	ug/kg dw		2.3U		2.4U	
2-Butanone (MEK)	ug/kg dw		7.1U		7.7U	
1,1,1-Trichloroethane	ug/kg dw		1.2U		1.3U	
Carbon tetrachloride	ug/kg dw		1.4U		1.5U	
Bromodichloromethane	ug/kg dw		2.0U		2.1U	
1,1,2,2-Tetrachloroethane	ug/kg dw		3.0U		3.3U	
1,2-Dichloropropane	ug/kg dw		1.8U		2.0U	
trans-1,3-Dichloropropene	ug/kg dw		2.4U		2.6U	
Trichloroethene	ug/kg dw		1.7U		1.8U	
Dibromochloromethane	ug/kg dw		2.1U		2.3U	
1,1,2-Trichloroethane	ug/kg dw		2.7U		2.9U	
Benzene	ug/kg dw		1.7U		1.8U	
cis-1,3-Dichloropropene	ug/kg dw		1.8U		2.0U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

		Lab Sample IDs				
Parameter	**Units**	**42931-3-DL**	**42931-4**	**42931-4-DL**	**42931-5**	**42931-5-DL**
Volatiles by GC/MS (8260)						
Bromoform	ug/kg dw		2.6U		2.8U	
2-Hexanone	ug/kg dw		7.7U		8.3U	
4-Methyl-2-pentanone (MIBK)	ug/kg dw		7.5U		8.2U	
Tetrachloroethene	ug/kg dw		2.3U		2.4U	
Toluene	ug/kg dw		3.5I		2.9U	
Chlorobenzene	ug/kg dw		2.0U		2.1U	
Ethylbenzene	ug/kg dw		1.5U		1.6U	
Styrene	ug/kg dw		1.7U		1.8U	
Xylenes, Total	ug/kg dw		4.5U		4.9U	
Surrogate - Toluene-d8 *	%		88 %		83 %	
Surrogate - 4-Bromofluorobenzene *	%		97 %		94 %	
Surrogate - Dibromofluoromethane *	%		101 %		101 %	
Percent Solids		66	69	69	65	65
Dilution Factor			1		1	
Prep Date			04/12/04		04/12/04	
Prep Time			18:07		20:12	
Analysis Date			04/12/04		04/12/04	
Analysis Time			18:07		20:12	
Batch ID			1L0412		1L0412	
Quantitation Factor			1.042		1.064	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-3-DL	041N5B0301	Solid	04/07/04	04/06/04 10:45	PEN16
42931-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-4-DL	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16
42931-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16
42931-5-DL	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16

Parameter	Units	Lab Sample IDs 42931-3-DL	42931-4	42931-4-DL	42931-5	42931-5-DL
Total Organic Carbon (9060)						
Total Organic Carbon	mg/kg dw		3500		14000	
Percent Solids		66	69	69	65	65
Dilution Factor			1		1	
Prep Date			04/19/04		04/19/04	
Prep Time			16:00		16:00	
Analysis Date			04/20/04		04/20/04	
Analysis Time			18:23		16:49	
Batch ID			0420X		0420X	
[illegible]itation Factor			1.000		1.000	
Grain Size * (D422)						
Grain Size *			Attached		Attached	
Percent Solids		66	69	69	65	65

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
TAL Metals (6010)			
Aluminum	mg/kg dw	760	
Antimony	mg/kg dw	2.5I	
Arsenic	mg/kg dw	0.66U	
Barium	mg/kg dw	4.5	
Beryllium	mg/kg dw	0.066I	
Cadmium	mg/kg dw	5.1	
Calcium	mg/kg dw	380	
Chromium	mg/kg dw	55	
Cobalt	mg/kg dw	1.1I	
Copper	mg/kg dw	16	
Iron	mg/kg dw	800	
Lead	mg/kg dw	48	
Magnesium	mg/kg dw	58I	
Manganese	mg/kg dw	21	
Nickel	mg/kg dw	3.0I	
Potassium	mg/kg dw	30I	
Selenium	mg/kg dw	1.1U	
Silver	mg/kg dw	0.38I	
Sodium	mg/kg dw	14I	
Thallium	mg/kg dw	1.5U	
Vanadium	mg/kg dw	1.2I	
Zinc	mg/kg dw	60	
Percent Solids		44	44
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		07:00	
Analysis Date		04/15/04	
Analysis Time		14:11	
Batch ID		0412C	
Quantitation Factor		0.8772	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
Mercury (7471)			
Mercury	mg/kg dw	0.12	
Percent Solids		44	44
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		12:00	
Analysis Date		04/13/04	
Analysis Time		17:14	
Batch ID		0412S	
Quantitation Factor		0.8772	
TCL Pesticides (8081)			
alpha-BHC	ug/kg dw	0.54U*J4	5.4U
beta-BHC	ug/kg dw	2.9I	6.6U
delta-BHC	ug/kg dw	0.27U	2.7U
gamma-BHC (Lindane)	ug/kg dw	0.34U	3.4U
Heptachlor	ug/kg dw	0.64U	6.4U
Aldrin	ug/kg dw	7.0V	3.8IV
Heptachlor epoxide	ug/kg dw	0.39U	3.9U
Endosulfan I	ug/kg dw	0.39U	3.9U
Dieldrin	ug/kg dw	100	120
4,4'-DDE	ug/kg dw	16	24I
Endrin	ug/kg dw	0.98U	9.8U
Endrin aldehyde	ug/kg dw	0.70U	7.0U
Endosulfan II	ug/kg dw	0.50U	5.0U
4,4'-DDD	ug/kg dw	2.3I	8.0U
Endosulfan sulfate	ug/kg dw	1.0U	10U
4,4'-DDT	ug/kg dw	0.70U	7.0U
Endrin ketone	ug/kg dw	0.86U	8.6U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
TCL Pesticides (8081)			
Methoxychlor	ug/kg dw	0.45U	4.5U
alpha-Chlordane	ug/kg dw	0.25U	2.5U
gamma-Chlordane	ug/kg dw	0.30U	3.0U
Toxaphene	ug/kg dw	75U	750U
Surrogate - DCB *	%	84 %	0 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	82 %	0 %
Percent Solids		44	44
Dilution Factor		1	10
Prep Date		04/15/04	04/15/04
Prep Time		13:00	13:00
Analysis Date		05/03/04	05/03/04
Analysis Time		08:48	03:06
Batch ID		0415N	0415N
Quantitation Factor		1.000	10.00
PCB's (8082)			
Aroclor-1016	ug/kg dw	8.9U	89U
Aroclor-1221	ug/kg dw	39U	390U
Aroclor-1232	ug/kg dw	15U	150U
Aroclor-1242	ug/kg dw	15U	150U
Aroclor-1248	ug/kg dw	15U	150U
Aroclor-1254	ug/kg dw	15U	150U
Aroclor-1260	ug/kg dw	96	100U
Surrogate - TCX *	%	82 %	0 %
Surrogate - DCB *	%	84 %	0 %
Percent Solids		44	44
Dilution Factor		1	10
Prep Date		04/15/04	04/15/04
Analysis Date		05/03/04	05/03/04
Analysis Time		08:48	03:06
Batch ID		0415N	0415N
Quantitation Factor		1.000	10.00

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
TCL Semivolatiles (8270)			
Phenol	ug/kg dw	93U	
bis(2-Chloroethyl)ether	ug/kg dw	84U	
2-Chlorophenol	ug/kg dw	93U	
1,3-Dichlorobenzene	ug/kg dw	52U	
1,4-Dichlorobenzene	ug/kg dw	54U	
1,2-Dichlorobenzene	ug/kg dw	52U	
2-Methylphenol (o-Cresol)	ug/kg dw	100U	
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw	73U	
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw	200I	
roso-di-n-propylamine	ug/kg dw	68U	
Hexachloroethane	ug/kg dw	43U	
Nitrobenzene	ug/kg dw	70U	
Isophorone	ug/kg dw	59U	
2-Nitrophenol	ug/kg dw	59U	
2,4-Dimethylphenol	ug/kg dw	64U	
bis(2-Chloroethoxy)methane	ug/kg dw	73U	
2,4-Dichlorophenol	ug/kg dw	66U	
1,2,4-Trichlorobenzene	ug/kg dw	86U	
4-Chloroaniline	ug/kg dw	66U	
Hexachlorobutadiene	ug/kg dw	61U	
4-Chloro-3-methylphenol	ug/kg dw	91U	
Hexachlorocyclopentadiene	ug/kg dw	610U	
2,4,6-Trichlorophenol	ug/kg dw	73U	
2,4,5-Trichlorophenol	ug/kg dw	70U	
2-Chloronaphthalene	ug/kg dw	84U	
2-Nitroaniline	ug/kg dw	57U	
Dimethylphthalate	ug/kg dw	80U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
TCL Semivolatiles (8270)			
3-Nitroaniline	ug/kg dw	68U	
2,4-Dinitrophenol	ug/kg dw	770U	
4-Nitrophenol	ug/kg dw	57U	
Dibenzofuran	ug/kg dw	77U	
2,4-Dinitrotoluene	ug/kg dw	50U	
2,6-Dinitrotoluene	ug/kg dw	66U	
Diethylphthalate	ug/kg dw	80U	
4-Chlorophenylphenyl ether	ug/kg dw	59U	
4-Nitroaniline	ug/kg dw	59U	
4,6-Dinitro-2-methylphenol	ug/kg dw	70U	
N-Nitrosodiphenylamine	ug/kg dw	68U	
4-Bromophenylphenyl ether	ug/kg dw	68U	
Hexachlorobenzene	ug/kg dw	86U	
Pentachlorophenol	ug/kg dw	77U	
Di-n-butylphthalate	ug/kg dw	89U	
Butylbenzylphthalate	ug/kg dw	73U	
3,3'-Dichlorobenzidine	ug/kg dw	59U	
bis(2-Ethylhexyl)phthalate	ug/kg dw	150I	
Di-n-octylphthalate	ug/kg dw	73U	
Carbazole	ug/kg dw	68U	
Surrogate - Phenol-d5 *	%	39 %	
Surrogate - 2-Fluorophenol *	%	37 %	
Surrogate - 2,4,6-Tribromophenol *	%	51 %	
Surrogate - Nitrobenzene - d5 *	%	34 %	
Surrogate - 2-Fluorobiphenyl *	%	37 %	
Surrogate - Terphenyl-d14 *	%	50 %	
Percent Solids		44	44
Dilution Factor		1	
Prep Date		04/15/04	
Prep Time		12:55	
Analysis Date		04/20/04	
Analysis Time		22:33	
Batch ID		0415C	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
Low Level PAH (8270)			
Naphthalene	ug/kg dw	16U	
Acenaphthylene	ug/kg dw	20U	
Acenaphthene	ug/kg dw	20U	
Fluorene	ug/kg dw	18U	
Phenanthrene	ug/kg dw	18U	
Anthracene	ug/kg dw	22U	
Fluoranthene	ug/kg dw	69I	
Pyrene	ug/kg dw	59I	
Chrysene	ug/kg dw	56I	
Benzo(a)anthracene	ug/kg dw	17U	
Benzo(b)fluoranthene	ug/kg dw	22U	
Benzo(k)fluoranthene	ug/kg dw	22U	
Benzo(a)pyrene	ug/kg dw	20U	
Indeno(1,2,3-cd)pyrene	ug/kg dw	15U	
Dibenzo(a,h)anthracene	ug/kg dw	20U	
Benzo(g,h,i)perylene	ug/kg dw	14U	
2-Methylnaphthalene	ug/kg dw	12U	
1-Methylnaphthalene	ug/kg dw	8.0U	
Surrogate - o-Terphenyl *	%	0 %	
Percent Solids		44	44
Dilution Factor		10	
Prep Date		04/15/04	
Prep Time		15:00	
Analysis Date		04/16/04	
Analysis Time		14:30	
Batch ID		0415B	
Quantitation Factor		10.00	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
Volatiles by GC/MS (8260)			
Chloromethane	ug/kg dw	3.5U	
Bromomethane (Methyl bromide)	ug/kg dw	8.6U	
Vinyl chloride	ug/kg dw	3.5U	
Chloroethane	ug/kg dw	4.3U	
Methylene chloride (Dichloromethane)	ug/kg dw	6.1U	
Acetone	ug/kg dw	20U	
Carbon disulfide	ug/kg dw	5.0U	
1,1-Dichloroethene	ug/kg dw	4.3U	
1,1-Dichloroethane	ug/kg dw	2.5U	
cis-1,2-Dichloroethene	ug/kg dw	7.7I	
trans-1,2-Dichloroethene	ug/kg dw	3.0U	
Chloroform	ug/kg dw	3.0U	
1,2-Dichloroethane	ug/kg dw	3.8U	
2-Butanone (MEK)	ug/kg dw	12U	
1,1,1-Trichloroethane	ug/kg dw	2.0U	
Carbon tetrachloride	ug/kg dw	2.4U	
Bromodichloromethane	ug/kg dw	3.3U	
1,1,2,2-Tetrachloroethane	ug/kg dw	5.0U	
1,2-Dichloropropane	ug/kg dw	3.0U	
trans-1,3-Dichloropropene	ug/kg dw	4.0U	
Trichloroethene	ug/kg dw	2.8U	
Dibromochloromethane	ug/kg dw	3.5U	
1,1,2-Trichloroethane	ug/kg dw	4.5U	
Benzene	ug/kg dw	2.8U	
cis-1,3-Dichloropropene	ug/kg dw	3.0U	
Bromoform	ug/kg dw	4.3U	
2-Hexanone	ug/kg dw	13U	
4-Methyl-2-pentanone (MIBK)	ug/kg dw	13U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
Volatiles by GC/MS (8260)			
Tetrachloroethene	ug/kg dw	3.8U	
Toluene	ug/kg dw	4.5U	
Chlorobenzene	ug/kg dw	3.3U	
Ethylbenzene	ug/kg dw	2.5U	
Styrene	ug/kg dw	2.8U	
Xylenes, Total	ug/kg dw	7.6U	
Surrogate - Toluene-d8 *	%	77 %	
Surrogate - 4-Bromofluorobenzene *	%	85 %	
Surrogate - Dibromofluoromethane *	%	92 %	
Percent Solids		44	44
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		20:37	
Analysis Date		04/12/04	
Analysis Time		20:37	
Batch ID		1L0412	
Quantitation Factor		1.111	
Total Organic Carbon (9060)			
Total Organic Carbon	mg/kg dw	4100	
Percent Solids		44	44
Dilution Factor		1	
Prep Date		04/19/04	
Prep Time		16:00	
Analysis Date		04/20/04	
Analysis Time		18:34	
Batch ID		0420X	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16
42931-6-DL	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16

Parameter	Units	Lab Sample IDs 42931-6	42931-6-DL
Grain Size * (D422)			
Grain Size *		Attached	
Percent Solids		44	44

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
TAL Metals (6010)				
Aluminum	ug/l	7.7I		9.8I
Antimony	ug/l	5.0U		5.0U
Arsenic	ug/l	4.6U		4.6U
Barium	ug/l	0.20U		0.20U
Beryllium	ug/l	0.10U		0.10U
Cadmium	ug/l	0.60U		0.60U
Calcium	ug/l	7.1I		16I
Chromium	ug/l	0.90U		0.90U
Cobalt	ug/l	1.0U		1.0U
Copper	ug/l	0.60U		0.60U
	ug/l	32U		32U
Lead	ug/l	2.8U		2.8U
Magnesium	ug/l	6.6U		6.6U
Manganese	ug/l	0.24I		0.72I
Nickel	ug/l	2.0U		2.0U
Potassium	ug/l	17U		27I
Selenium	ug/l	3.6U		3.6U
Silver	ug/l	0.90U		0.90U
Sodium	ug/l	230U		230U
Thallium	ug/l	8.4U		8.4U
Vanadium	ug/l	1.4U		1.4U
Zinc	ug/l	0.90U		1.1I
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		11:00		11:00
Analysis Date		04/13/04		04/13/04
Analysis Time		18:51		19:10
Batch ID		0412G		0412G
Quantitation Factor		1.000		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
Mercury (7470)				
Mercury	ug/l	0.078U		0.12I
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		16:05		16:05
Analysis Date		04/14/04		04/14/04
Analysis Time		11:26		11:33
Batch ID		0412U		0412U
Quantitation Factor		1.000		1.000
TAL Metals (Dissolved) (6010)				
Aluminum (Dissolved)	ug/l	7.2U		7.2U
Antimony (Dissolved)	ug/l	5.0U		5.0U
Arsenic, (Dissolved)	ug/l	4.6U		4.6U
Barium, (Dissolved)	ug/l	0.52I		0.34I
Beryllium (Dissolved)	ug/l	0.10U		0.10U
Cadmium (Dissolved)	ug/l	0.60U		0.60U
Calcium (Dissolved)	ug/l	12I		18I
Chromium, (Dissolved)	ug/l	0.90U		0.90U
Cobalt (Dissolved)	ug/l	1.0U		1.0U
Copper, Dissolved	ug/l	0.60U		0.60U
Iron (Dissolved)	ug/l	32U		50I
Lead, (Dissolved)	ug/l	2.8U		2.8U
Magnesium (Dissolved)	ug/l	6.6U		17I
Manganese (Dissolved)	ug/l	0.20U		0.86I
Nickel, (Dissolved)	ug/l	2.0U		2.0U
Potassium (Dissolved)	ug/l	17U		17U
Selenium (Dissolved)	ug/l	3.6U		3.6U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
TAL Metals (Dissolved) (6010)				
Silver (Dissolved)	ug/l	0.90U		0.90U
Sodium (Dissolved)	ug/l	310I		230U
Thallium (Dissolved)	ug/l	8.4U		8.4U
Vanadium (Dissolved)	ug/l	1.4U		1.4U
Zinc, (Dissolved)	ug/l	2.0I		4.6I
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		11:00		11:00
Analysis Date		04/13/04		04/13/04
Analysis Time		18:27		19:05
' ID		0412G		0412G
Quantitation Factor		1.000		1.000
Mercury (Dissolved) (7470)				
Mercury (Dissolved)	ug/l	0.078U		0.078U
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		16:05		16:05
Analysis Date		04/14/04		04/14/04
Analysis Time		11:24		11:36
Batch ID		0412U		0412U
Quantitation Factor		1.000		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
TCL Pesticides (8081)				
alpha-BHC	ug/l	0.0035U		0.0035U
beta-BHC	ug/l	0.0035U		0.0035U
delta-BHC	ug/l	0.0090U		0.0090U
gamma-BHC (Lindane)	ug/l	0.0030U		0.0030U
Heptachlor	ug/l	0.014U		0.014U
Aldrin	ug/l	0.0086U		0.0086U
Heptachlor epoxide	ug/l	0.0026U		0.0026U
Endosulfan I	ug/l	0.0099U		0.0099U
Dieldrin	ug/l	0.0060U		0.0060U
4,4'-DDE	ug/l	0.010U		0.010U
Endrin	ug/l	0.0097U		0.0097U
Endrin aldehyde	ug/l	0.014U		0.014U
Endosulfan II	ug/l	0.0084U		0.0084U
4,4'-DDD	ug/l	0.016U		0.016U
Endosulfan sulfate	ug/l	0.0085U		0.0085U
4,4'-DDT	ug/l	0.014U		0.014U
Endrin ketone	ug/l	0.0072U		0.0072U
Methoxychlor	ug/l	0.0070U		0.0070U
alpha-Chlordane	ug/l	0.0084U		0.0084U
gamma-Chlordane	ug/l	0.0070U		0.0070U
Toxaphene	ug/l	0.77U		0.77U
Surrogate - DCB *	%	104 %		114 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	69 %		58 %
Dilution Factor		1		1
Prep Date		04/12/04		04/12/04
Prep Time		17:00		17:00
Analysis Date		04/16/04		04/16/04
Analysis Time		20:03		20:22
Batch ID		0412P		0412P
Quantitation Factor		1.000		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
PCB's (8082)				
Aroclor-1016	ug/l	0.11U		0.11U
Aroclor-1221	ug/l	0.50U		0.50U
Aroclor-1232	ug/l	0.18U		0.18U
Aroclor-1242	ug/l	0.14U		0.14U
Aroclor-1248	ug/l	0.11U		0.11U
Aroclor-1254	ug/l	0.20U		0.20U
Aroclor-1260	ug/l	0.11U		0.11U
Surrogate - TCX *	%	69 %		58 %
Surrogate - DCB *	%	104 %		114 %
Dilution Factor		1		1
Date		04/12/04		04/12/04
Prep Time		17:00		17:00
Analysis Date		04/16/04		04/16/04
Analysis Time		20:03		20:22
Batch ID		0412P		0412P
Quantitation Factor		1.000		1.000
TCL Semivolatiles (8270)				
Phenol	ug/l	1.0U	1.0U	1.0U
bis(2-Chloroethyl)ether	ug/l	1.0U	1.0U	1.0U
2-Chlorophenol	ug/l	0.79U	0.79U	0.79U
1,3-Dichlorobenzene	ug/l	1.0U	1.0U	1.0U
1,4-Dichlorobenzene	ug/l	1.0U	1.0U	1.0U
1,2-Dichlorobenzene	ug/l	1.0U	1.0U	1.0U
2-Methylphenol (o-Cresol)	ug/l	0.59U	0.59U	0.59U
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/l	0.58U	0.58U	0.58U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
TCL Semivolatiles (8270)				
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/l	1.0U	1.0U	1.0U
N-Nitroso-di-n-propylamine	ug/l	1.0U	1.0U	1.0U
Hexachloroethane	ug/l	0.70U	0.70U	0.70U
Nitrobenzene	ug/l	1.0U	1.0U	1.0U
Isophorone	ug/l	1.0U	1.0U	1.0U
2-Nitrophenol	ug/l	1.1U	1.1U	1.1U
2,4-Dimethylphenol	ug/l	1.1U	1.1U	1.1U
bis(2-Chloroethoxy)methane	ug/l	1.0U	1.0U	1.0U
2,4-Dichlorophenol	ug/l	0.76U	0.76U	0.76U
1,2,4-Trichlorobenzene	ug/l	0.51U	0.51U	0.51U
4-Chloroaniline	ug/l	1.0U	1.0U	1.0U
Hexachlorobutadiene	ug/l	0.50U	0.50U	0.50U
4-Chloro-3-methylphenol	ug/l	1.0U	1.0U	1.0U
Hexachlorocyclopentadiene	ug/l	1.1U	1.1U	1.1U
2,4,6-Trichlorophenol	ug/l	1.1U	1.1U	1.1U
2,4,5-Trichlorophenol	ug/l	1.1U	1.1U	1.1U
2-Chloronaphthalene	ug/l	1.0U	1.0U	1.0U
2-Nitroaniline	ug/l	0.72U	0.72U	0.72U
Dimethylphthalate	ug/l	0.57U	0.57U	0.57U
3-Nitroaniline	ug/l	0.64U	0.64U	0.64U
2,4-Dinitrophenol	ug/l	10U	10U	10U
4-Nitrophenol	ug/l	5.0U	5.0U	5.0U
Dibenzofuran	ug/l	1.0U	1.0U	1.0U
2,4-Dinitrotoluene	ug/l	1.1U	1.1U	1.1U
2,6-Dinitrotoluene	ug/l	0.87U	0.87U	0.87U
Diethylphthalate	ug/l	1.0U	1.0U	1.0U
4-Chlorophenylphenyl ether	ug/l	0.70U	0.70U	0.70U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
TCL Semivolatiles (8270)				
4-Nitroaniline	ug/l	0.86U	0.86U	0.86U
4,6-Dinitro-2-methylphenol	ug/l	10U	10U	10U
N-Nitrosodiphenylamine	ug/l	1.0U	1.0U	1.0U
4-Bromophenylphenyl ether	ug/l	1.0U	1.0U	1.0U
Hexachlorobenzene	ug/l	0.61U	0.61U	0.61U
Pentachlorophenol	ug/l	2.0U	2.0U	2.0U
Di-n-butylphthalate	ug/l	1.0U	1.0U	1.0U
Butylbenzylphthalate	ug/l	0.74U	0.74U	0.74U
3,3'-Dichlorobenzidine	ug/l	1.0U	1.0U	1.0U
bi(2-Ethylhexyl)phthalate	ug/l	2.4U	2.4U	2.4U
n-octylphthalate	ug/l	1.2U	1.2U	1.2U
Carbazole	ug/l	0.54U	0.54U	0.54U
Surrogate - Phenol-d5 *	%	45 %J1	16 %J1	94 %
Surrogate - 2-Fluorophenol *	%	43 %	18 %J1	86 %
Surrogate - 2,4,6-Tribromophenol *	%	52 %	54 %	112 %
Surrogate - Nitrobenzene - d5 *	%	50 %J1	24 %J1	92 %
Surrogate - 2-Fluorobiphenyl *	%	52 %J1	38 %J1	96 %
Surrogate - Terphenyl-d14 *	%	52 %	86 %	102 %
Dilution Factor		1	1	1
Prep Date		04/09/04	04/27/04	04/09/04
Prep Time		09:00	07:40	09:00
Analysis Date		04/22/04	04/30/04	04/22/04
Analysis Time		20:17	15:40	20:46
Batch ID		0409A	0427C	0409A
Quantitation Factor		1.000	1.000	1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
Low Level PAH (8270)				
Naphthalene	ug/l	0.11I		0.028U
Acenaphthylene	ug/l	0.024U		0.024U
Acenaphthene	ug/l	0.025U		0.025U
Fluorene	ug/l	0.026U		0.026U
Phenanthrene	ug/l	0.052I		0.025U
Anthracene	ug/l	0.031U		0.031U
Fluoranthene	ug/l	0.061U		0.061U
Pyrene	ug/l	0.042U		0.042U
Chrysene	ug/l	0.088U		0.088U
Benzo(a)anthracene	ug/l	0.070U		0.070U
Benzo(b)fluoranthene	ug/l	0.074U		0.074U
Benzo(k)fluoranthene	ug/l	0.058U		0.058U
Benzo(a)pyrene	ug/l	0.060U		0.060U
Indeno(1,2,3-cd)pyrene	ug/l	0.080U		0.080U
Dibenzo(a,h)anthracene	ug/l	0.065U		0.065U
Benzo(g,h,i)perylene	ug/l	0.096U		0.096U
2-Methylnaphthalene	ug/l	0.022U		0.022U
1-Methylnaphthalene	ug/l	0.028U		0.028U
Surrogate - o-Terphenyl *	%	95 %		105 %
Dilution Factor		1		1
Prep Date		04/13/04		04/13/04
Prep Time		15:30		15:30
Analysis Date		04/14/04		04/14/04
Analysis Time		13:15		13:43
Batch ID		0413C		0413C
Quantitation Factor		1.000		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
Volatiles by GC/MS (8260)				
Chloromethane	ug/l	0.39U		0.39U
Bromomethane (Methyl bromide)	ug/l	0.62U		0.62U
Vinyl chloride	ug/l	0.56U		0.56U
Chloroethane	ug/l	0.78U		0.78U
Methylene chloride (Dichloromethane)	ug/l	0.64U		0.64U
Acetone	ug/l	5.0U		5.0U
Carbon disulfide	ug/l	0.66U		0.66U
1,1-Dichloroethene	ug/l	0.36U		0.36U
1,1-Dichloroethane	ug/l	0.36U		0.36U
1,2-Dichloroethene	ug/l	0.38U		0.38U
trans-1,2-Dichloroethene	ug/l	0.40U		0.40U
Chloroform	ug/l	0.37U		0.37U
1,2-Dichloroethane	ug/l	0.26U		0.26U
2-Butanone (MEK)	ug/l	1.3U		1.3U
1,1,1-Trichloroethane	ug/l	0.32U		0.32U
Carbon tetrachloride	ug/l	0.31U		0.31U
Bromodichloromethane	ug/l	0.14U		0.14U
1,1,2,2-Tetrachloroethane	ug/l	0.18U		0.18U
1,2-Dichloropropane	ug/l	0.33U		0.33U
trans-1,3-Dichloropropene	ug/l	0.26U		0.26U
Trichloroethene	ug/l	0.37U		0.37U
Dibromochloromethane	ug/l	0.50U		0.50U
1,1,2-Trichloroethane	ug/l	0.22U		0.22U
Benzene	ug/l	0.36U		0.36U
cis-1,3-Dichloropropene	ug/l	0.23U		0.23U
Bromoform	ug/l	0.33U		0.33U
2-Hexanone	ug/l	0.93U		0.93U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-7	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-7-RE	041FE00001	Liquid	04/07/04	04/06/04 10:30	PEN16
42931-8	041EM00001	Liquid	04/07/04	04/06/04 12:00	PEN16

Parameter	Units	Lab Sample IDs 42931-7	42931-7-RE	42931-8
Volatiles by GC/MS (8260)				
4-Methyl-2-pentanone (MIBK)	ug/l	0.65U		0.65U
Tetrachloroethene	ug/l	0.35U		0.35U
Toluene	ug/l	0.54U		0.54U
Chlorobenzene	ug/l	0.34U		0.34U
Ethylbenzene	ug/l	0.34U		0.34U
Styrene	ug/l	0.25U		0.25U
Xylenes, Total	ug/l	1.3U		1.3U
Surrogate - Toluene-d8 *	%	104 %		102 %
Surrogate - 4-Bromofluorobenzene *	%	104 %		104 %
Surrogate - Dibromofluoromethane *	%	108 %		106 %
Dilution Factor		1		1
Prep Date		04/16/04		04/19/04
Prep Time		23:46		16:09
Analysis Date		04/16/04		04/19/04
Analysis Time		23:46		16:09
Batch ID		1B0416		1B0419
Quantitation Factor		1.000		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-9	041TB00001	Liquid	04/07/04	04/06/04	PEN16

Parameter	Units	Lab Sample IDs 42931-9
Volatiles by GC/MS (8260)		
Chloromethane	ug/l	0.39U
Bromomethane (Methyl bromide)	ug/l	0.62U
Vinyl chloride	ug/l	0.56U
Chloroethane	ug/l	0.78U
Methylene chloride (Dichloromethane)	ug/l	0.64U
Acetone	ug/l	5.0U
Carbon disulfide	ug/l	0.66U
1,1-Dichloroethene	ug/l	0.36U
1,1-Dichloroethane	ug/l	0.36U
cis-1,2-Dichloroethene	ug/l	0.38U
trans-1,2-Dichloroethene	ug/l	0.40U
oform	ug/l	0.37U
1,2-Dichloroethane	ug/l	0.26U
2-Butanone (MEK)	ug/l	1.3U
1,1,1-Trichloroethane	ug/l	0.32U
Carbon tetrachloride	ug/l	0.31U
Bromodichloromethane	ug/l	0.14U
1,1,2,2-Tetrachloroethane	ug/l	0.18U
1,2-Dichloropropane	ug/l	0.33U
trans-1,3-Dichloropropene	ug/l	0.26U
Trichloroethene	ug/l	0.37U
Dibromochloromethane	ug/l	0.50U
1,1,2-Trichloroethane	ug/l	0.22U
Benzene	ug/l	0.36U
cis-1,3-Dichloropropene	ug/l	0.23U
Bromoform	ug/l	0.33U
2-Hexanone	ug/l	0.93U
4-Methyl-2-pentanone (MIBK)	ug/l	0.65U
Tetrachloroethene	ug/l	0.35U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-9	041TB00001	Liquid	04/07/04	04/06/04	PEN16

Parameter	Units	Lab Sample IDs 42931-9
Volatiles by GC/MS (8260)		
Toluene	ug/l	0.54U
Chlorobenzene	ug/l	0.34U
Ethylbenzene	ug/l	0.34U
Styrene	ug/l	0.25U
Xylenes, Total	ug/l	1.3U
Surrogate - Toluene-d8 *	%	104 %
Surrogate - 4-Bromofluorobenzene *	%	104 %
Surrogate - Dibromofluoromethane *	%	104 %
Dilution Factor		1
Prep Date		04/17/04
Prep Time		00:10
Analysis Date		04/17/04
Analysis Time		00:10
Batch ID		180416
Quantitation Factor		1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-10	Method Detection Limit (MDL)	Solid	04/07/04		PEN16
42931-11	Reporting Limit (RL)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-10	42931-11
TCL Pesticides (8081)			
alpha-BHC	ug/kg dw	0.24	1.7
beta-BHC	ug/kg dw	0.29	1.7
delta-BHC	ug/kg dw	0.12	1.7
gamma-BHC (Lindane)	ug/kg dw	0.15	1.7
Heptachlor	ug/kg dw	0.28	1.7
Aldrin	ug/kg dw	0.11	1.7
Heptachlor epoxide	ug/kg dw	0.17	1.7
Endosulfan I	ug/kg dw	0.17	1.7
Dieldrin	ug/kg dw	0.31	3.3
4,4'-DDE	ug/kg dw	0.54	3.3
Endrin	ug/kg dw	0.43	3.3
in aldehyde	ug/kg dw	0.31	3.3
Endosulfan II	ug/kg dw	0.22	3.3
4,4'-DDD	ug/kg dw	0.35	3.3
Endosulfan sulfate	ug/kg dw	0.44	3.3
4,4'-DDT	ug/kg dw	0.31	3.3
Endrin ketone	ug/kg dw	0.38	3.3
Methoxychlor	ug/kg dw	0.20	17
alpha-Chlordane	ug/kg dw	0.11	1.7
gamma-Chlordane	ug/kg dw	0.13	1.7
Toxaphene	ug/kg dw	33	170
PCB's (8082)			
Aroclor-1016	ug/kg dw	3.9	33
Aroclor-1221	ug/kg dw	17	67
Aroclor-1232	ug/kg dw	6.7	33
Aroclor-1242	ug/kg dw	6.7	33
Aroclor-1248	ug/kg dw	6.5	33

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-10	Method Detection Limit (MDL)	Solid	04/07/04		PEN16
42931-11	Reporting Limit (RL)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-10	42931-11
PCB's (8082)			
Aroclor-1254	ug/kg dw	6.7	33
Aroclor-1260	ug/kg dw	4.4	33
TCL Semivolatiles (8270)			
Phenol	ug/kg dw	41	330
bis(2-Chloroethyl)ether	ug/kg dw	37	330
2-Chlorophenol	ug/kg dw	41	330
1,3-Dichlorobenzene	ug/kg dw	23	330
1,4-Dichlorobenzene	ug/kg dw	24	330
1,2-Dichlorobenzene	ug/kg dw	23	330
2-Methylphenol (o-Cresol)	ug/kg dw	46	330
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw	32	330
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw	40	330
N-Nitroso-di-n-propylamine	ug/kg dw	30	330
Hexachloroethane	ug/kg dw	19	330
Nitrobenzene	ug/kg dw	31	330
Isophorone	ug/kg dw	26	330
2-Nitrophenol	ug/kg dw	26	330
2,4-Dimethylphenol	ug/kg dw	28	330
bis(2-Chloroethoxy)methane	ug/kg dw	32	330
2,4-Dichlorophenol	ug/kg dw	29	330
1,2,4-Trichlorobenzene	ug/kg dw	38	330
4-Chloroaniline	ug/kg dw	29	660
Hexachlorobutadiene	ug/kg dw	27	330
4-Chloro-3-methylphenol	ug/kg dw	40	330
Hexachlorocyclopentadiene	ug/kg dw	270	330

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-10	Method Detection Limit (MDL)	Solid	04/07/04		PEN16
42931-11	Reporting Limit (RL)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-10	42931-11
TCL Semivolatiles (8270)			
2,4,6-Trichlorophenol	ug/kg dw	32	330
2,4,5-Trichlorophenol	ug/kg dw	31	330
2-Chloronaphthalene	ug/kg dw	37	330
2-Nitroaniline	ug/kg dw	25	1700
Dimethylphthalate	ug/kg dw	35	330
3-Nitroaniline	ug/kg dw	30	1700
2,4-Dinitrophenol	ug/kg dw	340	1700
4-Nitrophenol	ug/kg dw	25	1700
Dibenzofuran	ug/kg dw	34	330
2,4-Dinitrotoluene	ug/kg dw	22	330
2,6-Dinitrotoluene	ug/kg dw	29	330
ıylphthalate	ug/kg dw	35	330
4-Chlorophenylphenyl ether	ug/kg dw	26	330
4-Nitroaniline	ug/kg dw	26	1700
4,6-Dinitro-2-methylphenol	ug/kg dw	31	1700
N-Nitrosodiphenylamine	ug/kg dw	30	330
4-Bromophenylphenyl ether	ug/kg dw	30	330
Hexachlorobenzene	ug/kg dw	38	330
Pentachlorophenol	ug/kg dw	34	1700
Di-n-butylphthalate	ug/kg dw	39	330
Butylbenzylphthalate	ug/kg dw	32	330
3,3'-Dichlorobenzidine	ug/kg dw	26	660
bis(2-Ethylhexyl)phthalate	ug/kg dw	44	330
Di-n-octylphthalate	ug/kg dw	32	330
Carbazole	ug/kg dw	30	330

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-10	Method Detection Limit (MDL)	Solid	04/07/04		PEN16
42931-11	Reporting Limit (RL)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-10	42931-11
Low Level PAH (8270)			
Naphthalene	ug/kg dw	0.71	6.7
Acenaphthylene	ug/kg dw	0.86	6.7
Acenaphthene	ug/kg dw	0.90	6.7
Fluorene	ug/kg dw	0.78	6.7
Phenanthrene	ug/kg dw	0.80	6.7
Anthracene	ug/kg dw	0.96	6.7
Fluoranthene	ug/kg dw	0.86	6.7
Pyrene	ug/kg dw	1.2	6.7
Chrysene	ug/kg dw	1.0	6.7
Benzo(a)anthracene	ug/kg dw	0.76	6.7
Benzo(b)fluoranthene	ug/kg dw	0.96	6.7
Benzo(k)fluoranthene	ug/kg dw	0.98	6.7
Benzo(a)pyrene	ug/kg dw	0.90	6.7
Indeno(1,2,3-cd)pyrene	ug/kg dw	0.65	6.7
Dibenzo(a,h)anthracene	ug/kg dw	0.88	6.7
Benzo(g,h,i)perylene	ug/kg dw	0.61	6.7
2-Methylnaphthalene	ug/kg dw	0.53	6.7
1-Methylnaphthalene	ug/kg dw	0.35	6.7
Volatiles by GC/MS (8260)			
Chloromethane	ug/kg dw	1.4	5.0
Bromomethane (Methyl bromide)	ug/kg dw	3.4	5.0
Vinyl chloride	ug/kg dw	1.4	5.0
Chloroethane	ug/kg dw	1.7	5.0
Methylene chloride (Dichloromethane)	ug/kg dw	2.4	5.0
Acetone	ug/kg dw	8.0	50
Carbon disulfide	ug/kg dw	2.0	5.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-10	Method Detection Limit (MDL)	Solid	04/07/04		PEN16
42931-11	Reporting Limit (RL)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-10	42931-11
Volatiles by GC/MS (8260)			
1,1-Dichloroethene	ug/kg dw	1.7	5.0
1,1-Dichloroethane	ug/kg dw	1.0	5.0
cis-1,2-Dichloroethene	ug/kg dw	1.1	5.0
trans-1,2-Dichloroethene	ug/kg dw	1.2	5.0
Chloroform	ug/kg dw	1.2	5.0
1,2-Dichloroethane	ug/kg dw	1.5	5.0
2-Butanone (MEK)	ug/kg dw	4.7	25
1,1,1-Trichloroethane	ug/kg dw	0.81	5.0
Carbon tetrachloride	ug/kg dw	0.94	5.0
Bromodichloromethane	ug/kg dw	1.3	5.0
1,1,2,2-Tetrachloroethane	ug/kg dw	2.0	5.0
Dichloropropane	ug/kg dw	1.2	5.0
trans-1,3-Dichloropropene	ug/kg dw	1.6	5.0
Trichloroethene	ug/kg dw	1.1	5.0
Dibromochloromethane	ug/kg dw	1.4	5.0
1,1,2-Trichloroethane	ug/kg dw	1.8	5.0
Benzene	ug/kg dw	1.1	5.0
cis-1,3-Dichloropropene	ug/kg dw	1.2	5.0
Bromoform	ug/kg dw	1.7	5.0
2-Hexanone	ug/kg dw	5.1	25
4-Methyl-2-pentanone (MIBK)	ug/kg dw	5.0	25
Tetrachloroethene	ug/kg dw	1.5	5.0
Toluene	ug/kg dw	1.8	5.0
Chlorobenzene	ug/kg dw	1.3	5.0
Ethylbenzene	ug/kg dw	1.0	5.0
Styrene	ug/kg dw	1.1	5.0
Xylenes, Total	ug/kg dw	3.0	10

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-10	Method Detection Limit (MDL)	Solid	04/07/04		PEN16
42931-11	Reporting Limit (RL)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-10	42931-11
Total Organic Carbon (9060)			
Total Organic Carbon	mg/kg dw	390	1000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-28	Method Detection Limit (MDL)	Solid	04/07/04		PEN16
42931-13	Reporting Limit (RL)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-28	42931-13
TAL Metals (6010)			
Aluminum	mg/kg dw	0.93	20
Antimony	mg/kg dw	0.39	2.0
Arsenic	mg/kg dw	0.33	1.0
Barium	mg/kg dw	0.020	1.0
Beryllium	mg/kg dw	0.020	0.40
Cadmium	mg/kg dw	0.060	0.50
Calcium	mg/kg dw	0.74	50
Chromium	mg/kg dw	0.14	1.0
Cobalt	mg/kg dw	0.12	1.0
Copper	mg/kg dw	0.060	2.0
Iron	mg/kg dw	1.8	5.0
	mg/kg dw	0.19	0.50
Magnesium	mg/kg dw	0.85	50
Manganese	mg/kg dw	0.040	1.0
Nickel	mg/kg dw	0.15	4.0
Potassium	mg/kg dw	0.89	100
Selenium	mg/kg dw	0.53	1.0
Silver	mg/kg dw	0.11	1.0
Sodium	mg/kg dw	0.11	50
Thallium	mg/kg dw	0.76	1.0
Vanadium	mg/kg dw	0.070	1.0
Zinc	mg/kg dw	0.060	2.0
Mercury (7471)			
Mercury	mg/kg dw	0.0043	0.020

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
TAL Metals (6010)			
Aluminum	mg/kg dw	2.0I	
Antimony	mg/kg dw	0.90I	
Arsenic	mg/kg dw	0.33U	
Barium	mg/kg dw	0.046I	
Beryllium	mg/kg dw	0.023I	
Cadmium	mg/kg dw	0.083I	
Calcium	mg/kg dw	0.74U	
Chromium	mg/kg dw	0.14U	
Cobalt	mg/kg dw	0.12U	
Copper	mg/kg dw	0.060U	
Iron	mg/kg dw	2.8I	
Lead	mg/kg dw	0.34I	
Magnesium	mg/kg dw	0.88I	
Manganese	mg/kg dw	0.040U	
Nickel	mg/kg dw	0.15U	
Potassium	mg/kg dw	2.5I	
Selenium	mg/kg dw	0.53U	
Silver	mg/kg dw	0.11U	
Sodium	mg/kg dw	0.77I	
Thallium	mg/kg dw	0.76U	
Vanadium	mg/kg dw	0.097I	
Zinc	mg/kg dw	0.51I	
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		07:00	
Analysis Date		04/15/04	
Analysis Time		13:25	
Batch ID		0412C	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
Mercury (7471)			
Mercury	mg/kg dw	0.020U	
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		12:00	
Analysis Date		04/13/04	
Analysis Time		16:02	
Batch ID		0412S	
Quantitation Factor		1.000	
TCL Pesticides (8081)			
alpha-BHC	ug/kg dw	0.24U	
beta-BHC	ug/kg dw	0.29U	
delta-BHC	ug/kg dw	0.12U	
gamma-BHC (Lindane)	ug/kg dw	0.15U	
Heptachlor	ug/kg dw	0.28U	
Aldrin	ug/kg dw	1.4I	
Heptachlor epoxide	ug/kg dw	0.17U	
Endosulfan I	ug/kg dw	0.17U	
Dieldrin	ug/kg dw	0.31U	
4,4'-DDE	ug/kg dw	0.54U	
Endrin	ug/kg dw	0.43U	
Endrin aldehyde	ug/kg dw	0.31U	
Endosulfan II	ug/kg dw	0.22U	
4,4'-DDD	ug/kg dw	0.35U	
Endosulfan sulfate	ug/kg dw	0.44U	
4,4'-DDT	ug/kg dw	0.31U	
Endrin ketone	ug/kg dw	0.38U	
Methoxychlor	ug/kg dw	0.20U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
TCL Pesticides (8081)			
alpha-Chlordane	ug/kg dw	0.11U	
gamma-Chlordane	ug/kg dw	0.13U	
Toxaphene	ug/kg dw	33U	
Surrogate - DCB *	%	94 %	
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	88 %	
Dilution Factor		1	
Prep Date		04/15/04	
Prep Time		13:00	
Analysis Date		04/29/04	
Analysis Time		12:45	
Batch ID		0415N	
Quantitation Factor		1.000	
PCB's (8082)			
Aroclor-1016	ug/kg dw	3.9U	
Aroclor-1221	ug/kg dw	17U	
Aroclor-1232	ug/kg dw	6.7U	
Aroclor-1242	ug/kg dw	6.7U	
Aroclor-1248	ug/kg dw	6.5U	
Aroclor-1254	ug/kg dw	6.7U	
Aroclor-1260	ug/kg dw	4.4U	
Surrogate - TCX *	%	88 %	
Surrogate - DCB *	%	94 %	
Dilution Factor		1	
Prep Date		04/15/04	
Analysis Date		04/29/04	
Analysis Time		12:45	
Batch ID		0415N	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
TCL Semivolatiles (8270)			
Phenol	ug/kg dw	41U	
bis(2-Chloroethyl)ether	ug/kg dw	37U	
2-Chlorophenol	ug/kg dw	41U	
1,3-Dichlorobenzene	ug/kg dw	23U	
1,4-Dichlorobenzene	ug/kg dw	24U	
1,2-Dichlorobenzene	ug/kg dw	23U	
2-Methylphenol (o-Cresol)	ug/kg dw	46U	
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/kg dw	32U	
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/kg dw	40U	
:roso-di-n-propylamine	ug/kg dw	30U	
Hexachloroethane	ug/kg dw	19U	
Nitrobenzene	ug/kg dw	31U	
Isophorone	ug/kg dw	26U	
2-Nitrophenol	ug/kg dw	26U	
2,4-Dimethylphenol	ug/kg dw	28U	
bis(2-Chloroethoxy)methane	ug/kg dw	32U	
2,4-Dichlorophenol	ug/kg dw	29U	
1,2,4-Trichlorobenzene	ug/kg dw	38U	
4-Chloroaniline	ug/kg dw	29U	
Hexachlorobutadiene	ug/kg dw	27U	
4-Chloro-3-methylphenol	ug/kg dw	40U	
Hexachlorocyclopentadiene	ug/kg dw	270U	
2,4,6-Trichlorophenol	ug/kg dw	32U	
2,4,5-Trichlorophenol	ug/kg dw	31U	
2-Chloronaphthalene	ug/kg dw	37U	
2-Nitroaniline	ug/kg dw	25U	
Dimethylphthalate	ug/kg dw	35U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
TCL Semivolatiles (8270)			
3-Nitroaniline	ug/kg dw	30U	
2,4-Dinitrophenol	ug/kg dw	340U	
4-Nitrophenol	ug/kg dw	25U	
Dibenzofuran	ug/kg dw	34U	
2,4-Dinitrotoluene	ug/kg dw	22U	
2,6-Dinitrotoluene	ug/kg dw	29U	
Diethylphthalate	ug/kg dw	35U	
4-Chlorophenylphenyl ether	ug/kg dw	26U	
4-Nitroaniline	ug/kg dw	26U	
4,6-Dinitro-2-methylphenol	ug/kg dw	31U	
N-Nitrosodiphenylamine	ug/kg dw	30U	
4-Bromophenylphenyl ether	ug/kg dw	30U	
Hexachlorobenzene	ug/kg dw	38U	
Pentachlorophenol	ug/kg dw	34U	
Di-n-butylphthalate	ug/kg dw	39U	
Butylbenzylphthalate	ug/kg dw	32U	
3,3'-Dichlorobenzidine	ug/kg dw	26U	
bis(2-Ethylhexyl)phthalate	ug/kg dw	44U	
Di-n-octylphthalate	ug/kg dw	32U	
Carbazole	ug/kg dw	30U	
Surrogate - Phenol-d5 *	%	76 %	
Surrogate - 2-Fluorophenol *	%	76 %	
Surrogate - 2,4,6-Tribromophenol *	%	79 %	
Surrogate - Nitrobenzene - d5 *	%	70 %	
Surrogate - 2-Fluorobiphenyl *	%	76 %	
Surrogate - Terphenyl-d14 *	%	106 %	
Dilution Factor		1	
Prep Date		04/15/04	
Prep Time		12:55	
Analysis Date		04/19/04	
Analysis Time		10:12	
Batch ID		0415C	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
Low Level PAH (8270)			
Naphthalene	ug/kg dw	0.71U	
Acenaphthylene	ug/kg dw	0.86U	
Acenaphthene	ug/kg dw	0.90U	
Fluorene	ug/kg dw	0.78U	
Phenanthrene	ug/kg dw	0.80U	
Anthracene	ug/kg dw	0.96U	
Fluoranthene	ug/kg dw	0.86U	
Pyrene	ug/kg dw	1.2U	
Chrysene	ug/kg dw	1.0U	
Benzo(a)anthracene	ug/kg dw	0.76U	
Benzo(b)fluoranthene	ug/kg dw	0.96U	
f (k)fluoranthene	ug/kg dw	0.98U	
Benzo(a)pyrene	ug/kg dw	0.90U	
Indeno(1,2,3-cd)pyrene	ug/kg dw	0.65U	
Dibenzo(a,h)anthracene	ug/kg dw	0.88U	
Benzo(g,h,i)perylene	ug/kg dw	0.61U	
2-Methylnaphthalene	ug/kg dw	0.53U	
1-Methylnaphthalene	ug/kg dw	0.35U	
Surrogate - o-Terphenyl *	%	97 %	
Dilution Factor		1	
Prep Date		04/15/04	
Prep Time		15:00	
Analysis Date		04/16/04	
Analysis Time		11:10	
Batch ID		0415B	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
Volatiles by GC/MS (8260)			
Chloromethane	ug/kg dw	1.4U	1.4U
Bromomethane (Methyl bromide)	ug/kg dw	3.4U	3.4U
Vinyl chloride	ug/kg dw	1.4U	1.4U
Chloroethane	ug/kg dw	1.7U	1.7U
Methylene chloride (Dichloromethane)	ug/kg dw	2.4U	2.4U
Acetone	ug/kg dw	8.0U	8.0U
Carbon disulfide	ug/kg dw	2.0U	2.0U
1,1-Dichloroethene	ug/kg dw	1.7U	1.7U
1,1-Dichloroethane	ug/kg dw	1.0U	1.0U
cis-1,2-Dichloroethene	ug/kg dw	1.1U	1.1U
trans-1,2-Dichloroethene	ug/kg dw	1.2U	1.2U
Chloroform	ug/kg dw	1.2U	1.2U
1,2-Dichloroethane	ug/kg dw	1.5U	1.5U
2-Butanone (MEK)	ug/kg dw	4.7U	4.7U
1,1,1-Trichloroethane	ug/kg dw	0.81U	0.81U
Carbon tetrachloride	ug/kg dw	0.94U	0.94U
Bromodichloromethane	ug/kg dw	1.3U	1.3U
1,1,2,2-Tetrachloroethane	ug/kg dw	2.0U	2.0U
1,2-Dichloropropane	ug/kg dw	1.2U	1.2U
trans-1,3-Dichloropropene	ug/kg dw	1.6U	1.6U
Trichloroethene	ug/kg dw	1.1U	1.1U
Dibromochloromethane	ug/kg dw	1.4U	1.4U
1,1,2-Trichloroethane	ug/kg dw	1.8U	1.8U
Benzene	ug/kg dw	1.1U	1.1U
cis-1,3-Dichloropropene	ug/kg dw	1.2U	1.2U
Bromoform	ug/kg dw	1.7U	1.7U
2-Hexanone	ug/kg dw	5.1U	5.1U
4-Methyl-2-pentanone (MIBK)	ug/kg dw	5.0U	5.0U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-14	Method Blank	Solid	04/07/04		PEN16
42931-30	Method Blank	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-14	42931-30
Volatiles by GC/MS (8260)			
Tetrachloroethene	ug/kg dw	1.5U	1.5U
Toluene	ug/kg dw	1.8U	1.8U
Chlorobenzene	ug/kg dw	1.3U	1.3U
Ethylbenzene	ug/kg dw	1.0U	1.0U
Styrene	ug/kg dw	1.1U	1.1U
Xylenes, Total	ug/kg dw	3.0U	3.0U
Surrogate - Toluene-d8 *	%	94 %	90 %
Surrogate - 4-Bromofluorobenzene *	%	96 %	104 %
Surrogate - Dibromofluoromethane *	%	106 %	110 %
Dilution Factor		1	1
Prep Date		04/09/04	04/12/04
Prep Time		13:11	12:35
Analysis Date		04/09/04	04/12/04
Analysis Time		13:11	12:35
Batch ID		1L0409	1L0412
Quantitation Factor		1.000	1.000
Total Organic Carbon (9060)			
Total Organic Carbon	mg/kg dw	390U	
Dilution Factor		1	
Prep Date		04/20/04	
Prep Time		15:59	
Analysis Date		04/20/04	
Analysis Time		15:59	
Batch ID		0420X	
Quantitation Factor		1.000	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-15	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-16	Spike Amount Added, LCS	Solid	04/07/04		PEN16
42931-17	Lab Control Standard % Recovery	Solid	04/07/04		PEN16
42931-31	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-32	Lab Control Standard % Recovery	Solid	04/07/04		PEN16

		Lab Sample IDs				
Parameter	**Units**	**42931-15**	**42931-16**	**42931-17**	**42931-31**	**42931-32**
TAL Metals (6010)						
Aluminum	mg/kg dw	222	214	104 %		
Antimony	mg/kg dw	51.5	50.0	103 %		
Arsenic	mg/kg dw	199	200	100 %		
Barium	mg/kg dw	217	200	109 %		
Beryllium	mg/kg dw	5.27	5.00	105 %		
Cadmium	mg/kg dw	5.05	5.00	101 %		
Calcium	mg/kg dw	507	500	101 %		
Chromium	mg/kg dw	21.6	20.0	108 %		
Cobalt	mg/kg dw	51.9	50.0	104 %		
Copper	mg/kg dw	26.4	25.0	106 %		
Iron	mg/kg dw	111	109	102 %		
Lead	mg/kg dw	51.8	50.0	104 %		
Magnesium	mg/kg dw	490	500	98 %		
Manganese	mg/kg dw	54.6	50.0	109 %		
Nickel	mg/kg dw	52.7	50.0	105 %		
Potassium	mg/kg dw	528	510	104 %		
Selenium	mg/kg dw	189	200	95 %		
Silver	mg/kg dw	4.99	5.00	100 %		
Sodium	mg/kg dw	502	555	90 %		
Thallium	mg/kg dw	207	200	104 %		
Vanadium	mg/kg dw	52.0	50.0	104 %		
Zinc	mg/kg dw	51.5	50.0	103 %		
Dilution Factor		1		1		
Prep Date		04/12/04		04/12/04		
Prep Time		07:00		07:00		
Analysis Date		04/15/04		04/15/04		
Analysis Time		13:31		13:31		
Batch ID		0412C	0412C	0412C		
Quantitation Factor		1.000				

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-15	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-16	Spike Amount Added, LCS	Solid	04/07/04		PEN16
42931-17	Lab Control Standard % Recovery	Solid	04/07/04		PEN16
42931-31	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-32	Lab Control Standard % Recovery	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-15	42931-16	42931-17	42931-31	42931-32
Mercury (7471)						
Mercury	mg/kg dw	0.123	0.125	98 %		
Dilution Factor		1		1		
Prep Date		04/12/04		04/12/04		
Prep Time		12:00		12:00		
Analysis Date		04/13/04		04/13/04		
Analysis Time		16:04		16:04		
Batch ID		0412S	0412S	0412S		
Quantitation Factor		1.000				
TCL Pesticides (8081)						
alpha-BHC	ug/kg dw	3.2	3.3	97 %		
beta-BHC	ug/kg dw	3.6	3.3	109 %		
delta-BHC	ug/kg dw	2.4	3.3	73 %		
gamma-BHC (Lindane)	ug/kg dw	2.2	3.3	67 %		
Heptachlor	ug/kg dw	2.4	3.3	73 %		
Aldrin	ug/kg dw	5.6	3.3	127 %*J3		
Heptachlor epoxide	ug/kg dw	2.9	3.3	88 %		
Endosulfan I	ug/kg dw	3.5	3.3	106 %		
Dieldrin	ug/kg dw	8.3	6.7	124 %		
4,4'-DDE	ug/kg dw	5.8	6.7	86 %		
Endrin	ug/kg dw	7.9	6.7	118 %		
Endrin aldehyde	ug/kg dw	4.3	6.7	64 %		
Endosulfan II	ug/kg dw	6.5	6.7	97 %		
4,4'-DDD	ug/kg dw	7.4	6.7	110 %		
Endosulfan sulfate	ug/kg dw	7.4	6.7	110 %		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-15	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-16	Spike Amount Added, LCS	Solid	04/07/04		PEN16
42931-17	Lab Control Standard % Recovery	Solid	04/07/04		PEN16
42931-31	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-32	Lab Control Standard % Recovery	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-15	42931-16	42931-17	42931-31	42931-32
TCL Pesticides (8081)						
4,4'-DDT	ug/kg dw	8.0	6.7	119 %		
Endrin ketone	ug/kg dw	8.4	6.7	125 %		
Methoxychlor	ug/kg dw	8.9	6.7	133 %		
alpha-Chlordane	ug/kg dw	3.3	3.3	100 %		
gamma-Chlordane	ug/kg dw	3.6	3.3	109 %		
Surrogate - DCB *	ug/kg dw	14		82 %		
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	ug/kg dw	13		76 %		
Dilution Factor		1		1		
Prep Date		04/15/04		04/15/04		
Prep Time		13:00		13:00		
Analysis Date		04/29/04		04/29/04		
Analysis Time		13:03		13:03		
Batch ID		0415N	0415N	0415N		
Quantitation Factor		1.000				
PCB's (8082)						
Aroclor-1016	ug/kg dw	310	330	94 %		
Aroclor-1260	ug/kg dw	340	330	103 %		
Surrogate - TCX *	ug/kg dw	14		82 %		
Surrogate - DCB *	ug/kg dw	15		88 %		
Dilution Factor		1		1		
Prep Date		04/15/04		04/15/04		
Analysis Date		04/29/04		04/29/04		
Analysis Time		13:21		13:21		
Batch ID		0415N	0415N	0415N		
Quantitation Factor		1.000				

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-15	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-16	Spike Amount Added, LCS	Solid	04/07/04		PEN16
42931-17	Lab Control Standard % Recovery	Solid	04/07/04		PEN16
42931-31	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-32	Lab Control Standard % Recovery	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-15	42931-16	42931-17	42931-31	42931-32
TCL Semivolatiles (8270)						
1,4-Dichlorobenzene	mg/l	0.35	0.50	70 %		
2,4-Dinitrotoluene	mg/l	0.50	0.50	100 %		
Pentachlorophenol	mg/l	0.46	0.50	92 %		
Surrogate - Phenol-d5 *	mg/l	0.42		84 %		
Surrogate - 2-Fluorophenol *	mg/l	0.39		78 %		
Surrogate - 2,4,6-Tribromophenol *	mg/l	0.51		102 %		
Surrogate - Nitrobenzene - d5	mg/l	0.19		76 %		
Surrogate - 2-Fluorobiphenyl *	mg/l	0.22		88 %		
Surrogate - Terphenyl-d14 *	mg/l	0.27		108 %		
Dilution Factor		1		1		
Prep Date		04/15/04		04/15/04		
Prep Time		12:55		12:55		
Analysis Date		04/19/04		04/19/04		
Analysis Time		11:08		11:08		
Batch ID		0415C	0415C	0415C		
Quantitation Factor		1.000				
Low Level PAH (8270)						
Naphthalene	ug/kg dw	42	67	63 %		
Acenaphthene	ug/kg dw	44	67	66 %		
Fluorene	ug/kg dw	46	67	69 %		
Pyrene	ug/kg dw	49	67	73 %		
Benzo(a)pyrene	ug/kg dw	50	67	75 %		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-15	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-16	Spike Amount Added, LCS	Solid	04/07/04		PEN16
42931-17	Lab Control Standard % Recovery	Solid	04/07/04		PEN16
42931-31	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-32	Lab Control Standard % Recovery	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-15	42931-16	42931-17	42931-31	42931-32
Low Level PAH (8270)						
Surrogate - o-Terphenyl *	ug/kg dw	54		80 %		
Dilution Factor		1		1		
Prep Date		04/15/04		04/15/04		
Prep Time		15:00		15:00		
Analysis Date		04/16/04		04/16/04		
Analysis Time		11:39		11:39		
Batch ID		0415B	0415B	0415B		
Quantitation Factor		1.000				
Volatiles by GC/MS (8260)						
1,1-Dichloroethene	ug/kg dw	46	50	92 %	60	120 %
Trichloroethene	ug/kg dw	51	50	102 %	52	104 %
Benzene	ug/kg dw	50	50	100 %	51	102 %
Toluene	ug/kg dw	52	50	104 %	52	104 %
Chlorobenzene	ug/kg dw	53	50	106 %	54	108 %
Surrogate - Toluene-d8 *	ug/kg dw	51	50	102 %	52	104 %
Surrogate - 4-Bromofluorobenzene *	ug/kg dw	51	50	102 %	53	106 %
Surrogate - Dibromofluoromethane *	ug/kg dw	55	50	110 %	57	114 %
Dilution Factor		1		1	1	1
Prep Date		04/09/04		04/09/04	04/12/04	04/12/04
Prep Time		11:52		11:52	10:48	10:48
Analysis Date		04/09/04		04/09/04	04/12/04	04/12/04
Analysis Time		11:52		11:52	10:48	10:48
Batch ID		1L0409	1L0409	1L0409	1L0412	1L0412
Quantitation Factor		1.000			1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-15	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-16	Spike Amount Added, LCS	Solid	04/07/04		PEN16
42931-17	Lab Control Standard % Recovery	Solid	04/07/04		PEN16
42931-31	Lab Control Standard Result	Solid	04/07/04		PEN16
42931-32	Lab Control Standard % Recovery	Solid	04/07/04		PEN16

		Lab Sample IDs				
Parameter	Units	42931-15	42931-16	42931-17	42931-31	42931-32
Total Organic Carbon (9060)						
Total Organic Carbon	mg/kg dw	400000	408000	98 %		
Dilution Factor		1		1		
Prep Date		04/20/04		04/20/04		
Prep Time		16:07		16:07		
Analysis Date		04/20/04		04/20/04		
Analysis Time		16:07		16:07		
Batch ID		0420X	0420X	0420X		
Quantitation Factor		1.000				

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-18	LCS Accuracy Control Limit (%R)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-18
TAL Metals (6010)		
Aluminum	%	75-125 %
Antimony	%	75-125 %
Arsenic	%	75-125 %
Barium	%	75-125 %
Beryllium	%	75-125 %
Cadmium	%	75-125 %
Calcium	%	75-125 %
Chromium	%	75-125 %
Cobalt	%	75-125 %
Copper	%	75-125 %
Iron	%	75-125 %
Lead	%	75-125 %
Magnesium	%	75-125 %
Manganese	%	75-125 %
Nickel	%	75-125 %
Potassium	%	75-125 %
Selenium	%	75-125 %
Silver	%	75-125 %
Sodium	%	75-125 %
Thallium	%	75-125 %
Vanadium	%	75-125 %
Zinc	%	75-125 %
Mercury (7471)		
Mercury	%	80-120 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-18	LCS Accuracy Control Limit (%R)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-18
TCL Pesticides (8081)		
alpha-BHC	%	22-125 %
beta-BHC	%	36-144 %
delta-BHC	%	32-140 %
gamma-BHC (Lindane)	%	35-132 %
Heptachlor	%	31-142 %
Aldrin	%	34-124 %
Heptachlor epoxide	%	29-133 %
Endosulfan I	%	31-133 %
Dieldrin	%	40-133 %
4,4'-DDE	%	33-139 %
Endrin	%	42-137 %
Endrin aldehyde	%	37-152 %
Endosulfan II	%	34-150 %
4,4'-DDD	%	37-149 %
Endosulfan sulfate	%	45-163 %
4,4'-DDT	%	46-156 %
Endrin ketone	%	44-165 %
Methoxychlor	%	37-185 %
alpha-Chlordane	%	40-139 %
gamma-Chlordane	%	39-143 %
Surrogate - DCB *	%	30-150 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	30-150 %

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-18	LCS Accuracy Control Limit (%R)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-18
PCB's (8082)		
Aroclor-1016	%	24-132 %
Aroclor-1260	%	28-153 %
Surrogate - TCX *	%	30-150 %
Surrogate - DCB *	%	30-150 %
TCL Semivolatiles (8270)		
1,4-Dichlorobenzene	%	25-93 %
2,4-Dinitrotoluene	%	18-125 %
Pentachlorophenol	%	17-140 %
Surrogate - Phenol-d5 *	%	46-112 %
Surrogate - 2-Fluorophenol *	%	43-114 %
Surrogate - 2,4,6-Tribromophenol *	%	47-133 %
Surrogate - Nitrobenzene - d5 *	%	51-115 %
Surrogate - 2-Fluorobiphenyl *	%	55-116 %
Surrogate - Terphenyl-d14 *	%	11-120 %
Low Level PAH (8270)		
Naphthalene	%	29-106 %
Acenaphthene	%	28-110 %
Fluorene	%	27-116 %
Pyrene	%	28-130 %
Benzo(a)pyrene	%	28-128 %
Surrogate - o-Terphenyl *	%	14-129 %

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-18	LCS Accuracy Control Limit (%R)	Solid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-18
Volatiles by GC/MS (8260)		
1,1-Dichloroethene	%	46-142 %
Trichloroethene	%	64-126 %
Benzene	%	65-130 %
Toluene	%	63-133 %
Chlorobenzene	%	69-128 %
Surrogate - Toluene-d8 *	%	65-128 %
Surrogate - 4-Bromofluorobenzene *	%	68-121 %
Surrogate - Dibromofluoromethane *	%	66-127 %
Total Organic Carbon (9060)		
Total Organic Carbon	%	60-140 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-19	Method Detection Limit (MDL)	Liquid	04/07/04		PEN16
42931-20	Reporting Limit (RL)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-19	42931-20
TCL Pesticides (8081)			
alpha-BHC	ug/l	0.0035	0.050
beta-BHC	ug/l	0.0035	0.050
delta-BHC	ug/l	0.0090	0.050
gamma-BHC (Lindane)	ug/l	0.0030	0.050
Heptachlor	ug/l	0.014	0.050
Aldrin	ug/l	0.0086	0.050
Heptachlor epoxide	ug/l	0.0026	0.050
Endosulfan I	ug/l	0.0099	0.050
Dieldrin	ug/l	0.0060	0.10
4,4'-DDE	ug/l	0.010	0.10
Endrin	ug/l	0.0097	0.10
Endrin aldehyde	ug/l	0.014	0.10
Endosulfan II	ug/l	0.0084	0.10
4,4'-DDD	ug/l	0.016	0.10
Endosulfan sulfate	ug/l	0.0085	0.10
4,4'-DDT	ug/l	0.014	0.10
Endrin ketone	ug/l	0.0072	0.10
Methoxychlor	ug/l	0.0070	0.50
alpha-Chlordane	ug/l	0.0084	0.050
gamma-Chlordane	ug/l	0.0070	0.050
Toxaphene	ug/l	0.77	5.0
PCB's (8082)			
Aroclor-1016	ug/l	0.11	1.0
Aroclor-1221	ug/l	0.50	2.0
Aroclor-1232	ug/l	0.18	1.0
Aroclor-1242	ug/l	0.14	1.0
Aroclor-1248	ug/l	0.11	1.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-19	Method Detection Limit (MDL)	Liquid	04/07/04		PEN16
42931-20	Reporting Limit (RL)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-19	42931-20
PCB's (8082)			
Aroclor-1254	ug/l	0.20	1.0
Aroclor-1260	ug/l	0.11	1.0
TCL Semivolatiles (8270)			
Phenol	ug/l	1.0	10
bis(2-Chloroethyl)ether	ug/l	1.0	10
2-Chlorophenol	ug/l	0.79	10
1,3-Dichlorobenzene	ug/l	1.0	10
1,4-Dichlorobenzene	ug/l	1.0	10
1,2-Dichlorobenzene	ug/l	1.0	10
hylphenol (o-Cresol)	ug/l	0.59	10
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/l	0.58	10
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/l	1.0	10
N-Nitroso-di-n-propylamine	ug/l	1.0	10
Hexachloroethane	ug/l	0.70	10
Nitrobenzene	ug/l	1.0	10
Isophorone	ug/l	1.0	10
2-Nitrophenol	ug/l	1.1	10
2,4-Dimethylphenol	ug/l	1.1	10
bis(2-Chloroethoxy)methane	ug/l	1.0	10
2,4-Dichlorophenol	ug/l	0.76	10
1,2,4-Trichlorobenzene	ug/l	0.51	10
4-Chloroaniline	ug/l	1.0	20
Hexachlorobutadiene	ug/l	0.50	10
4-Chloro-3-methylphenol	ug/l	1.0	10
Hexachlorocyclopentadiene	ug/l	1.1	10

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-19	Method Detection Limit (MDL)	Liquid	04/07/04		PEN16
42931-20	Reporting Limit (RL)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-19	42931-20
TCL Semivolatiles (8270)			
2,4,6-Trichlorophenol	ug/l	1.1	10
2,4,5-Trichlorophenol	ug/l	1.1	10
2-Chloronaphthalene	ug/l	1.0	10
2-Nitroaniline	ug/l	0.72	50
Dimethylphthalate	ug/l	0.57	10
3-Nitroaniline	ug/l	0.64	50
2,4-Dinitrophenol	ug/l	10	50
4-Nitrophenol	ug/l	5.0	50
Dibenzofuran	ug/l	1.0	10
2,4-Dinitrotoluene	ug/l	1.1	10
2,6-Dinitrotoluene	ug/l	0.87	10
Diethylphthalate	ug/l	1.0	10
4-Chlorophenylphenyl ether	ug/l	0.70	10
4-Nitroaniline	ug/l	0.86	50
4,6-Dinitro-2-methylphenol	ug/l	10	50
N-Nitrosodiphenylamine	ug/l	1.0	10
4-Bromophenylphenyl ether	ug/l	1.0	10
Hexachlorobenzene	ug/l	0.61	10
Pentachlorophenol	ug/l	2.0	50
Di-n-butylphthalate	ug/l	1.0	10
Butylbenzylphthalate	ug/l	0.74	10
3,3'-Dichlorobenzidine	ug/l	1.0	20
bis(2-Ethylhexyl)phthalate	ug/l	2.4	10
Di-n-octylphthalate	ug/l	1.2	10
Carbazole	ug/l	0.54	10

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-19	Method Detection Limit (MDL)	Liquid	04/07/04		PEN16
42931-20	Reporting Limit (RL)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-19	42931-20
Low Level PAH (8270)			
Naphthalene	ug/l	0.028	0.20
Acenaphthylene	ug/l	0.024	0.20
Acenaphthene	ug/l	0.025	0.20
Fluorene	ug/l	0.026	0.20
Phenanthrene	ug/l	0.025	0.20
Anthracene	ug/l	0.031	0.20
Fluoranthene	ug/l	0.061	0.20
Pyrene	ug/l	0.042	0.20
Chrysene	ug/l	0.088	0.20
Benzo(a)anthracene	ug/l	0.070	0.20
Benzo(b)fluoranthene	ug/l	0.074	0.20
[illegible](k)fluoranthene	ug/l	0.058	0.20
Benzo(a)pyrene	ug/l	0.060	0.20
Indeno(1,2,3-cd)pyrene	ug/l	0.080	0.20
Dibenzo(a,h)anthracene	ug/l	0.065	0.20
Benzo(g,h,i)perylene	ug/l	0.096	0.20
2-Methylnaphthalene	ug/l	0.022	0.20
1-Methylnaphthalene	ug/l	0.028	0.20
Volatiles by GC/MS (8260)			
Chloromethane	ug/l	0.39	1.0
Bromomethane (Methyl bromide)	ug/l	0.62	1.0
Vinyl chloride	ug/l	0.56	1.0
Chloroethane	ug/l	0.78	1.0
Methylene chloride (Dichloromethane)	ug/l	0.64	5.0
Acetone	ug/l	5.0	25
Carbon disulfide	ug/l	0.66	1.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-19	Method Detection Limit (MDL)	Liquid	04/07/04		PEN16
42931-20	Reporting Limit (RL)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-19	42931-20
Volatiles by GC/MS (8260)			
1,1-Dichloroethene	ug/l	0.36	1.0
1,1-Dichloroethane	ug/l	0.36	1.0
cis-1,2-Dichloroethene	ug/l	0.38	1.0
trans-1,2-Dichloroethene	ug/l	0.40	1.0
Chloroform	ug/l	0.37	1.0
1,2-Dichloroethane	ug/l	0.26	1.0
2-Butanone (MEK)	ug/l	1.3	10
1,1,1-Trichloroethane	ug/l	0.32	1.0
Carbon tetrachloride	ug/l	0.31	1.0
Bromodichloromethane	ug/l	0.14	1.0
1,1,2,2-Tetrachloroethane	ug/l	0.18	1.0
1,2-Dichloropropane	ug/l	0.33	1.0
trans-1,3-Dichloropropene	ug/l	0.26	1.0
Trichloroethene	ug/l	0.37	1.0
Dibromochloromethane	ug/l	0.50	1.0
1,1,2-Trichloroethane	ug/l	0.22	1.0
Benzene	ug/l	0.36	1.0
cis-1,3-Dichloropropene	ug/l	0.23	1.0
Bromoform	ug/l	0.33	1.0
2-Hexanone	ug/l	0.93	10
4-Methyl-2-pentanone (MIBK)	ug/l	0.65	10
Tetrachloroethene	ug/l	0.35	1.0
Toluene	ug/l	0.54	1.0
Chlorobenzene	ug/l	0.34	1.0
Ethylbenzene	ug/l	0.34	1.0
Styrene	ug/l	0.25	1.0
Xylenes, Total	ug/l	1.3	2.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-29	Method Detection Limit (MDL)	Liquid	04/07/04		PEN16
42931-22	Reporting Limit (RL)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-29	42931-22
TAL Metals (6010)			
Aluminum	ug/l	7.2	200
Antimony	ug/l	5.0	20
Arsenic	ug/l	4.6	10
Barium	ug/l	0.20	10
Beryllium	ug/l	0.10	4.0
Cadmium	ug/l	0.60	5.0
Calcium	ug/l	3.8	500
Chromium	ug/l	0.90	10
Cobalt	ug/l	1.0	10
Copper	ug/l	0.60	20
Iron	ug/l	32	50
l	ug/l	2.8	5.0
Magnesium	ug/l	6.6	500
Manganese	ug/l	0.20	10
Nickel	ug/l	2.0	40
Potassium	ug/l	17	1000
Selenium	ug/l	3.6	10
Silver	ug/l	0.90	10
Sodium	ug/l	230	500
Thallium	ug/l	8.4	10
Vanadium	ug/l	1.4	10
Zinc	ug/l	0.90	20
Mercury (7470)			
Mercury	ug/l	0.078	0.20

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-29	Method Detection Limit (MDL)	Liquid	04/07/04		PEN16
42931-22	Reporting Limit (RL)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-29	42931-22
TAL Metals (Dissolved) (6010)			
Aluminum (Dissolved)	ug/l	7.2	200
Antimony (Dissolved)	ug/l	5.0	20
Arsenic, (Dissolved)	ug/l	4.6	10
Barium, (Dissolved)	ug/l	0.20	10
Beryllium (Dissolved)	ug/l	0.10	4.0
Cadmium (Dissolved)	ug/l	0.60	5.0
Calcium (Dissolved)	ug/l	3.8	500
Chromium, (Dissolved)	ug/l	0.90	10
Cobalt (Dissolved)	ug/l	1.0	10
Copper, Dissolved	ug/l	0.60	20
Iron (Dissolved)	ug/l	32	50
Lead, (Dissolved)	ug/l	2.8	5.0
Magnesium (Dissolved)	ug/l	6.6	500
Manganese (Dissolved)	ug/l	0.20	10
Nickel, (Dissolved)	ug/l	2.0	40
Potassium (Dissolved)	ug/l	17	1000
Selenium (Dissolved)	ug/l	3.6	10
Silver (Dissolved)	ug/l	0.90	10
Sodium (Dissolved)	ug/l	230	500
Thallium (Dissolved)	ug/l	8.4	10
Vanadium (Dissolved)	ug/l	1.4	10
Zinc, (Dissolved)	ug/l	0.90	20
Mercury (Dissolved) (7470)			
Mercury (Dissolved)	ug/l	0.078	0.20

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
TAL Metals (6010)			
Aluminum	ug/l	12I	
Antimony	ug/l	5.0U	
Arsenic	ug/l	4.6U	
Barium	ug/l	0.20U	
Beryllium	ug/l	0.10U	
Cadmium	ug/l	0.60U	
Calcium	ug/l	8.5I	
Chromium	ug/l	0.90U	
Cobalt	ug/l	1.0U	
Copper	ug/l	0.60U	
Iron	ug/l	32U	
Lead	ug/l	2.8U	
Magnesium	ug/l	6.6U	
Manganese	ug/l	0.20U	
Nickel	ug/l	2.0U	
Potassium	ug/l	17U	
Selenium	ug/l	3.6U	
Silver	ug/l	0.90U	
Sodium	ug/l	230U	
Thallium	ug/l	8.4U	
Vanadium	ug/l	1.4U	
Zinc	ug/l	0.90U	
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		11:00	
Analysis Date		04/13/04	
Analysis Time		16:58	
Batch ID		0412G	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
Mercury (7470)			
Mercury	ug/l	0.078U	
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		16:05	
Analysis Date		04/14/04	
Analysis Time		11:17	
Batch ID		0412U	
Quantitation Factor		1.000	
TAL Metals (Dissolved) (6010)			
Aluminum (Dissolved)	ug/l	7.6I	
Antimony (Dissolved)	ug/l	5.0U	
Arsenic, (Dissolved)	ug/l	4.6U	
Barium, (Dissolved)	ug/l	0.36I	
Beryllium (Dissolved)	ug/l	0.10U	
Cadmium (Dissolved)	ug/l	0.60U	
Calcium (Dissolved)	ug/l	18I	
Chromium, (Dissolved)	ug/l	1.0I	
Cobalt (Dissolved)	ug/l	1.0U	
Copper, Dissolved	ug/l	0.60U	
Iron (Dissolved)	ug/l	32U	
Lead, (Dissolved)	ug/l	2.8U	
Magnesium (Dissolved)	ug/l	6.6U	
Manganese (Dissolved)	ug/l	0.20U	
Nickel, (Dissolved)	ug/l	2.0U	
Potassium (Dissolved)	ug/l	17U	
Selenium (Dissolved)	ug/l	3.6U	
Silver (Dissolved)	ug/l	0.90U	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
TAL Metals (Dissolved) (6010)			
Sodium (Dissolved)	ug/l	230U	
Thallium (Dissolved)	ug/l	8.4U	
Vanadium (Dissolved)	ug/l	1.4U	
Zinc, (Dissolved)	ug/l	4.7I	
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		11:00	
Analysis Date		04/13/04	
Analysis Time		17:03	
Batch ID		0412G	
Quantitation Factor		1.000	
Mercury (Dissolved) (7470)			
Mercury (Dissolved)	ug/l	0.078U	
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		16:05	
Analysis Date		04/14/04	
Analysis Time		11:38	
Batch ID		0412U	
Quantitation Factor		1.000	
TCL Pesticides (8081)			
alpha-BHC	ug/l	0.0035U	
beta-BHC	ug/l	0.0035U	
delta-BHC	ug/l	0.0090U	
gamma-BHC (Lindane)	ug/l	0.0030U	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
TCL Pesticides (8081)			
Heptachlor	ug/l	0.014U	
Aldrin	ug/l	0.026I	
Heptachlor epoxide	ug/l	0.0026U	
Endosulfan I	ug/l	0.0099U	
Dieldrin	ug/l	0.0060U	
4,4'-DDE	ug/l	0.010U	
Endrin	ug/l	0.0097U	
Endrin aldehyde	ug/l	0.014U	
Endosulfan II	ug/l	0.0084U	
4,4'-DDD	ug/l	0.016U	
Endosulfan sulfate	ug/l	0.0085U	
4,4'-DDT	ug/l	0.014U	
Endrin ketone	ug/l	0.0072U	
Methoxychlor	ug/l	0.0070U	
alpha-Chlordane	ug/l	0.0084U	
gamma-Chlordane	ug/l	0.0070U	
Toxaphene	ug/l	0.77U	
Surrogate - DCB *	%	142 %	
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	82 %	
Dilution Factor		1	
Prep Date		04/12/04	
Prep Time		17:00	
Analysis Date		04/16/04	
Analysis Time		10:26	
Batch ID		0412P	
Quantitation Factor		1.000	

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
PCB's (8082)			
Aroclor-1016	ug/l	0.11U	
Aroclor-1221	ug/l	0.50U	
Aroclor-1232	ug/l	0.18U	
Aroclor-1242	ug/l	0.14U	
Aroclor-1248	ug/l	0.11U	
Aroclor-1254	ug/l	0.20U	
Aroclor-1260	ug/l	0.11U	
Surrogate - TCX *	%	82 %	
Surrogate - DCB *	%	142 %	
Dilution Factor		1	
Pren Date		04/12/04	
Time		17:00	
Anaiysis Date		04/16/04	
Analysis Time		10:26	
Batch ID		0412P	
Quantitation Factor		1.000	
TCL Semivolatiles (8270)			
Phenol	ug/l	1.0U	1.0U
bis(2-Chloroethyl)ether	ug/l	1.0U	1.0U
2-Chlorophenol	ug/l	0.79U	0.79U
1,3-Dichlorobenzene	ug/l	1.0U	1.0U
1,4-Dichlorobenzene	ug/l	1.0U	1.0U
1,2-Dichlorobenzene	ug/l	1.0U	1.0U
2-Methylphenol (o-Cresol)	ug/l	0.59U	0.59U
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/l	0.58U	0.58U
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/l	1.0U	1.0U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
TCL Semivolatiles (8270)			
N-Nitroso-di-n-propylamine	ug/l	1.0U	1.0U
Hexachloroethane	ug/l	0.70U	0.70U
Nitrobenzene	ug/l	1.0U	1.0U
Isophorone	ug/l	1.0U	1.0U
2-Nitrophenol	ug/l	1.1U	1.1U
2,4-Dimethylphenol	ug/l	1.1U	1.1U
bis(2-Chloroethoxy)methane	ug/l	1.0U	1.0U
2,4-Dichlorophenol	ug/l	0.76U	0.76U
1,2,4-Trichlorobenzene	ug/l	0.51U	0.51U
4-Chloroaniline	ug/l	1.0U	1.0U
Hexachlorobutadiene	ug/l	0.50U	0.50U
4-Chloro-3-methylphenol	ug/l	1.0U	1.0U
Hexachlorocyclopentadiene	ug/l	1.1U	1.1U
2,4,6-Trichlorophenol	ug/l	1.1U	1.1U
2,4,5-Trichlorophenol	ug/l	1.1U	1.1U
2-Chloronaphthalene	ug/l	1.0U	1.0U
2-Nitroaniline	ug/l	0.72U	0.72U
Dimethylphthalate	ug/l	0.57U	0.57U
3-Nitroaniline	ug/l	0.64U	0.64U
2,4-Dinitrophenol	ug/l	10U	10U
4-Nitrophenol	ug/l	5.0U	5.0U
Dibenzofuran	ug/l	1.0U	1.0U
2,4-Dinitrotoluene	ug/l	1.1U	1.1U
2,6-Dinitrotoluene	ug/l	0.87U	0.87U
Diethylphthalate	ug/l	1.0U	1.0U
4-Chlorophenylphenyl ether	ug/l	0.70U	0.70U
4-Nitroaniline	ug/l	0.86U	0.86U
4,6-Dinitro-2-methylphenol	ug/l	10U	10U
N-Nitrosodiphenylamine	ug/l	1.0U	1.0U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
TCL Semivolatiles (8270)			
4-Bromophenylphenyl ether	ug/l	1.0U	1.0U
Hexachlorobenzene	ug/l	0.61U	0.61U
Pentachlorophenol	ug/l	2.0U	2.0U
Di-n-butylphthalate	ug/l	1.0U	1.0U
Butylbenzylphthalate	ug/l	0.74U	0.74U
3,3'-Dichlorobenzidine	ug/l	1.0U	1.0U
bis(2-Ethylhexyl)phthalate	ug/l	2.4U	2.4U
Di-n-octylphthalate	ug/l	1.2U	1.2U
Carbazole	ug/l	0.54U	0.54U
Surrogate - Phenol-d5 *	%	85 %	80 %
Surrogate - 2-Fluorophenol *	%	82 %	78 %
Surrogate - 2,4,6-Tribromophenol *	%	87 %	81 %
Surrogate - Nitrobenzene - d5 *	%	90 %	86 %
Surrogate - 2-Fluorobiphenyl *	%	92 %	78 %
Surrogate - Terphenyl-d14 *	%	106 %	92 %
Dilution Factor		1	1
Prep Date		04/09/04	04/27/04
Prep Time		09:00	07:40
Analysis Date		04/15/04	04/30/04
Analysis Time		18:43	09:46
Batch ID		0409A	0427C
Quantitation Factor		1.000	1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
Low Level PAH (8270)			
Naphthalene	ug/l	0.028U	
Acenaphthylene	ug/l	0.024U	
Acenaphthene	ug/l	0.025U	
Fluorene	ug/l	0.026U	
Phenanthrene	ug/l	0.025U	
Anthracene	ug/l	0.031U	
Fluoranthene	ug/l	0.061U	
Pyrene	ug/l	0.042U	
Chrysene	ug/l	0.088U	
Benzo(a)anthracene	ug/l	0.070U	
Benzo(b)fluoranthene	ug/l	0.074U	
Benzo(k)fluoranthene	ug/l	0.058U	
Benzo(a)pyrene	ug/l	0.060U	
Indeno(1,2,3-cd)pyrene	ug/l	0.080U	
Dibenzo(a,h)anthracene	ug/l	0.065U	
Benzo(g,h,i)perylene	ug/l	0.096U	
2-Methylnaphthalene	ug/l	0.022U	
1-Methylnaphthalene	ug/l	0.028U	
Surrogate - o-Terphenyl *	%	105 %	
Dilution Factor		1	
Prep Date		04/13/04	
Prep Time		15:30	
Analysis Date		04/14/04	
Analysis Time		12:18	
Batch ID		0413C	
Quantitation Factor		1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
Volatiles by GC/MS (8260)			
Chloromethane	ug/l	0.39U	0.39U
Bromomethane (Methyl bromide)	ug/l	0.62U	0.62U
Vinyl chloride	ug/l	0.56U	0.56U
Chloroethane	ug/l	0.78U	0.78U
Methylene chloride (Dichloromethane)	ug/l	0.64U	0.64U
Acetone	ug/l	5.0U	5.0U
Carbon disulfide	ug/l	0.66U	0.66U
1,1-Dichloroethene	ug/l	0.36U	0.36U
1,1-Dichloroethane	ug/l	0.36U	0.36U
cis-1,2-Dichloroethene	ug/l	0.38U	0.38U
1 -1,2-Dichloroethene	ug/l	0.40U	0.40U
Chloroform	ug/l	0.37U	0.37U
1,2-Dichloroethane	ug/l	0.26U	0.26U
2-Butanone (MEK)	ug/l	1.3U	1.3U
1,1,1-Trichloroethane	ug/l	0.32U	0.32U
Carbon tetrachloride	ug/l	0.31U	0.31U
Bromodichloromethane	ug/l	0.14U	0.14U
1,1,2,2-Tetrachloroethane	ug/l	0.18U	0.18U
1,2-Dichloropropane	ug/l	0.33U	0.33U
trans-1,3-Dichloropropene	ug/l	0.26U	0.26U
Trichloroethene	ug/l	0.37U	0.37U
Dibromochloromethane	ug/l	0.50U	0.50U
1,1,2-Trichloroethane	ug/l	0.22U	0.22U
Benzene	ug/l	0.36U	0.36U
cis-1,3-Dichloropropene	ug/l	0.23U	0.23U
Bromoform	ug/l	0.33U	0.33U
2-Hexanone	ug/l	0.93U	0.93U
4-Methyl-2-pentanone (MIBK)	ug/l	0.65U	0.65U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-23	Method Blank	Liquid	04/07/04		PEN16
42931-33	Method Blank	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-23	42931-33
Volatiles by GC/MS (8260)			
Tetrachloroethene	ug/l	0.35U	0.35U
Toluene	ug/l	0.54U	0.54U
Chlorobenzene	ug/l	0.34U	0.34U
Ethylbenzene	ug/l	0.34U	0.34U
Styrene	ug/l	0.25U	0.25U
Xylenes, Total	ug/l	1.3U	1.3U
Surrogate - Toluene-d8 *	%	98 %	104 %
Surrogate - 4-Bromofluorobenzene *	%	102 %	100 %
Surrogate - Dibromofluoromethane *	%	108 %	106 %
Dilution Factor		1	1
Prep Date		04/16/04	04/19/04
Prep Time		19:16	15:40
Analysis Date		04/16/04	04/19/04
Analysis Time		19:16	15:40
Batch ID		1B0416	1B0419
Quantitation Factor		1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-24	42931-25	42931-26	42931-34	42931-35
TAL Metals (6010)						
Aluminum	ug/l	2020	2000	101 %		
Antimony	ug/l	512	500	102 %		
Arsenic	ug/l	1990	2000	100 %		
Barium	ug/l	2110	2000	106 %		
Beryllium	ug/l	52.0	50.0	104 %		
Cadmium	ug/l	51.4	50.0	103 %		
Calcium	ug/l	5120	5000	102 %		
Chromium	ug/l	209	200	105 %		
C t	ug/l	514	500	103 %		
Copper	ug/l	264	250	106 %		
Iron	ug/l	1010	1000	101 %		
Lead	ug/l	519	500	104 %		
Magnesium	ug/l	5140	5000	103 %		
Manganese	ug/l	536	500	107 %		
Nickel	ug/l	520	500	104 %		
Potassium	ug/l	5440	5000	109 %		
Selenium	ug/l	2050	2000	102 %		
Silver	ug/l	50.8	50.0	102 %		
Sodium	ug/l	5290	5000	106 %		
Thallium	ug/l	2090	2000	104 %		
Vanadium	ug/l	508	500	102 %		
Zinc	ug/l	515	500	103 %		
Dilution Factor		1		1		
Prep Date		04/12/04		04/12/04		
Prep Time		11:00		11:00		
Analysis Date		04/13/04		04/13/04		
Analysis Time		17:07		17:07		
Batch ID		0412G	0412G	0412G		
Quantitation Factor		1.000				

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

		Lab Sample IDs				
Parameter	**Units**	**42931-24**	**42931-25**	**42931-26**	**42931-34**	**42931-35**
Mercury (7470)						
Mercury	ug/l	2.06	2.5	82 %		
Dilution Factor		1		1		
Prep Date		04/12/04		04/12/04		
Prep Time		16:05		16:05		
Analysis Date		04/14/04		04/14/04		
Analysis Time		11:19		11:19		
Batch ID		0412U	0412U	0412U		
Quantitation Factor		1.000				
TAL Metals (Dissolved) (6010)						
Aluminum (Dissolved)	ug/l	2020	2000	101 %		
Antimony (Dissolved)	ug/l	512	500	102 %		
Arsenic, (Dissolved)	ug/l	1990	2000	100 %		
Barium, (Dissolved)	ug/l	2110	2000	106 %		
Beryllium (Dissolved)	ug/l	52.0	50.0	104 %		
Cadmium (Dissolved)	ug/l	51.4	50.0	103 %		
Calcium (Dissolved)	ug/l	5120	5000	102 %		
Chromium, (Dissolved)	ug/l	209	200	105 %		
Cobalt (Dissolved)	ug/l	514	500	103 %		
Copper, Dissolved	ug/l	264	250	106 %		
Iron (Dissolved)	ug/l	1010	1000	101 %		
Lead, (Dissolved)	ug/l	519	500	104 %		
Magnesium (Dissolved)	ug/l	5140	5000	103 %		
Manganese (Dissolved)	ug/l	536	500	107 %		
Nickel, (Dissolved)	ug/l	520	500	104 %		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-24	42931-25	42931-26	42931-34	42931-35
TAL Metals (Dissolved) (6010)						
Potassium (Dissolved)	ug/l	5440	5000	109 %		
Selenium (Dissolved)	ug/l	2050	2000	102 %		
Silver (Dissolved)	ug/l	50.8	50.0	102 %		
Sodium (Dissolved)	ug/l	5290	5000	106 %		
Thallium (Dissolved)	ug/l	2090	2000	104 %		
Vanadium (Dissolved)	ug/l	508	500	102 %		
Zinc, (Dissolved)	ug/l	515	500	103 %		
Dilution Factor		1		1		
Date		04/12/04		04/12/04		
Prep Time		11:00		11:00		
Analysis Date		04/13/04		04/13/04		
Analysis Time		17:07		17:07		
Batch ID		0412G	0412G	0412G		
Quantitation Factor		1.000				
Mercury (Dissolved) (7470)						
Mercury (Dissolved)	ug/l	2.06	2.5	82 %		
Dilution Factor		1		1		
Prep Date		04/12/04		04/12/04		
Prep Time		16:05		16:05		
Analysis Date		04/14/04		04/14/04		
Analysis Time		11:19		11:19		
Batch ID		0412U	0412U	0412U		
Quantitation Factor		1.000				

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-24	42931-25	42931-26	42931-34	42931-35
TCL Pesticides (8081)						
alpha-BHC	ug/l	0.094	0.10	94 %		
beta-BHC	ug/l	0.094	0.10	94 %		
delta-BHC	ug/l	0.092	0.10	92 %		
gamma-BHC (Lindane)	ug/l	0.12	0.10	120 %*J3		
Heptachlor	ug/l	0.093	0.10	93 %		
Aldrin	ug/l	0.096	0.10	70 %		
Heptachlor epoxide	ug/l	0.099	0.10	99 %		
Endosulfan I	ug/l	0.12	0.10	120 %*J3		
Dieldrin	ug/l	0.19	0.20	95 %		
4,4'-DDE	ug/l	0.20	0.20	100 %		
Endrin	ug/l	0.22	0.20	110 %		
Endrin aldehyde	ug/l	0.24	0.20	120 %		
Endosulfan II	ug/l	0.25	0.20	125 %*J3		
4,4'-DDD	ug/l	0.28	0.20	140 %*J3		
Endosulfan sulfate	ug/l	0.22	0.20	110 %		
4,4'-DDT	ug/l	0.22	0.20	110 %		
Endrin ketone	ug/l	0.26	0.20	130 %		
Methoxychlor	ug/l	0.20	0.20	100 %		
alpha-Chlordane	ug/l	0.12	0.10	120 %*J3		
gamma-Chlordane	ug/l	0.12	0.10	120 %*J3		
Surrogate - DCB *	ug/l	0.43	0.50	86 %		
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	ug/l	0.40	0.50	80 %		
Dilution Factor		1		1		
Prep Date		04/12/04		04/12/04		
Prep Time		17:00		17:00		
Analysis Date		04/20/04		04/20/04		
Analysis Time		11:45		11:45		
Batch ID		0412P	0412P	0412P		
Quantitation Factor		1.000				

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-24	42931-25	42931-26	42931-34	42931-35
PCB's (8082)						
Aroclor-1016	ug/l	8.5	10	85 %		
Aroclor-1260	ug/l	10	10	100 %		
Surrogate - TCX *	ug/l	0.28	0.50	56 %		
Surrogate - DCB *	ug/l	0.54	0.50	108 %		
Dilution Factor		1		1		
Prep Date		04/12/04		04/12/04		
Prep Time		17:00		17:00		
Analysis Date		04/16/04		04/16/04		
Analysis Time		11:24		11:24		
Batch ID		0412P	0412P	0412P		
Quantitation Factor		1.000				
TCL Semivolatiles (8270)						
Phenol	ug/l	66	100	66 %	80	80 %
2-Chlorophenol	ug/l	73	100	73 %	81	81 %
1,4-Dichlorobenzene	ug/l	56	100	56 %	74	74 %
N-Nitroso-di-n-propylamine	ug/l	65	100	65 %	90	90 %
1,2,4-Trichlorobenzene	ug/l	68	100	68 %	78	78 %
4-Chloro-3-methylphenol	ug/l	81	100	81 %	87	87 %
4-Nitrophenol	ug/l	64	100	64 %	87	87 %
2,4-Dinitrotoluene	ug/l	85	100	85 %	98	98 %
Pentachlorophenol	ug/l	87	100	87 %	86	86 %
Surrogate - Phenol-d5 *	ug/l	77	100	77 %	84	84 %
Surrogate - 2-Fluorophenol *	ug/l	76	100	76 %	80	80 %
Surrogate - 2,4,6-Tribromophenol *	ug/l	99	100	99 %	100	100 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-24	42931-25	42931-26	42931-34	42931-35
TCL Semivolatiles (8270)						
Surrogate - Nitrobenzene - d5 *	ug/l	39	50	78 %	44	88 %
Surrogate - 2-Fluorobiphenyl *	ug/l	43	50	86 %	46	92 %
Surrogate - Terphenyl-d14 *	ug/l	51	50	102 %	47	94 %
bis(2-Chloroethyl)ether	ug/l				78	78 %
1,3-Dichlorobenzene	ug/l				77	77 %
1,2-Dichlorobenzene	ug/l				77	77 %
2-Methylphenol (o-Cresol)	ug/l				89	89 %
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/l				85	85 %
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/l				84	84 %
Hexachloroethane	ug/l				69	69 %
Nitrobenzene	ug/l				87	87 %
Isophorone	ug/l				91	91 %
2-Nitrophenol	ug/l				89	89 %
2,4-Dimethylphenol	ug/l				88	88 %
bis(2-Chloroethoxy)methane	ug/l				88	88 %
2,4-Dichlorophenol	ug/l				86	86 %
4-Chloroaniline	ug/l				63	63 %
Hexachlorobutadiene	ug/l				80	80 %
Hexachlorocyclopentadiene	ug/l				53	53 %
2,4,6-Trichlorophenol	ug/l				93	93 %
2,4,5-Trichlorophenol	ug/l				95	95 %
2-Chloronaphthalene	ug/l				87	87 %
2-Nitroaniline	ug/l				98	98 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-24	42931-25	42931-26	42931-34	42931-35
TCL Semivolatiles (8270)						
Dimethylphthalate	ug/l				90	90 %
3-Nitroaniline	ug/l				84	84 %
2,4-Dinitrophenol	ug/l				89	89 %
Dibenzofuran	ug/l				89	89 %
2,6-Dinitrotoluene	ug/l				98	98 %
Diethylphthalate	ug/l				88	88 %
4-Chlorophenylphenyl ether	ug/l				85	85 %
4-Nitroaniline	ug/l				93	93 %
‹ initro-2-methylphenol	ug/l				92	92 %
N-Nitrosodiphenylamine	ug/l				89	89 %
4-Bromophenylphenyl ether	ug/l				82	82 %
Hexachlorobenzene	ug/l				92	92 %
Di-n-butylphthalate	ug/l				88	88 %
Butylbenzylphthalate	ug/l				90	90 %
3,3'-Dichlorobenzidine	ug/l				67	67 %
bis(2-Ethylhexyl)phthalate	ug/l				87	87 %
Di-n-octylphthalate	ug/l				94	94 %
Carbazole	ug/l				95	95 %
Dilution Factor		1		1	1	1
Prep Date		04/09/04		04/09/04	04/27/04	04/27/04
Prep Time		09:00		09:00	07:40	07:40
Analysis Date		04/14/04		04/14/04	04/30/04	04/30/04
Analysis Time		23:35		23:35	12:34	12:34
Batch ID		0409A	0409A	0409A	0427C	0427C
Quantitation Factor		1.000			1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-24	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-25	Spike Amount Added, LCS	Liquid	04/07/04		PEN16
42931-26	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16
42931-34	Lab Control Standard Result	Liquid	04/07/04		PEN16
42931-35	Lab Control Standard % Recovery	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-24	42931-25	42931-26	42931-34	42931-35
Low Level PAH (8270)						
Naphthalene	ug/l	1.5	2.0	75 %		
Acenaphthene	ug/l	1.5	2.0	75 %		
Fluorene	ug/l	1.6	2.0	80 %		
Pyrene	ug/l	1.7	2.0	85 %		
Benzo(a)pyrene	ug/l	1.2	2.0	60 %		
Surrogate - o-Terphenyl *	ug/l	1.9	2.0	95 %		
Dilution Factor		1		1		
Prep Date		04/13/04		04/13/04		
Prep Time		15:30		15:30		
Analysis Date		04/14/04		04/14/04		
Analysis Time		14:12		14:12		
Batch ID		0413C	0413C	0413C		
Quantitation Factor		1.000				
Volatiles by GC/MS (8260)						
1,1-Dichloroethene	ug/l	23	25	116 %	29	116 %
Trichloroethene	ug/l	25	25	112 %	28	112 %
Benzene	ug/l	24	25	108 %	27	108 %
Toluene	ug/l	25	25	108 %	27	108 %
Chlorobenzene	ug/l	27	25	112 %	28	112 %
Surrogate - Toluene-d8 *	ug/l	24	25	100 %	25	100 %
Surrogate - 4-Bromofluorobenzene *	ug/l	27	25	112 %	28	112 %
Surrogate - Dibromofluoromethane *	ug/l	25	25	104 %	26	104 %
Dilution Factor		1		1	1	1
Prep Date		04/16/04		04/19/04	04/19/04	04/19/04
Prep Time		17:59		16:33	16:33	16:33
Analysis Date		04/16/04		04/19/04	04/19/04	04/19/04
Analysis Time		17:59		16:33	16:33	16:33
Batch ID		1B0416		1B0419	1B0419	1B0419
Quantitation Factor		1.000			1.000	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-27	LCS Accuracy Control Limit (%R)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-27
TAL Metals (6010)		
Aluminum	%	75-125 %
Antimony	%	75-125 %
Arsenic	%	75-125 %
Barium	%	75-125 %
Beryllium	%	75-125 %
Cadmium	%	75-125 %
Calcium	%	75-125 %
Chromium	%	75-125 %
Cobalt	%	75-125 %
Copper	%	75-125 %
Iron	%	75-125 %
Lead	%	75-125 %
:sium	%	75-125 %
Manganese	%	75-125 %
Nickel	%	75-125 %
Potassium	%	75-125 %
Selenium	%	75-125 %
Silver	%	75-125 %
Sodium	%	75-125 %
Thallium	%	75-125 %
Vanadium	%	75-125 %
Zinc	%	75-125 %
Mercury (7470)		
Mercury	%	80-120 %

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-27	LCS Accuracy Control Limit (%R)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-27
TAL Metals (Dissolved) (6010)		
Aluminum (Dissolved)	%	75-125 %
Antimony (Dissolved)	%	75-125 %
Arsenic, (Dissolved)	%	75-125 %
Barium, (Dissolved)	%	75-125 %
Beryllium (Dissolved)	%	75-125 %
Cadmium (Dissolved)	%	75-125 %
Calcium (Dissolved)	%	75-125 %
Chromium, (Dissolved)	%	75-125 %
Cobalt (Dissolved)	%	75-125 %
Copper, Dissolved	%	75-125 %
Iron (Dissolved)	%	75-125 %
Lead, (Dissolved)	%	75-125 %
Magnesium (Dissolved)	%	75-125 %
Manganese (Dissolved)	%	75-125 %
Nickel, (Dissolved)	%	75-125 %
Potassium (Dissolved)	%	75-125 %
Selenium (Dissolved)	%	75-125 %
Silver (Dissolved)	%	75-125 %
Sodium (Dissolved)	%	75-125 %
Thallium (Dissolved)	%	75-125 %
Vanadium (Dissolved)	%	75-125 %
Zinc, (Dissolved)	%	75-125 %
Mercury (Dissolved) (7470)		
Mercury (Dissolved)	%	80-120 %

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-27	LCS Accuracy Control Limit (%R)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-27
TCL Pesticides (8081)		
alpha-BHC	%	15-116 %
beta-BHC	%	34-141 %
delta-BHC	%	33-124 %
gamma-BHC (Lindane)	%	26-119 %
Heptachlor	%	21-114 %
Aldrin	%	20-99 %
Heptachlor epoxide	%	43-118 %
Endosulfan I	%	40-114 %
Dieldrin	%	46-124 %
4,4'-DDE	%	39-114 %
Endrin	%	37-128 %
Endrin aldehyde	%	55-142 %
[ulfan II	%	58-116 %
4,4'-DDD	%	55-124 %
Endosulfan sulfate	%	67-139 %
4,4'-DDT	%	41-145 %
Endrin ketone	%	61-140 %
Methoxychlor	%	30-163 %
alpha-Chlordane	%	45-118 %
gamma-Chlordane	%	47-115 %
Surrogate - DCB *	%	30-150 %
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX) *	%	30-150 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-27	LCS Accuracy Control Limit (%R)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-27
PCB's (8082)		
Aroclor-1016	%	32-109 %
Aroclor-1260	%	39-132 %
Surrogate - TCX *	%	30-150 %
Surrogate - DCB *	%	30-150 %
TCL Semivolatiles (8270)		
Phenol	%	40-109 %
2-Chlorophenol	%	43-110 %
1,4-Dichlorobenzene	%	36-91 %
N-Nitroso-di-n-propylamine	%	42-117 %
1,2,4-Trichlorobenzene	%	41-97 %
4-Chloro-3-methylphenol	%	53-117 %
4-Nitrophenol	%	38-131 %
2,4-Dinitrotoluene	%	44-129 %
Pentachlorophenol	%	49-126 %
Surrogate - Phenol-d5 *	%	46-112 %
Surrogate - 2-Fluorophenol *	%	43-114 %
Surrogate - 2,4,6-Tribromophenol *	%	47-133 %
Surrogate - Nitrobenzene - d5 *	%	51-115 %
Surrogate - 2-Fluorobiphenyl *	%	55-116 %
Surrogate - Terphenyl-d14 *	%	11-120 %

SEVERN TRENT STL

.L Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931-27	LCS Accuracy Control Limit (%R)	Liquid	04/07/04		PEN16

Parameter	Units	Lab Sample IDs 42931-27
Low Level PAH (8270)		
Naphthalene	%	39-125 %
Acenaphthene	%	41-132 %
Fluorene	%	40-140 %
Pyrene	%	39-158 %
Benzo(a)pyrene	%	31-142 %
Surrogate - o-Terphenyl *	%	34-167 %
Volatiles by GC/MS (8260)		
1,1-Dichloroethene	%	53-144 %
Trichloroethene	%	70-123 %
Benzene	%	69-128 %
ene	%	71-129 %
Chlorobenzene	%	72-126 %
Surrogate - Toluene-d8 *	%	77-122 %
Surrogate - 4-Bromofluorobenzene *	%	74-126 %
Surrogate - Dibromofluoromethane *	%	70-130 %

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Order Number: S442931

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III.

Attached - Grain-size analysis was performed by STL Burlington. Data is provided as a seperate attachment.

J4 = Due to matrix interference from samples, DDT breakdown occured therefore the continuing calibration failed. Samples were diluted and reanalyzed and both sets of results are reported. The continuing calibration passed criteria for diluted samples.

I = Reported value between the method detection limit andreporting limit and is estimated.
U = Indicates that the compound was analyzed for but not detected.
J3 = Spike recovery was outside control limits.
J1 = Surrogate recovery was outside control limits.

SEVERN TRENT STL

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

April 20, 2004

Ms. Linda Wolfe
Severn Trent Laboratories
5102 LaRoche Avenue
Savannah, GA 31404

Re: Laboratory Project No.: 24005
Case: 24005; ETR 99517

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by STL Burlington on April 9, 2004. This report is sequentially numbered starting with page 0001 and ending with page 0008.

Laboratory ID numbers were designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 04/09/04 ETR No: 99517		
566600	041M5B0202	04/06/04	Solid
566601	041M5B0301	04/06/04	Solid
566602	041N5B0301	04/06/04	Solid
566603	041M5B0401	04/06/04	Solid
566604	041M5B0501	04/06/04	Solid
566605	041M5B0601	04/06/04	Solid

ASTM Method D422 – Particle Size:
Please note that no exceptions to the method prescribed quality control criteria were observed during the analyses of the samples in this delivery group.

Client specified matrix spike/matrix spike duplicate samples were not analyzed or requested with the above samples. However, routine method quality control analyses were performed.

The analytical results presented in this data report were generated under a quality system that adheres to the requirements specified in the NELAC standard. This report shall not be reproduced, except in full, without the written approval of the laboratory. The release of the data in this report is authorized by the Laboratory Director or his designee, as verified by the following signature.

If there are any questions regarding this test report, please contact Ron Pentkowski at (802) 655-1203.

Sincerely,

Michael F. Wheeler, Ph.D.
Laboratory Director

Enclosure

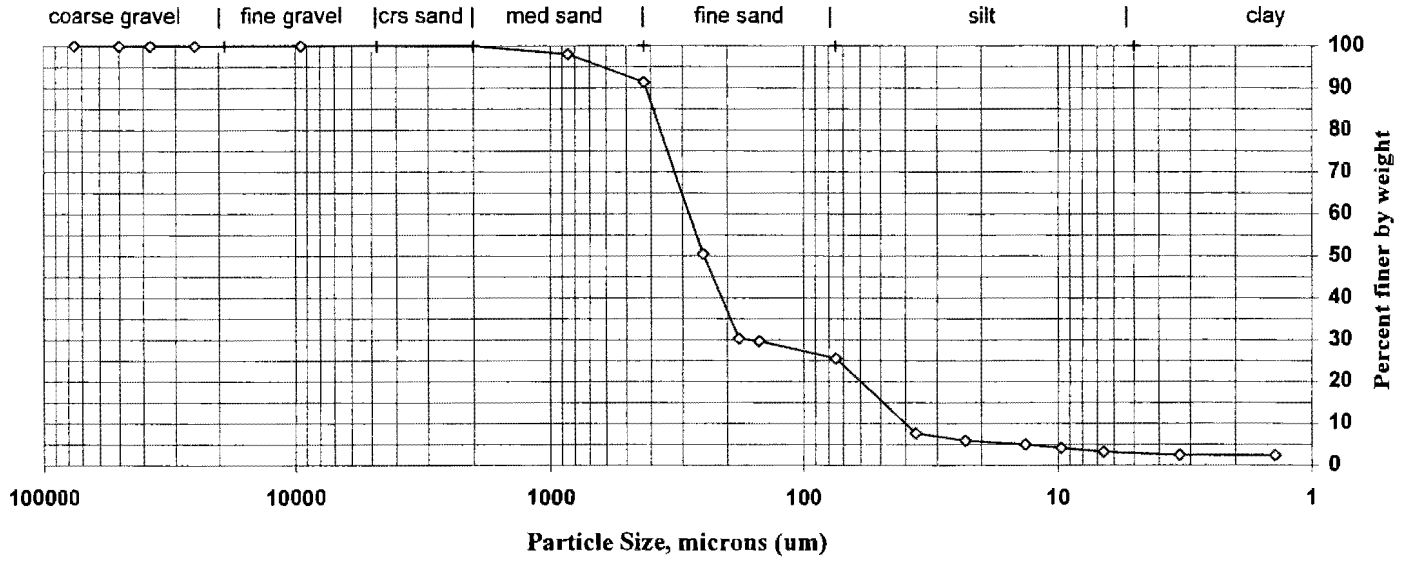
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	STLGAS	**Project No.:**	24005	**ETR(s) #:**	99517
Client Code:	STLGAS	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	9-Apr-04	**Start Date:**	9-Apr-04	**End Date:**	15-Apr-04

Lab ID: 566600 **Sample ID:** M5B0202

Percent Solids:	53.4%		**Maximum Particle Size:**	Med sand	
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	N/A	
Non-soil mass:	4.4%		**Hardness (> #10):**	N/A	



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	98.0	2.0
#40	425	91.3	6.7
#60	250	50.4	40.9
#80	180	30.3	20.2
#100	150	29.6	0.6
#200	75	25.6	4.1
Hydrometer	36.2	7.6	17.9
|	23.1	5.9	1.8
|	13.4	5.0	0.9
|	9.7	4.1	0.9
|	6.6	3.2	0.9
|	3.3	2.4	0.8
V	1.4	2.3	0.1

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	74.4
Coarse Sand	0.0
Medium Sand	8.7
Fine Sand	65.8
Silt	22.3
Clay	3.2

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

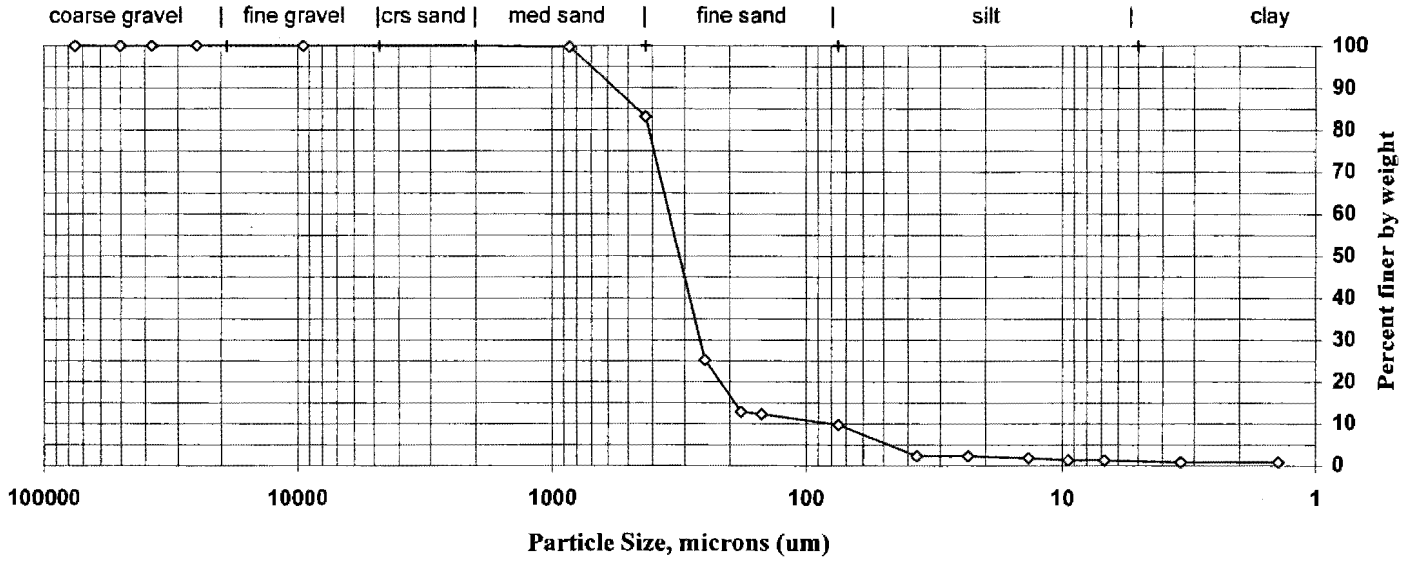
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLGAS	**Project No.:**	24005	**ETR(s) #:**	99517
Client Code:	STLGAS	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	9-Apr-04	**Start Date:**	9-Apr-04	**End Date:**	15-Apr-04

Lab ID: 566601 **Sample ID:** M5B0301

Percent Solids:	75.7%		**Maximum Particle Size:**	Med sand	
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	N/A	
Non-soil mass:	1.7%		**Hardness (> #10):**	N/A	



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.7	0.3
#40	425	83.2	16.5
#60	250	25.3	57.9
#80	180	12.9	12.4
#100	150	12.3	0.6
#200	75	9.8	2.5
Hydrometer	36.9	2.3	7.5
|	23.3	2.3	0.0
|	13.5	1.8	0.5
|	9.5	1.3	0.5
|	6.8	1.3	0.0
|	3.4	0.9	0.5
V	1.4	0.8	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	90.2
Coarse Sand	0.0
Medium Sand	16.8
Fine Sand	73.4
Silt	8.5
Clay	1.3

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

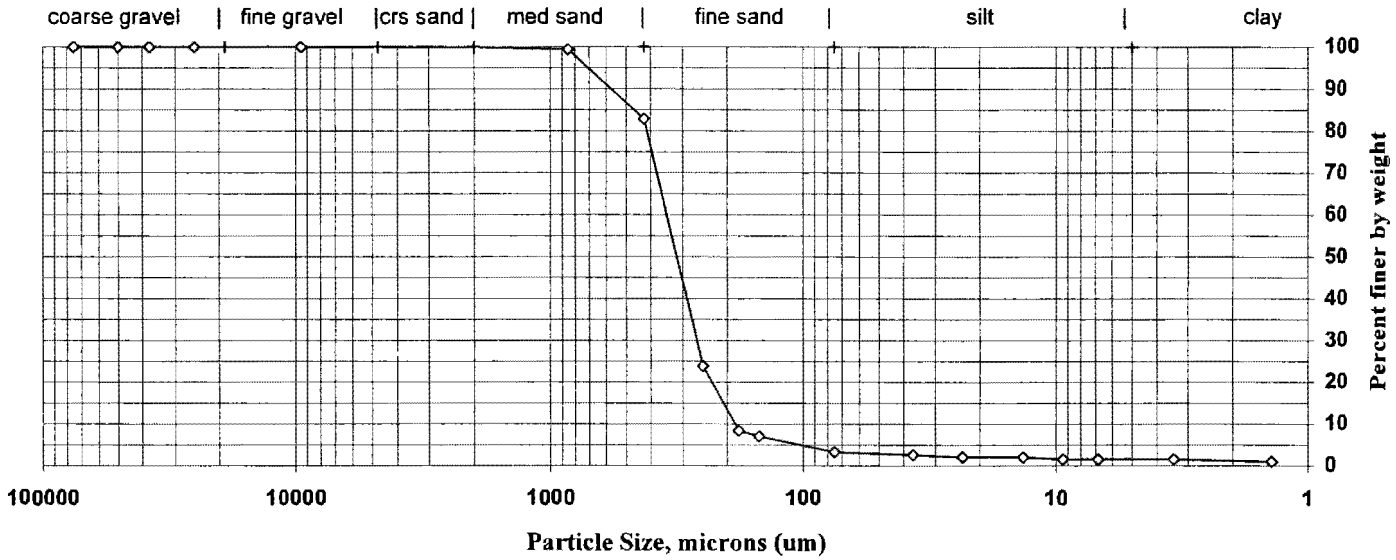
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	STLGAS	**Project No.:**	24005	**ETR(s) #:**	99517
Client Code:	STLGAS	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	9-Apr-04	**Start Date:**	9-Apr-04	**End Date:**	15-Apr-04

Lab ID: 566602 **Sample ID:** N5B0301

Percent Solids:	73.7%		**Maximum Particle Size:**	9.5 mm
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	angular
Non-soil mass:	0.9%		**Hardness (> #10):**	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.4	0.6
#40	425	82.9	16.5
#60	250	23.8	59.1
#80	180	8.4	15.4
#100	150	7.0	1.4
#200	75	3.3	3.7
Hydrometer	36.7	2.6	0.7
|	23.3	2.1	0.5
|	13.4	2.1	0.0
|	9.4	1.5	0.5
|	6.8	1.5	0.0
|	3.4	1.5	0.0
V	1.4	1.0	0.5

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	96.6
Coarse Sand	0.0
Medium Sand	17.0
Fine Sand	79.6
Silt	1.8
Clay	1.5

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

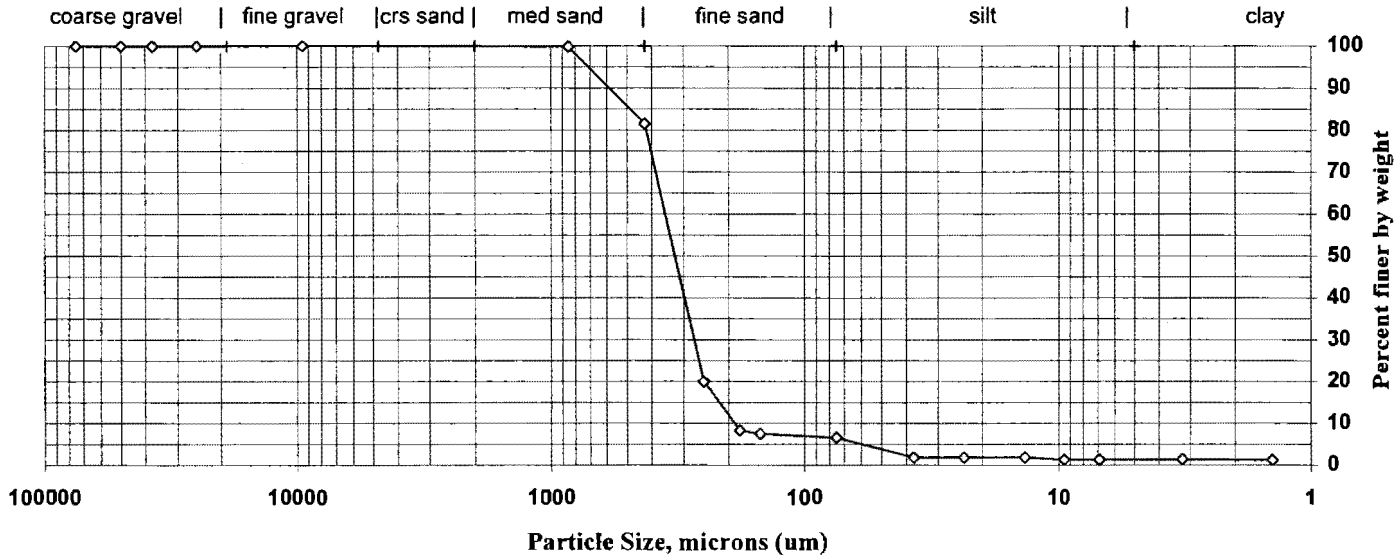
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	STLGAS	**Project No.:**	24005	**ETR(s) #:**	99517
Client Code:	STLGAS	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	9-Apr-04	**Start Date:**	9-Apr-04	**End Date:**	15-Apr-04

Lab ID: 566603 **Sample ID:** M5B0401

Percent Solids:	77.4%		**Maximum Particle Size:**	Med sand	
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	N/A	
Non-soil mass:	0.0%		**Hardness (> #10):**	N/A	



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.8	0.2
#40	425	81.5	18.4
#60	250	20.0	61.5
#80	180	8.2	11.7
#100	150	7.5	0.7
#200	75	6.5	1.0
Hydrometer	37.3	1.8	4.7
|	23.6	1.8	0.0
|	13.6	1.8	0.0
|	9.5	1.3	0.5
|	6.9	1.3	0.0
|	3.2	1.3	0.0
V	1.4	1.3	0.1

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	93.5
Coarse Sand	0.0
Medium Sand	18.5
Fine Sand	74.9
Silt	5.2
Clay	1.3

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

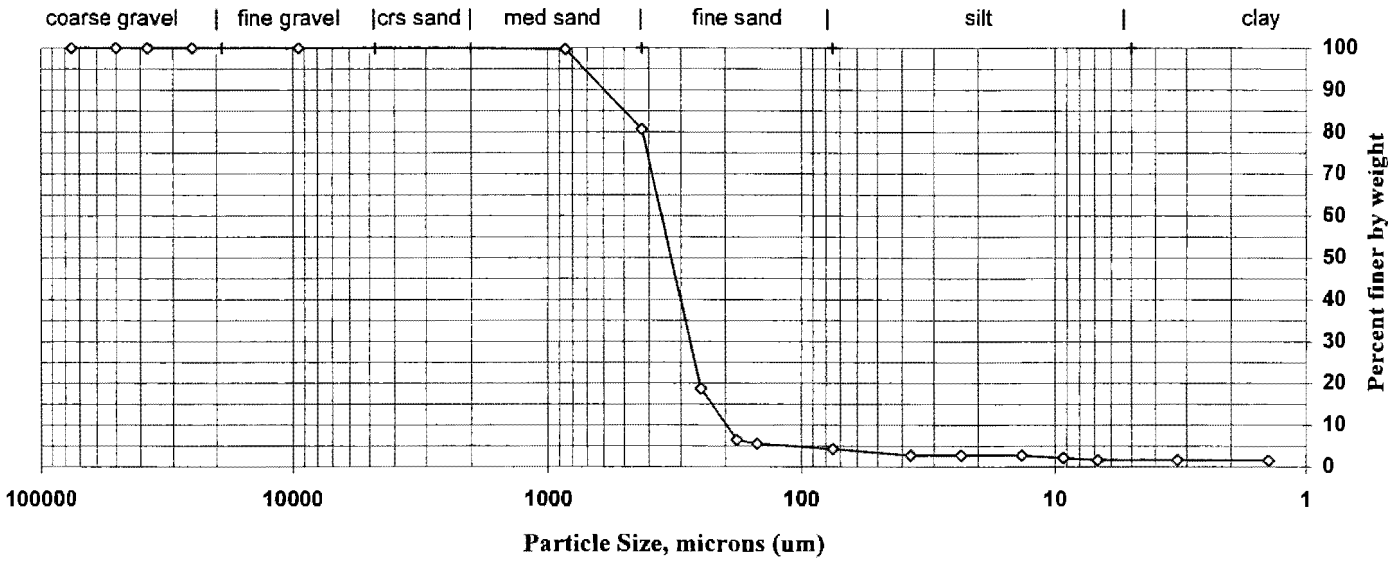
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	STLGAS	**Project No.:**	24005	**ETR(s) #:**	99517
Client Code:	STLGAS	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	9-Apr-04	**Start Date:**	9-Apr-04	**End Date:**	15-Apr-04

Lab ID: 566604 **Sample ID:** M5B0501

Percent Solids:	78.7%		**Maximum Particle Size:**	Med sand	
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	N/A	
Non-soil mass:	0.1%		**Hardness (> #10):**	N/A	



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.7	0.3
#40	425	80.6	19.1
#60	250	18.7	61.9
#80	180	6.4	12.4
#100	150	5.5	0.9
#200	75	4.3	1.3
Hydrometer	36.9	2.8	1.5
|	23.3	2.8	0.0
|	13.5	2.8	0.0
|	9.3	2.2	0.6
|	6.8	1.6	0.6
|	3.3	1.6	0.0
V	1.4	1.5	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	95.7
Coarse Sand	0.0
Medium Sand	19.4
Fine Sand	76.4
Silt	2.7
Clay	1.6

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

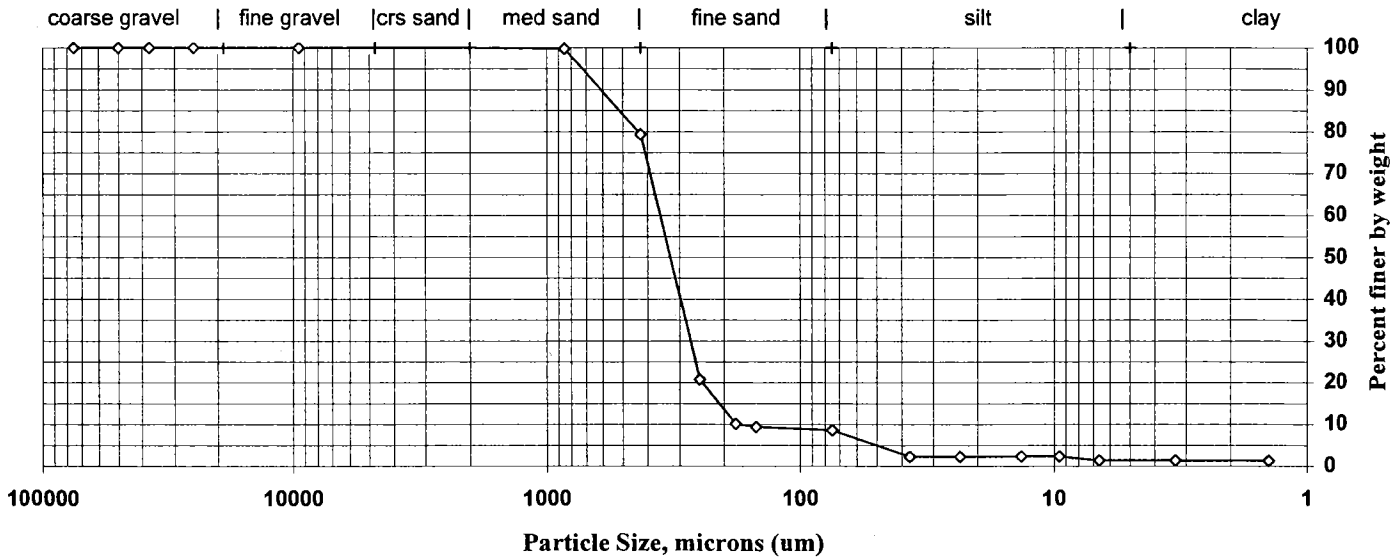
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	STLGAS	**Project No.:**	24005	**ETR(s) #:**	99517
Client Code:	STLGAS	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	9-Apr-04	**Start Date:**	9-Apr-04	**End Date:**	15-Apr-04

Lab ID: 566605 **Sample ID:** M5B0601

Percent Solids:	79.1%		**Maximum Particle Size:**	Med sand	
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	N/A	
Non-soil mass:	0.0%		**Hardness (> #10):**	N/A	



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.7	0.3
#40	425	79.4	20.4
#60	250	20.8	58.6
#80	180	10.1	10.6
#100	150	9.4	0.7
#200	75	8.6	0.8
Hydrometer	37.1	2.3	6.3
|	23.5	2.3	0.0
|	13.5	2.4	0.0
|	9.5	2.4	0.0
|	6.6	1.4	1.0
|	3.3	1.4	0.0
V	1.4	1.3	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	91.4
Coarse Sand	0.0
Medium Sand	20.6
Fine Sand	70.7
Silt	7.3
Clay	1.4

Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

ATTN: Ron Pentowski

Serial Number 032029

SEVERN TRENT SERVICES

STL Savannah

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

STL-Burlington
Phone: 208 South Park Dr, Suite 1
Fax: Colchester, VT 05446

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	MATRIX TYPE	REQUIRED ANALYSIS	PAGE / OF
Ensafe Pensacola		FL			
STL (LAB) PROJECT MANAGER: Linda Wolfe	P.O. NUMBER: 5442931	CONTRACT NO.			STANDARD REPORT DELIVERY: (X)
CLIENT (SITE) PM	CLIENT PHONE: 912-354-7858	CLIENT FAX			DATE DUE: Level II 14 Day TAT
CLIENT NAME: STL-Savannah	CLIENT E-MAIL: lwolfe@stl-inc.com				EXPEDITED REPORT DELIVERY (SURCHARGE): ( )
CLIENT ADDRESS: See Above					DATE DUE:
COMPANY CONTRACTING THIS WORK (if applicable)				PRESERVATIVE	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	Grainsize	NUMBER OF CONTAINERS SUBMITTED	REMARKS
4/6/04	1045	041MSB0202			X			2		Send Results +
	1045	041MSB0301			X			2		Invoice to
	1045	041MSB0301			X			2		Linda Wolfe
	1100	041MSB0401			X			2		STL-Savannah
	1115	041MSB0501			X			2		
	1130	041MSB0601			X			2		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS							040904	17
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS							4/9/04	0920

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
			YES ( ) NO ( )			

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

SAMPLE RECEIPT INFORMATION FORM

Completed By: ____Abbie Page_____ **Date:** ___4/9/2004____

Client: _____Ensafe_____

STL Savannah Log # _____S442931_____

Courier: __X__ FedEx ____ UPS ____ Client ____ Other

Date Received: _____04/08/04_____

Cooler Temperature upon receipt: __3.6/3.6/3.9__Degrees C.___
(If >6C or frozen, notify client and document below.)

Cooler/Custody Seals: __X___ Intact _____ Broken _____ NA
(If broken, notify client and document below)

ANOMALY	CLIENT NOTIFIED: CONTACT / DATE / TIME	COMMENTS / DESCRIPTION
Sample container breakage		NA
Sample ID discrepancy between COC & container		NA
Sample listed on COC is not received		NA
Sample received is not listed on COC	Phil Hardy 04/08/04	Analyze trip blank id 041TB00001.
Incomplete COC		NA
Insufficient sample volume		NA
Improper container or preservation		NA
Other (Describe)*		NA

*Attach additional pages, if necessary.

PM: Review: _____

SEVERN TRENT STL

FAN089:10.21.03:2

Serial Number 37881

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

○ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
0036-001-00-130-00		FL
STL (LAB) PROJECT MANAGER: Linda Wolfe	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: Allison Harris	CLIENT PHONE	CLIENT FAX
CLIENT NAME: EnSafe	CLIENT E-MAIL	
CLIENT ADDRESS		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE ____ OF ____

STANDARD REPORT DELIVERY ○
DATE DUE ____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE ____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	REQUIRED ANALYSIS: TAL Metals	TCL Pest/PCBs	TCL SVOCs	Low Level PAHs	TCL VOC	TOC	Gamma Spec	TAL Metals Filtered	REMARKS
								PRESERVATIVE								
								NUMBER OF CONTAINERS SUBMITTED								
4/6/04	1045	041MSTB0202	G		S			1		1		1	1	2		
"	"	041MSTB0301	G		S			1		1		1	1	2		
"	"	041MSTB0301	G		S			1		1		1	1	2		
"	1100	041MSTB0401	G		S			1		1		1	1	2		
"	1115	041MSTB0501	G		S			1		1		1	1	2		
"	1130	041MSTB0601	G		S			1		1		1	1	2		
"	1030	041FE0001 per Phil Hardy ID should have extra 0						1	2	2	2	4			1	Field Blnwk
"	1200	041EM00001						1	2	2	2	4			1	Rinsate Blnwk

Rec. Trip Blank NOT on COC.
per Phil Hardy analyze - ID should be 041TB00001
L Wolfe 4-7-04

TEMP 3.6/3.6 3.9

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	6 April 04	1800						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
	040701	0909	YES ○ NO ○		S42931	

STL8240-680 (12/02)

SEVERN TRENT STL

TL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Report

For: Ms. Allison Harris
EnSafe, Inc.
5724 Summer Trees Drive
Memphis, TN 38134
CC:

Order Number: S442931A
SDG Number: PEN16A
Client Project ID: 0036-001-00-130-00
Project: NAS Pensacola Site 41 Resampling/PEN16A
Report Date: 04/30/2004
Sampled By: Client
Sample Received Date: 04/07/2004
Requisition Number:
Purchase Order: PO 6071

Linda A Wolfe

Linda A. Wolfe, Project Manager
lwolfe@stl-inc.com

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

SEVERN TRENT STL

TL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Sample Summary

Order: S442931A
Date Received: 04/07/2004

Client: EnSafe, Inc.
Project: NAS Pensacola Site 41 Resampling/PEN16A

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
041M5B0202	S442931A*1	Solid	04/06/2004 10:15
041M5B0301	S442931A*2	Solid	04/06/2004 10:15
041N5B0301	S442931A*3	Solid	04/06/2004 10:15
041M5B0401	S442931A*4	Solid	04/06/2004 11:00
041M5B0501	S442931A*5	Solid	04/06/2004 11:15
041M5B0601	S442931A*6	Solid	04/06/2004 11:30

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-1	041M5B0202	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-2	041M5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-3	041N5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16A
42931A-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16A

		Lab Sample IDs				
Parameter	Units	42931A-1	42931A-2	42931A-3	42931A-4	42931A-5
Volatiles in TCLP Extract (8260)						
Benzene (TCLP)	mg/l	0.0019U	0.0019U	0.0019U	0.0019U	0.0019U
Carbon tetrachloride (TCLP)	mg/l	0.0096U	0.0096U	0.0096U	0.0096U	0.0096U
Chlorobenzene (TCLP)	mg/l	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U
Chloroform (TCLP)	mg/l	0.0024U	0.0024U	0.0024U	0.0024U	0.0024U
1,2-Dichloroethane (TCLP)	mg/l	0.0036U	0.0036U	0.0036U	0.0036U	0.0036U
1,1-Dichloroethylene (TCLP)	mg/l	0.0062U	0.0062U	0.0062U	0.0062U	0.0062U
Methyl ethyl ketone (TCLP)	mg/l	0.025IV	0.031IV	0.028IV	0.020IV	0.024IV
Tetrachloroethylene (TCLP)	mg/l	0.0026U	0.0026U	0.0026U	0.0026U	0.0026U
Trichloroethylene (TCLP)	mg/l	0.0086U	0.0086U	0.0086U	0.0086U	0.0086U
Vinyl chloride (TCLP)	mg/l	0.0026U	0.0026U	0.0026U	0.0026U	0.0026U
Surrogate - Toluene-d8 *	%	110 %	110 %	110 %	110 %	110 %
Surrogate - 4-Bromofluorobenzene *	%	95 %	94 %	98 %	96 %	98 %
Surrogate - Dibromofluoromethane *	%	100 %	100 %	100 %	98 %	100 %
Dilution Factor		1	1	1	1	1
Prep Date		04/19/04	04/19/04	04/19/04	04/19/04	04/19/04
Prep Time		16:35	16:35	16:35	16:35	16:35
Analysis Date		04/26/04	04/26/04	04/26/04	04/26/04	04/26/04
Analysis Time		13:54	14:21	14:48	15:16	15:43
Batch ID		100426C2	100426C2	100426C2	100426C2	100426C2
Quantitation Factor		1.000	1.000	1.000	1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-1	041M5B0202	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-2	041M5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-3	041N5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16A
42931A-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16A

Parameter	Units	Lab Sample IDs 42931A-1	42931A-2	42931A-3	42931A-4	42931A-5
Semivolatiles in TCLP Extract (8270)						
Cresol (ortho) (TCLP)	mg/l	0.0080U	0.0080U	0.0080U	0.0080U	0.0080U
Cresol m & p (TCLP)	mg/l	0.0080U	0.0080U	0.0080U	0.0080U	0.0080U
Cresol o,m,p (TCLP)	mg/l	0.0080U	0.0080U	0.0080U	0.0080U	0.0080U
1,4-Dichlorobenzene (TCLP)	mg/l	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U
2,4-Dinitrotoluene (TCLP)	mg/l	0.0055U	0.0055U	0.0055U	0.0055U	0.0055U
Hexachlorobenzene (TCLP)	mg/l	0.0031U	0.0031U	0.0031U	0.0031U	0.0031U
Hexachlorobutadiene (TCLP)	mg/l	0.0025U	0.0025U	0.0025U	0.0025U	0.0025U
Hexachloroethane (TCLP)	mg/l	0.0035U	0.0035U	0.0035U	0.0035U	0.0035U
obenzene (TCLP)	mg/l	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U
entachlorophenol (TCLP)	mg/l	0.010U	0.010U	0.010U	0.010U	0.010U
2,4,5-Trichlorophenol (TCLP)	mg/l	0.0055U	0.0055U	0.0055U	0.0055U	0.0055U
2,4,6-Trichlorophenol (TCLP)	mg/l	0.0055U	0.0055U	0.0055U	0.0055U	0.0055U
Pyridine (TCLP)	mg/l	0.013U	0.013U	0.013U	0.013U	0.013U
Surrogate-2FP *	%	88 %	84 %	88 %	92 %	86 %
Surrogate-PHL *	%	80 %	72 %	84 %	86 %	82 %
Surrogate-NBZ *	%	72 %	72 %	80 %	72 %	76 %
Surrogate-2FBP *	%	80 %	80 %	80 %	80 %	80 %
Surrogate-TBP *	%	82 %	76 %	92 %	86 %	84 %
Surrogate-TPH *	%	108 %	108 %	104 %	108 %	104 %
TCLP (1311) Sec. 7.2						
Extraction Date	mg/l	04.12.04	04.12.04	04.12.04	04.12.04	04.12.04
Dilution Factor		1	1	1	1	1
Prep Date		04/13/04	04/13/04	04/13/04	04/13/04	04/13/04
Prep Time		15:30	15:30	15:30	15:30	15:30
Analysis Date		04/22/04	04/22/04	04/26/04	04/23/04	04/23/04
Analysis Time		19:36	20:02	20:35	11:15	11:42
Batch ID		0413A	0413A	0413A	0413A	0413A
Quantitation Factor		1.000	1.000	1.000	1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-1	041M5B0202	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-2	041M5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-3	041N5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16A
42931A-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16A

Parameter	Units	Lab Sample IDs 42931A-1	42931A-2	42931A-3	42931A-4	42931A-5
Pesticides in TCLP Extract (8081)						
Chlordane (TCLP)	mg/l	0.025U	0.025U	0.025U	0.025U	0.025U
Endrin (TCLP)	mg/l	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U
Heptachlor (TCLP)	mg/l	0.0025U	0.0025U	0.0025U	0.0025U	0.0025U
Lindane (g-BHC) (TCLP)	mg/l	0.0025U	0.0025U	0.0025U	0.0025U	0.0025U
Methoxychlor (TCLP)	mg/l	0.025U	0.025U	0.025U	0.025U	0.025U
Toxaphene (TCLP)	mg/l	0.25U	0.25U	0.25U	0.25U	0.25U
Heptachlor epoxide (TCLP)	mg/l	0.0025U	0.0025U	0.0025U	0.0025U	0.0025U
Surrogate-TCX *	%	60 %	52 %	44 %	52 %	39 %
TCLP (1311) Sec. 7.2 Extraction Date	mg/l	04.12.04	04.12.04	04.12.04	04.12.04	04.12.04
Dilution Factor		1	1	1	1	1
Prep Date		04/13/04	04/13/04	04/13/04	04/13/04	04/13/04
Prep Time		15:30	15:30	15:30	15:30	15:30
Analysis Date		04/15/04	04/15/04	04/15/04	04/16/04	04/16/04
Analysis Time		23:06	23:24	23:42	00:00	00:18
Batch ID		04130	04130	04130	04130	04130
Quantitation Factor		1.000	1.000	1.000	1.000	1.000
Herbicides in TCLP Extract (8151)						
2,4-D (TCLP)	mg/l	0.0065U	0.0065U	0.0065U	0.0065U	0.0065U
2,4,5-TP (Silvex) (TCLP)	mg/l	0.0027U	0.0027U	0.0027U	0.0027U	0.0027U
Surrogate-2,4-Dichlorophenyl acetic acid (DCAA) *	%	90 %	100 %	100 %	90 %	105 %
TCLP (1311) Sec. 7.2 Extraction Date	mg/l	04.12.04	04.12.04	04.12.04	04.12.04	04.12.04
Dilution Factor		1	1	1	1	1
Prep Date		04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
Prep Time		09:00	09:00	09:00	09:00	09:00
Analysis Date		04/20/04	04/20/04	04/20/04	04/20/04	04/20/04
Analysis Time		06:58	07:20	07:42	08:04	08:26
Batch ID		0415P	0415P	0415P	0415P	0415P
Quantitation Factor		1.000	1.000	1.000	1.000	1.000

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-1	041M5B0202	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-2	041M5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-3	041N5B0301	Solid	04/07/04	04/06/04 10:15	PEN16A
42931A-4	041M5B0401	Solid	04/07/04	04/06/04 11:00	PEN16A
42931A-5	041M5B0501	Solid	04/07/04	04/06/04 11:15	PEN16A

Parameter	Units	Lab Sample IDs 42931A-1	42931A-2	42931A-3	42931A-4	42931A-5
Metals in TCLP Extract (6010)						
Arsenic (TCLP)	mg/l	0.053I	0.043I	0.033U	0.033U	0.033U
Barium (TCLP)	mg/l	0.068I	0.068I	0.091I	0.029I	0.070I
Cadmium (TCLP)	mg/l	0.070I	0.018I	0.026I	0.012I	0.044I
Chromium (TCLP)	mg/l	0.014U	0.021I	0.014U	0.014U	0.018I
Lead (TCLP)	mg/l	0.27	0.21	0.21	0.10I	0.22
Selenium (TCLP)	mg/l	0.053U	0.053U	0.053U	0.053U	0.053U
Silver (TCLP)	mg/l	0.011U	0.011U	0.011U	0.011U	0.011U
TCLP (1311) Sec. 7.2 Extraction Date	mg/l	04.12.04	04.12.04	04.12.04	04.12.04	04.12.04
Dilution Factor		1	1	1	1	1
Prep Date		04/13/04	04/13/04	04/13/04	04/13/04	04/13/04
Prep Time		11:20	11:20	11:20	11:20	11:20
Analysis Date		04/14/04	04/14/04	04/14/04	04/14/04	04/14/04
Analysis Time		03:41	03:56	04:01	04:06	04:11
Batch ID		0413P	0413P	0413P	0413P	0413P
Quantitation Factor		1.000	1.000	1.000	1.000	1.000
Mercury in TCLP Extract (7470)						
Mercury (TCLP)	mg/l	0.012I	0.0078U	0.0084I	0.0078U	0.012I
TCLP (1311) Sec. 7.2 Extraction Date	mg/l	04.12.04	04.12.04	04.12.04	04.12.04	04.12.04
Dilution Factor		1	1	1	1	1
Prep Date		04/14/04	04/14/04	04/14/04	04/14/04	04/14/04
Prep Time		09:30	09:30	09:30	09:30	09:30
Analysis Date		04/15/04	04/15/04	04/15/04	04/15/04	04/15/04
Analysis Time		10:44	10:51	10:53	10:55	12:05
Batch ID		0414R	0414R	0414R	0414R	0414R
Quantitation Factor		1.000	1.000	1.000	1.000	1.000

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16A

Parameter	Units	Lab Sample IDs 42931A-6
Volatiles in TCLP Extract (8260)		
Benzene (TCLP)	mg/l	0.0019U
Carbon tetrachloride (TCLP)	mg/l	0.0096U
Chlorobenzene (TCLP)	mg/l	0.0020U
Chloroform (TCLP)	mg/l	0.0024U
1,2-Dichloroethane (TCLP)	mg/l	0.0036U
1,1-Dichloroethylene (TCLP)	mg/l	0.0062U
Methyl ethyl ketone (TCLP)	mg/l	0.022IV
Tetrachloroethylene (TCLP)	mg/l	0.0026U
Trichloroethylene (TCLP)	mg/l	0.0086U
Vinyl chloride (TCLP)	mg/l	0.0026U
Surrogate - Toluene-d8 *	%	110 %
Surrogate - 4-Bromofluorobenzene *	%	96 %
Surrogate - Dibromofluoromethane *	%	100 %
Dilution Factor		1
Prep Date		04/19/04
Prep Time		16:35
Analysis Date		04/26/04
Analysis Time		16:10
Batch ID		100426C2
Quantitation Factor		1.000
Semivolatiles in TCLP Extract (8270)		
Cresol (ortho) (TCLP)	mg/l	0.0080U
Cresol m & p (TCLP)	mg/l	0.0080U
Cresol o,m,p (TCLP)	mg/l	0.0080U
1,4-Dichlorobenzene (TCLP)	mg/l	0.0050U
2,4-Dinitrotoluene (TCLP)	mg/l	0.074

SEVERN TRENT STL

TL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16A

Parameter	Units	Lab Sample IDs 42931A-6
Semivolatiles in TCLP Extract (8270)		
Hexachlorobenzene (TCLP)	mg/l	0.0031U
Hexachlorobutadiene (TCLP)	mg/l	0.0025U
Hexachloroethane (TCLP)	mg/l	0.0035U
Nitrobenzene (TCLP)	mg/l	0.0050U
Pentachlorophenol (TCLP)	mg/l	0.010U
2,4,5-Trichlorophenol (TCLP)	mg/l	0.0055U
2,4,6-Trichlorophenol (TCLP)	mg/l	0.0055U
Pyridine (TCLP)	mg/l	0.013U
Surrogate-2FP *	%	88 %
Surrogate-PHL *	%	88 %
Surrogate-NBZ *	%	80 %
Surrogate-2FBP *	%	84 %
Surrogate-TBP *	%	88 %
Surrogate-TPH *	%	112 %
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/13/04
Prep Time		15:30
Analysis Date		04/23/04
Analysis Time		12:08
Batch ID		0413A
Quantitation Factor		1.000
Pesticides in TCLP Extract (8081)		
Chlordane (TCLP)	mg/l	0.025U
Endrin (TCLP)	mg/l	0.0050U
Heptachlor (TCLP)	mg/l	0.0025U
Lindane (g-BHC) (TCLP)	mg/l	0.0025U

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16A

Parameter	Units	Lab Sample IDs 42931A-6
Pesticides in TCLP Extract (8081)		
Methoxychlor (TCLP)	mg/l	0.025U
Toxaphene (TCLP)	mg/l	0.25U
Heptachlor epoxide (TCLP)	mg/l	0.0025U
Surrogate-TCX *	%	44 %
TCLP (1311) Sec. 7.2 Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/13/04
Prep Time		15:30
Analysis Date		04/16/04
Analysis Time		00:36
Batch ID		04130
Quantitation Factor		1.000
Herbicides in TCLP Extract (8151)		
2,4-D (TCLP)	mg/l	0.0065U
2,4,5-TP (Silvex) (TCLP)	mg/l	0.0027U
Surrogate-2,4-Dichlorophenyl acetic acid (DCAA) *	%	105 %
TCLP (1311) Sec. 7.2 Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/15/04
Prep Time		09:00
Analysis Date		04/20/04
Analysis Time		08:48
Batch ID		0415P
Quantitation Factor		1.000

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-6	041M5B0601	Solid	04/07/04	04/06/04 11:30	PEN16A

Parameter	Units	Lab Sample IDs 42931A-6
Metals in TCLP Extract (6010)		
Arsenic (TCLP)	mg/l	0.035I
Barium (TCLP)	mg/l	0.077I
Cadmium (TCLP)	mg/l	0.071I
Chromium (TCLP)	mg/l	0.033I
Lead (TCLP)	mg/l	0.24
Selenium (TCLP)	mg/l	0.053U
Silver (TCLP)	mg/l	0.011U
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/13/04
Prep Time		11:20
lysis Date		04/14/04
Analysis Time		04:16
Batch ID		0413P
Quantitation Factor		1.000
Mercury in TCLP Extract (7470)		
Mercury (TCLP)	mg/l	0.0078U
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/14/04
Prep Time		09:30
Analysis Date		04/15/04
Analysis Time		12:05
Batch ID		0414R
Quantitation Factor		1.000

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-7	Method Detection Limit (MDL)	Solid	04/07/04		PEN16A
42931A-8	Reporting Limit (RL)	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-7	42931A-8
Volatiles in TCLP Extract (8260)			
Benzene (TCLP)	mg/l	0.0019	0.020
Carbon tetrachloride (TCLP)	mg/l	0.0096	0.020
Chlorobenzene (TCLP)	mg/l	0.0020	0.020
Chloroform (TCLP)	mg/l	0.0024	0.020
1,2-Dichloroethane (TCLP)	mg/l	0.0036	0.020
1,1-Dichloroethylene (TCLP)	mg/l	0.0062	0.020
Methyl ethyl ketone (TCLP)	mg/l	0.010	0.10
Tetrachloroethylene (TCLP)	mg/l	0.0026	0.020
Trichloroethylene (TCLP)	mg/l	0.0086	0.020
Vinyl chloride (TCLP)	mg/l	0.0026	0.040
Semivolatiles in TCLP Extract (8270)			
Cresol (ortho) (TCLP)	mg/l	0.0080	0.050
Cresol m & p (TCLP)	mg/l	0.0080	0.050
Cresol o,m,p (TCLP)	mg/l	0.0080	0.050
1,4-Dichlorobenzene (TCLP)	mg/l	0.0050	0.050
2,4-Dinitrotoluene (TCLP)	mg/l	0.0055	0.050
Hexachlorobenzene (TCLP)	mg/l	0.0031	0.050
Hexachlorobutadiene (TCLP)	mg/l	0.0025	0.050
Hexachloroethane (TCLP)	mg/l	0.0035	0.050
Nitrobenzene (TCLP)	mg/l	0.0050	0.050
Pentachlorophenol (TCLP)	mg/l	0.010	0.25
2,4,5-Trichlorophenol (TCLP)	mg/l	0.0055	0.050
2,4,6-Trichlorophenol (TCLP)	mg/l	0.0055	0.050
Pyridine (TCLP)	mg/l	0.013	0.25

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-7	Method Detection Limit (MDL)	Solid	04/07/04		PEN16A
42931A-8	Reporting Limit (RL)	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-7	42931A-8
Pesticides in TCLP Extract (8081)			
Chlordane (TCLP)	mg/l	0.0045	0.025
Endrin (TCLP)	mg/l	0.0050	0.020
Heptachlor (TCLP)	mg/l	0.0007	0.0025
Lindane (g-BHC) (TCLP)	mg/l	0.0015	0.0025
Methoxychlor (TCLP)	mg/l	0.0035	0.025
Toxaphene (TCLP)	mg/l	0.038	0.25
Heptachlor epoxide (TCLP)	mg/l	0.00013	0.0025
Herbicides in TCLP Extract (8151)			
?.4-D (TCLP)	mg/l	0.0065	0.025
,5-TP (Silvex) (TCLP)	mg/l	0.0027	0.025

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-17	Method Detection Limit (MDL)	Solid	04/07/04		PEN16A
42931A-10	Reporting Limit (RL)	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-17	42931A-10
Metals in TCLP Extract (6010)			
Arsenic (TCLP)	mg/l	0.033	0.20
Barium (TCLP)	mg/l	0.0020	1.0
Cadmium (TCLP)	mg/l	0.0060	0.10
Chromium (TCLP)	mg/l	0.014	0.20
Lead (TCLP)	mg/l	0.019	0.20
Selenium (TCLP)	mg/l	0.053	0.50
Silver (TCLP)	mg/l	0.011	0.10
Mercury in TCLP Extract (7470)			
Mercury (TCLP)	mg/l	0.0078	0.020

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-11	TCLP Extraction Fluid Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-11
Volatiles in TCLP Extract (8260)		
Benzene (TCLP)	mg/l	0.0019U
Carbon tetrachloride (TCLP)	mg/l	0.0096U
Chlorobenzene (TCLP)	mg/l	0.0020U
Chloroform (TCLP)	mg/l	0.0024U
1,2-Dichloroethane (TCLP)	mg/l	0.0036U
1,1-Dichloroethylene (TCLP)	mg/l	0.0062U
Methyl ethyl ketone (TCLP)	mg/l	0.025IV
Tetrachloroethylene (TCLP)	mg/l	0.0026U
Trichloroethylene (TCLP)	mg/l	0.0086U
Vinyl chloride (TCLP)	mg/l	0.0026U
Surrogate - Toluene-d8 *	%	110 %
Surrogate - 4-Bromofluorobenzene *	%	97 %
Surrogate - Dibromofluoromethane *	%	100 %
Dilution Factor		1
Prep Date		04/19/04
Prep Time		16:35
Analysis Date		04/26/04
Analysis Time		13:27
Batch ID		100426C2
Quantitation Factor		1.000
Semivolatiles in TCLP Extract (8270)		
Cresol (ortho) (TCLP)	mg/l	0.0080U
Cresol m & p (TCLP)	mg/l	0.0080U
Cresol o,m,p (TCLP)	mg/l	0.0080U
1,4-Dichlorobenzene (TCLP)	mg/l	0.0050U
2,4-Dinitrotoluene (TCLP)	mg/l	0.0055U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-11	TCLP Extraction Fluid Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-11
Semivolatiles in TCLP Extract (8270)		
Hexachlorobenzene (TCLP)	mg/l	0.0031U
Hexachlorobutadiene (TCLP)	mg/l	0.0025U
Hexachloroethane (TCLP)	mg/l	0.0035U
Nitrobenzene (TCLP)	mg/l	0.0050U
Pentachlorophenol (TCLP)	mg/l	0.010U
2,4,5-Trichlorophenol (TCLP)	mg/l	0.0055U
2,4,6-Trichlorophenol (TCLP)	mg/l	0.0055U
Pyridine (TCLP)	mg/l	0.013U
Surrogate-2FP *	%	70 %
Surrogate-PHL *	%	66 %
Surrogate-NBZ *	%	52 %
Surrogate-2FBP *	%	64 %
Surrogate-TBP *	%	62 %
Surrogate-TPH *	%	92 %
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/13/04
Prep Time		15:30
Analysis Date		04/22/04
Analysis Time		17:51
Batch ID		0413A
Quantitation Factor		1.000
Pesticides in TCLP Extract (8081)		
Chlordane (TCLP)	mg/l	0.025U
Endrin (TCLP)	mg/l	0.0050U
Heptachlor (TCLP)	mg/l	0.0025U
Lindane (g-BHC) (TCLP)	mg/l	0.0025U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-11	TCLP Extraction Fluid Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-11
Pesticides in TCLP Extract (8081)		
Methoxychlor (TCLP)	mg/l	0.025U
Toxaphene (TCLP)	mg/l	0.25U
Heptachlor epoxide (TCLP)	mg/l	0.0025U
Surrogate-TCX *	%	52 %
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/13/04
Prep Time		15:30
Analysis Date		04/15/04
Analysis Time		21:17
Batch ID		04130
Quantitation Factor		1.000
Herbicides in TCLP Extract (8151)		
2,4-D (TCLP)	mg/l	0.0065U
2,4,5-TP (Silvex) (TCLP)	mg/l	0.0027U
Surrogate-2,4-Dichlorophenyl		
acetic acid (DCAA) *	%	85 %
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/15/04
Prep Time		09:00
Analysis Date		04/20/04
Analysis Time		06:15
Batch ID		0415P
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-11	TCLP Extraction Fluid Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-11
Metals in TCLP Extract (6010)		
Arsenic (TCLP)	mg/l	0.033U
Barium (TCLP)	mg/l	0.0024I
Cadmium (TCLP)	mg/l	0.0060U
Chromium (TCLP)	mg/l	0.014U
Lead (TCLP)	mg/l	0.025I
Selenium (TCLP)	mg/l	0.053U
Silver (TCLP)	mg/l	0.011U
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/13/04
Prep Time		11:20
Analysis Date		04/14/04
Analysis Time		03:02
Batch ID		0413P
Quantitation Factor		1.000
Mercury in TCLP Extract (7470)		
Mercury (TCLP)	mg/l	0.0078U
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/14/04
Prep Time		09:30
Analysis Date		04/15/04
Analysis Time		09:48
Batch ID		0414R
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-12	Method Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-12
Volatiles in TCLP Extract (8260)		
Benzene (TCLP)	mg/l	0.0019U
Carbon tetrachloride (TCLP)	mg/l	0.0096U
Chlorobenzene (TCLP)	mg/l	0.0020U
Chloroform (TCLP)	mg/l	0.0024U
1,2-Dichloroethane (TCLP)	mg/l	0.0036U
1,1-Dichloroethylene (TCLP)	mg/l	0.0062U
Methyl ethyl ketone (TCLP)	mg/l	0.020J
Tetrachloroethylene (TCLP)	mg/l	0.0026U
Trichloroethylene (TCLP)	mg/l	0.0086U
Vinyl chloride (TCLP)	mg/l	0.0026U
Surrogate - Toluene-d8 *	%	110 %
Surrogate - 4-Bromofluorobenzene *	%	94 %
Surrogate - Dibromofluoromethane *	%	100 %
Dilution Factor		1
Prep Date		04/26/04
Prep Time		13:00
Analysis Date		04/26/04
Analysis Time		13:00
Batch ID		100426C2
Quantitation Factor		1.000
Semivolatiles in TCLP Extract (8270)		
Cresol (ortho) (TCLP)	ug/l	0.0080U
Cresol m & p (TCLP)	ug/l	0.0080U
Cresol o,m,p (TCLP)	ug/l	0.0080U
1,4-Dichlorobenzene (TCLP)	ug/l	0.0050U
2,4-Dinitrotoluene (TCLP)	ug/l	0.0055U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-12	Method Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-12
Semivolatiles in TCLP Extract (8270)		
Hexachlorobenzene (TCLP)	ug/l	0.0031U
Hexachlorobutadiene (TCLP)	ug/l	0.0025U
Hexachloroethane (TCLP)	ug/l	0.0035U
Nitrobenzene (TCLP)	ug/l	0.0050U
Pentachlorophenol (TCLP)	ug/l	0.010U
2,4,5-Trichlorophenol (TCLP)	ug/l	0.0055U
2,4,6-Trichlorophenol (TCLP)	ug/l	0.0055U
Pyridine (TCLP)	ug/l	0.013U
Surrogate-2FP *	%	91 %
Surrogate-PHL *	%	80 %
Surrogate-NBZ *	%	68 %
Surrogate-2FBP *	%	78 %
Surrogate-TBP *	%	77 %
Surrogate-TPH *	%	100 %
TCLP (1311) Sec. 7.2		
Extraction Date	ug/l	Error
Dilution Factor		1
Prep Date		04/13/04
Prep Time		15:30
Analysis Date		04/21/04
Analysis Time		16:17
Batch ID		0413A
Quantitation Factor		1.000
Pesticides in TCLP Extract (8081)		
Chlordane (TCLP)	mg/l	0.025U
Endrin (TCLP)	mg/l	0.0050U
Heptachlor (TCLP)	mg/l	0.0025U
Lindane (g-BHC) (TCLP)	mg/l	0.0025U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-12	Method Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-12
Pesticides in TCLP Extract (8081)		
Methoxychlor (TCLP)	mg/l	0.025U
Toxaphene (TCLP)	mg/l	0.25U
Heptachlor epoxide (TCLP)	mg/l	0.0025U
Surrogate-TCX *	%	52 %
Dilution Factor		1
Prep Date		04/13/04
Prep Time		15:30
Analysis Date		04/15/04
Analysis Time		20:59
Batch ID		04130
Quantitation Factor		1.000
Herbicides in TCLP Extract (8151)		
2,4-D (TCLP)	mg/l	0.0065U
2,4,5-TP (Silvex) (TCLP)	mg/l	0.0027U
Surrogate-2,4-Dichlorophenyl acetic acid (DCAA) *	%	105 %
Dilution Factor		1
Prep Date		04/15/04
Prep Time		09:00
Analysis Date		04/20/04
Analysis Time		05:09
Batch ID		0415P
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-12	Method Blank	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-12
Metals in TCLP Extract (6010)		
Arsenic (TCLP)	mg/l	0.033U
Barium (TCLP)	mg/l	0.0024I
Cadmium (TCLP)	mg/l	0.0060U
Chromium (TCLP)	mg/l	0.014U
Lead (TCLP)	mg/l	0.025I
Selenium (TCLP)	mg/l	0.053U
Silver (TCLP)	mg/l	0.011U
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/13/04
Prep Time		11:20
Analysis Date		04/14/04
Analysis Time		03:02
Batch ID		0413P
Quantitation Factor		1.000
Mercury in TCLP Extract (7470)		
Mercury (TCLP)	mg/l	0.0078U
TCLP (1311) Sec. 7.2		
Extraction Date	mg/l	04.12.04
Dilution Factor		1
Prep Date		04/14/04
Prep Time		09:30
Analysis Date		04/15/04
Analysis Time		09:39
Batch ID		0414R
Quantitation Factor		1.000

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-13	Lab Control Standard Result	Solid	04/07/04		PEN16A
42931A-14	Spike Amount Added, LCS	Solid	04/07/04		PEN16A
42931A-15	Lab Control Standard % Recovery	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-13	42931A-14	42931A-15
Volatiles in TCLP Extract (8260)				
Benzene (TCLP)	mg/l	0.62	0.50	124 %
Carbon tetrachloride (TCLP)	mg/l	0.54	0.50	108 %
Chlorobenzene (TCLP)	mg/l	0.52	0.50	104 %
Chloroform (TCLP)	mg/l	0.57	0.50	114 %
1,2-Dichloroethane (TCLP)	mg/l	0.63	0.50	126 %
1,1-Dichloroethylene (TCLP)	mg/l	0.52	0.50	104 %
Methyl ethyl ketone (TCLP)	mg/l	0.45	0.50	90 %
Tetrachloroethylene (TCLP)	mg/l	0.45	0.50	90 %
Trichloroethylene (TCLP)	mg/l	0.52	0.50	104 %
Vinyl chloride (TCLP)	mg/l	0.64	0.50	128 %
·ogate - Toluene-d8 *	mg/l	1.1	1.0	110 %
. ..rogate - 4-Bromofluorobenzene *	mg/l	0.97	1.0	97 %
Surrogate - Dibromofluoromethane *	mg/l	1.0	1.0	100 %
Dilution Factor		1		1
Prep Date		04/26/04		04/26/04
Prep Time		12:06		12:06
Analysis Date		04/26/04		04/26/04
Analysis Time		12:06		12:06
Batch ID		100426C2	100426C2	100426C2
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-13	Lab Control Standard Result	Solid	04/07/04		PEN16A
42931A-14	Spike Amount Added, LCS	Solid	04/07/04		PEN16A
42931A-15	Lab Control Standard % Recovery	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-13	42931A-14	42931A-15
Semivolatiles in TCLP Extract (8270)				
Cresol (ortho) (TCLP)	mg/l	0.46	0.50	92 %
Cresol m & p (TCLP)	mg/l	0.41	0.50	82 %
1,4-Dichlorobenzene (TCLP)	mg/l	0.31	0.50	62 %
2,4-Dinitrotoluene (TCLP)	mg/l	0.43	0.50	86 %
Hexachlorobenzene (TCLP)	mg/l	0.45	0.50	90 %
Hexachlorobutadiene (TCLP)	mg/l	0.34	0.50	68 %
Hexachloroethane (TCLP)	mg/l	0.34	0.50	68 %
Nitrobenzene (TCLP)	mg/l	0.42	0.50	84 %
Pentachlorophenol (TCLP)	mg/l	0.44	0.50	88 %
2,4,5-Trichlorophenol (TCLP)	mg/l	0.51	0.50	102 %
2,4,6-Trichlorophenol (TCLP)	mg/l	0.47	0.50	94 %
Pyridine (TCLP)	mg/l	0.34	0.50	68 %
Surrogate-2FP *	mg/l	0.41	0.50	82 %
Surrogate-PHL *	mg/l	0.40	0.50	80 %
Surrogate-NBZ *	mg/l	0.21		84 %
Surrogate-2FBP *	mg/l	0.22	0.25	88 %
Surrogate-TBP *	mg/l	0.45	0.50	90 %
Surrogate-TPH *	mg/l	0.28	0.25	112 %
Surrogate-NBZ *	%		0.25	
Dilution Factor		1		1
Prep Date		04/13/04		04/13/04
Prep Time		15:30		15:30
Analysis Date		04/22/04		04/22/04
Analysis Time		18:44		18:44
Batch ID		0413A	0413A	0413A
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-13	Lab Control Standard Result	Solid	04/07/04		PEN16A
42931A-14	Spike Amount Added, LCS	Solid	04/07/04		PEN16A
42931A-15	Lab Control Standard % Recovery	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-13	42931A-14	42931A-15
Pesticides in TCLP Extract (8081)				
Endrin (TCLP)	mg/l	0.010	0.010	100 %
Heptachlor (TCLP)	mg/l	0.0051	0.010	51 %
Lindane (g-BHC) (TCLP)	mg/l	0.0094	0.010	94 %
Methoxychlor (TCLP)	mg/l	0.013	0.010	130 %
Heptachlor epoxide (TCLP)	mg/l	0.012	0.010	120 %
Surrogate-TCX *	mg/l	0.015	0.025	60 %
Dilution Factor		1		1
Prep Date		04/13/04		04/13/04
Prep Time		15:30		15:30
Analysis Date		04/15/04		04/15/04
'ysis Time		21:53		21:53
Batch ID		04130	04130	04130
Quantitation Factor		1.000		
Herbicides in TCLP Extract (8151)				
2,4-D (TCLP)	mg/l	0.080	0.10	80 %
2,4,5-TP (Silvex) (TCLP)	mg/l	0.090	0.10	90 %
Surrogate-2,4-Dichlorophenyl acetic acid (DCAA) *	mg/l	0.20	0.20	100 %
Dilution Factor		1		1
Prep Date		04/15/04		04/15/04
Prep Time		09:00		09:00
Analysis Date		04/20/04		04/20/04
Analysis Time		05:31		05:31
Batch ID		0415P	0415P	0415P
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-13	Lab Control Standard Result	Solid	04/07/04		PEN16A
42931A-14	Spike Amount Added, LCS	Solid	04/07/04		PEN16A
42931A-15	Lab Control Standard % Recovery	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-13	42931A-14	42931A-15
Metals in TCLP Extract (6010)				
Arsenic (TCLP)	mg/l	20.1	20.0	100 %
Barium (TCLP)	mg/l	20.7	20.0	103 %
Cadmium (TCLP)	mg/l	0.518	0.500	104 %
Chromium (TCLP)	mg/l	2.10	2.00	105 %
Lead (TCLP)	mg/l	5.17	5.00	103 %
Selenium (TCLP)	mg/l	19.6	20.0	98 %
Silver (TCLP)	mg/l	0.491	0.500	98 %
TCLP (1311) Sec. 7.2				
Extraction Date	mg/l	04.12.04	04.12.04	04.12.04
Dilution Factor		1		1
Prep Date		04/13/04		04/13/04
Prep Time		11:20		11:20
Analysis Date		04/14/04		04/14/04
Analysis Time		03:11		03:11
Batch ID		0413P	0413P	0413P
Quantitation Factor		1.000		
Mercury in TCLP Extract (7470)				
Mercury (TCLP)	mg/l	0.00232	0.00250	93 %
TCLP (1311) Sec. 7.2				
Extraction Date	mg/l	04.12.04		04.12.04
Dilution Factor		1		1
Prep Date		04/14/04		04/14/04
Prep Time		09:30		09:30
Analysis Date		04/15/04		04/15/04
Analysis Time		09:53		09:53
Batch ID		0414R	0414R	0414R
Quantitation Factor		1.000		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-16	LCS Accuracy Control Limit (%R)	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-16
Volatiles in TCLP Extract (8260)		
Benzene (TCLP)	%	69-128 %
Carbon tetrachloride (TCLP)	%	67-136 %
Chlorobenzene (TCLP)	%	72-126 %
Chloroform (TCLP)	%	72-124 %
1,2-Dichloroethane (TCLP)	%	61-143 %
1,1-Dichloroethylene (TCLP)	%	57-132 %
Methyl ethyl ketone (TCLP)	%	38-153 %
Tetrachloroethylene (TCLP)	%	71-129 %
Trichloroethylene (TCLP)	%	70-123 %
Vinyl chloride (TCLP)	%	50-142 %
Surrogate - Toluene-d8 *	%	74-122 %
Surrogate - Bromofluorobenzene *	%	70-119 %
Surrogate - Dibromofluoromethane *	%	68-129 %
Semivolatiles in TCLP Extract (8270)		
Cresol (ortho) (TCLP)	%	40-116 %
Cresol m & p (TCLP)	%	40-116 %
1,4-Dichlorobenzene (TCLP)	%	36-91 %
2,4-Dinitrotoluene (TCLP)	%	44-129 %
Hexachlorobenzene (TCLP)	%	39-125 %
Hexachlorobutadiene (TCLP)	%	35-106 %
Hexachloroethane (TCLP)	%	27-93 %
Nitrobenzene (TCLP)	%	49-107 %
Pentachlorophenol (TCLP)	%	49-126 %
2,4,5-Trichlorophenol (TCLP)	%	51-118 %
2,4,6-Trichlorophenol (TCLP)	%	50-117 %
Pyridine (TCLP)	%	10-178 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-16	LCS Accuracy Control Limit (%R)	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-16
Semivolatiles in TCLP Extract (8270)		
Surrogate-2FP *	%	43-114 %
Surrogate-PHL *	%	46-112 %
Surrogate-NBZ *	%	51-115 %
Surrogate-2FBP *	%	55-116 %
Surrogate-TBP *	%	47-133 %
Surrogate-TPH *	%	11-120 %
Pesticides in TCLP Extract (8081)		
Endrin (TCLP)	%	37-128 %
Heptachlor (TCLP)	%	21-114 %
Lindane (g-BHC) (TCLP)	%	26-119 %
Methoxychlor (TCLP)	%	30-163 %
Heptachlor epoxide (TCLP)	%	43-118 %
Surrogate-TCX *	%	30-150 %
Herbicides in TCLP Extract (8151)		
2,4-D (TCLP)	%	33-156 %
2,4,5-TP (Silvex) (TCLP)	%	48-135 %
Surrogate-2,4-Dichlorophenyl acetic acid (DCAA) *	%	35-134 %
Metals in TCLP Extract (6010)		
Arsenic (TCLP)	%	75-125 %
Barium (TCLP)	%	75-125 %
Cadmium (TCLP)	%	75-125 %
Chromium (TCLP)	%	75-125 %
Lead (TCLP)	%	75-125 %

SEVERN TRENT STL

TL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
42931A-16	LCS Accuracy Control Limit (%R)	Solid	04/07/04		PEN16A

Parameter	Units	Lab Sample IDs 42931A-16
Metals in TCLP Extract (6010)		
Selenium (TCLP)	%	75-125 %
Silver (TCLP)	%	75-125 %
Mercury in TCLP Extract (7470)		
Mercury (TCLP)	%	80-120 %

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Order Number: S442931A

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III.

U = Indicates that the compound was analyzed for but not detected.

I = The flag "J" indicates the presence of a compound that meets theidentification criteria, but the result is less than the sample RL and greater than the MDL.

V (Organic) = This flag is used when the analyte is found in the associated method blank as well as in the sample.

Serial Number 37881

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: 0036-001-00-B0-00	PROJECT NO.	PROJECT LOCATION (STATE): FL	PAGE / OF
STL (LAB) PROJECT MANAGER: Linda Wolfe	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ◯ DATE DUE
CLIENT (SITE) PM: Allison Harris	CLIENT PHONE	CLIENT FAX	EXPEDITED REPORT DELIVERY (SURCHARGE) ◯ DATE DUE
CLIENT NAME: EnSafe	CLIENT E-MAIL		
CLIENT ADDRESS			
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT,...)

REQUIRED ANALYSIS — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	TAL Metals	TCL Pest/PCB	TCL SVOC	Low Conc PAH	TCL VOC	TOC	Grain Size	TAL Metals Filtered			REMARKS
4/6/04	1045	041M5B0202	G		S			1		1		1	1	2				
"	"	041M5B0301	G		S			1		1		1	1	2				added TCLP analyses per Phil Hardy see attached E mail L Wolfe 4-9-04
"	"	041N5B0301	G		S			1		1		1	1	2				
"	1100	041M5B0401	G		S			1		1		1	1	2				
"	1115	041M5B0501	G		S			1		1		1	1	2				
"	1130	041M5B0601	G		S			1		1		1	1	2				
"	1030	041FE0001 per Phil Hardy ID should have extra		X				1	2	2	2	4			1			Field Blank
"	1200	041EM00001		X				1	2	2	2	4			1			Rinsate Blank

Rec. Trip Blank Not on COC.
per Phil Hardy analyze - ID should be 041TB00001 L Wolfe 4-7-04

TEMP. 3.6/3.6 3.9

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	6 April 04	1800						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	040701	0909	YES ◯ NO ◯		S442931	

STL8240-680 (12/02)

Wolfe, Linda

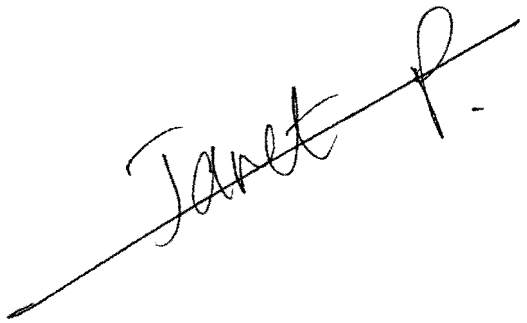
From: Phil Hardy [PHARDY@ensafe.com]
Sent: Friday, April 09, 2004 3:38 PM
To: Wolfe, Linda
Cc: Allison Harris; Barbara Albrecht
Subject: TCLP Samples

Linda, per our phone conversation this afternoon, please run full-TCLP analyses on the six sediment samples you received from EnSafe Inc. on April 7, 2004 for the Pensacola sampling conducted this week. The sample IDs for those samples are: 041M5B0202, 041M5B0301, 041N5B0301, 041M5B0401, 041M5B0501, 041M5B0601.

We know this wasn't scoped in our P.O., which our contracts department can adjust for you.

Please call if you have any questions.

Phil Hardy, CHMM
EnSafe Inc.
201 North Palafox St, #200
Pensacola, FL 32502
Phone: (850) 434-2230
Fax: (850) 434-2288



SAMPLE RECEIPT INFORMATION FORM

Completed By: ____Abbie Page_____ **Date:** ___4/9/2004____

Client: _____Ensafe_____

STL Savannah Log # _____S442931_____

Courier: __X__ FedEx ____ UPS ____ Client ____ Other

Date Received: _____04/08/04_____

Cooler Temperature upon receipt: __3.6/3.6/3.9__Degrees C.___
(If >6C or frozen, notify client and document below.)

Cooler/Custody Seals: __X___ Intact _____ Broken _____ NA
(If broken, notify client and document below)

ANOMALY	CLIENT NOTIFIED: CONTACT / DATE / TIME	COMMENTS / DESCRIPTION
Sample container breakage		NA
Sample ID discrepancy between COC & container		NA
Sample listed on COC is not received		NA
Sample received is not listed on COC	Phil Hardy 04/08/04	Analyze trip blank id 041TB00001.
Incomplete COC		NA
Insufficient sample volume		NA
Improper container or preservation		NA
Other (Describe)*		NA

*Attach additional pages, if necessary.

PM: Review: _____

SEVERN TRENT STL

FAN089:10.21.03:2

Data Validation Report

ENSAFE
Pensacola
SDG #: NASP14 and NASP15

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	NASP14
Date:	October 18, 2001
Client Name:	EnSafe
Project/Site Name:	Pensacola
Date Sampled:	August 1 - 3, 2001
Number of Samples:	2 Aqueous Sample(s) with 0 MS/MSD(s) 17 Non-Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	STL Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition and STL SOP
Analytical Fractions:	Semivolatiles, Pesticides, PCBs, Metals, SEM Metals, Acid Volatile Sulfide, Mercury and Total Organic Carbon

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seafoss
Paul B. Humburg, President

10-18-01.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# NASP14

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

ENSAFE ID	MATRIX	SVOA		PEST		PCB		MET		S MET		AV SUL		Hg		TOC	
041M640202	SOIL		X		X		X		X		X		X				X
041N640202	SOIL		X		X		X		X		X		X				X
041M640302	SOIL		X		X		X		X		X		X				X
041M640502	SOIL		X		X		X		X		X		X				X
041M640602	SOIL		X		X		X		X		X		X				X
041M640702	SOIL		X		X		X		X		X		X				X
041M641102	SOIL		X		X		X		X		X		X				X
041M642402	SOIL		X		X		X		X		X		X				X
040MZ13002	SOIL								X		X		X				X
040MZ21602	SOIL								X		X		X				X
040NZ21602	SOIL										X		X		X		X
040MZ23702	SOIL										X		X		X		X
040NZ23702	SOIL								X		X		X				X
040MZ24402	SOIL										X		X		X		X
040MZ24702	SOIL										X		X		X		X
040MZ31602	SOIL										X		X		X		X
040MZ40102	SOIL										X		X		X		X
041E640803	WATER	X		X		X		X									
041F640803	WATER	X		X		X		X									
Total Billable Samples (Water/Soil)		2	8	2	8	2	8	2	11	0	17	0	17	0	6	0	17

SVOA= Semivolatiles
PEST= Pesticides
PCB= PCBs
MET= Metals
S MET= SEM Metals
AV SUL= Acid Volatile Sulfide
Hg= Mercury
TOC= Total Organic Carbon

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C for Semivolatiles; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP14

A validation was performed on the Semivolatile Data from SDG NASP14. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
	•	Calibration
*	•	Blanks
*	•	Internal Standard Performance
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Compound Identification
*	•	Compound Quantitation

* - All criteria were met for this parameter.

Calibration

The continuing calibration standard DQ586 exhibited a non-compliant %D greater than 50% but less than 90%. For the following sample and compound, the reported positive or non-detect result is qualified as estimated, J or UJ.

041M641102	benzidine (50.4%)

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041M641102	benzidine (50.4%)	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 80801A/8082; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP14

A validation was performed on the Pesticides/PCB Data from SDG NASP14. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration MAG14024 analyzed on 8/14/01 at 2344 Instrument SGMECD1 on the RTX-CLP column exhibited a non-compliant %D greater than 50% but less than 90%. For the following samples and non-compliant compounds, the reported positive and non-detect results are qualified as estimated, J/UJ.

All Soil Samples	methoxychlor (52.8%)

Calibrations (continued)

The continuing calibration MAG14024 analyzed on 8/14/01 at 2344 on Instrument SGMECD2 exhibited non-compliant %Ds greater than 15% but less than 50% on the RTX-CLP 2 column for which qualifications were required. For the following samples and non-compliant compound, the reported positive results are qualified as estimated, J.

041N640202	4,4'-DDD (38.5%)
041M640602	

The closing continuing calibration MAG14024 analyzed on 8/15/01 at 1021 on Instrument SGMECD1/2 exhibited non-compliant %Ds greater than 15% on both columns for which qualifications were required. For the following samples and non-compliant compound, the reported positive results are qualified as estimated, J.

041N640202	4,4'-DDD (39.3%/35.2%)
041M640602	

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries for the compound TCX on one or both columns. All reported positive and non-detect results in the sample are qualified as estimated, J/UJ.

041M640302	TCX (23%/20%)
041M642402	TCX (25%)
041M641102	TCX (24%/27%)

Compound Quantitation

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U.

4. The positive sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ.

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M640702	delta-BHC	41.0	P	J	2
041M640602	delta-BHC	98.8	P	J	2
	4,4'-DDD	94.7	P	J	2
041M640302	4,4'-DDE	50.0	P	J	2
	4,4'-DDD	105.1	P	U	3
041M640202	delta-BHC	77.8	P	J	2
	4,4'-DDE	32.4	P		1
	4,4'-DDD	114.3	P	U	3
040N640202	delta-BHC	37.3	P		1
	4,4'-DDD	63.5	P	J	2

Compound Quantitation (continued)

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M640502	delta-BHC	41.8	P	J	2
	heptachlor epoxide	98.8	P	J	2
	4,4'-DDE	32.7	P		1
	4,4'-DDD	139.9	P	U	3

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Soil Samples	methoxychlor (52.8%)	+/-	J/UJ
041N640202 041M640602	4,4'-DDD (38.5%)	+	J
041N640202 041M640602	4,4'-DDD (39.3%/35.2%)	+	J
041M640302 041M642402 041M641102	All compounds	+/-	J/UJ
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	All P > 100% And < 10X CRQL	+	U
ALL	All P > 100% And > 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
TOTAL AND SEM METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # NASP14

A validation was performed on the total and sem Metals Data from SDG NASP14. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
	●	Blanks
*	●	Interferences
	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

Total soil samples

Elements	Conc.	Samples affected
Chromium	0.20 mg/kg	all soil samples below 1.0 mg/kg
Iron	2.53 mg/kg	no impact

SEM metals

Zinc	0.14 mg/kg	all sem samples below 0.7 mg/kg

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

The preparation blanks exhibited negative bias for the following elements.

total soil samples

Elements	Conc.	Samples affected
Cadmium	-0.06 mg/kg	all soil samples below 0.6 mg/kg
Zinc	-0.63 mg/kg	all soil samples below 6.3 mg/kg

This reviewer qualifies all samples results below 10 times the absolute value of the negative blank value.

Matrix Spike Recovery results

The matrix spike recovery results for the SEM samples for Copper (0%) was below 30%. All positive results are qualified as estimated, "J" and all non-detect results are rejected.

The matrix spike recovery results for the SEM samples for Cadmium (47%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" and "UJ".

Matrix Duplicate RPD results

The matrix duplicate RPD results for SEM samples for Copper (32%) and Lead (21%) were not greater than 35% and will not be qualified.

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 1.0 mg/kg	Cr.	+	U
all sem samples below 0.7 mg/kg	Zn.		
all soil samples below 0.6 mg/kg	Cd.	+/U	J/UJ
all soil samples below 6.3 mg/kg	Zn.		
all sem samples	Cu.	+	J
		U	R
all sem samples	Cd.	+/U	J/UJ
all "B" results	all analytes	B	J

DATA ASSESSMENT NARRATIVE
AVS AND TOC

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # NASP14

A validation was performed on the AVS and toc Data from SDG NASP14. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
*	●	Blanks
*	●	Interferences
*	●	Matrix Spike Recovery
*	●	Matrix Duplicates
	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Field Duplicate RPD results

The field duplicate RPD results for samples (040M-Z216-02 and 040N-Z216-02) for AVS (141%) and for samples (040M-6402-02 and 040N-6402-02) for AVS (56%) were greater than 50%.. All positive and non-detect results are qualified as estimated, "J" and "UJ".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
040M-Z216-02 and 040N-Z216-02.	AVS.	+/U	J/UJ
040M-6402-02 and 040N-6402-02.	AVS.	+/U	J/UJ
all "B" results	all analytes	B	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	NASP15
Date:	October 18, 2001
Client Name:	EnSafe
Project/Site Name:	Pensacola
Date Sampled:	August 2 - 3, 2001
Number of Samples:	16 Non-Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	STL Savannah Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition and STL SOP
Analytical Fractions:	Semivolatiles, Pesticides, PCBs, Metals and Mercury

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Simpson
Paul B. Humburg, President

10-18-01.
Date

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SDG# NASP15

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

ENSAFE ID	MATRIX	SVOA		PEST		PCB		MET		Hg	
040JZ13002	SOIL										X
040NZ23702	SOIL										X
040JZ23702	SOIL										X
040MZ24401	SOIL										X
040JZ24701	SOIL										X
040JZ31601	SOIL										X
040JZ21602	SOIL		X		X		X		X		
041J640202	SOIL		X		X		X		X		
041J640301	SOIL		X		X		X		X		
041J640302	SOIL		X		X		X		X		
041J64030K	SOIL		X		X		X		X		
041J640501	SOIL		X		X		X		X		
041J640602	SOIL		X		X		X		X		
041J640701	SOIL		X		X		X		X		
041B640803	SOIL		X		X		X		X		
041J642401	SOIL		X		X		X		X		
Total Billable Samples (Water/Soil)		0	10	0	10	0	10	0	10	0	6

SVOA= Semivolatiles
PEST= Pesticides
PCB= PCBs
MET= Metals
Hg= Mercury

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C for Semivolatiles; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP15

A validation was performed on the Semivolatile Data from SDG NASP15. The data was evaluated based on the following parameters:

*	•	Data Completeness
*	•	Holding Times
*	•	GC/MS Tuning
*	•	Calibration
*	•	Blanks
*	•	Internal Standard Performance
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Compound Identification
*	•	Compound Quantitation

* - All criteria were met for this parameter.

System Performance and Overall Assessment

The data, as reported, did not require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL

NO QUALIFICATIONS WERE REQUIRED.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 80801A/8082; the National Functional Guidelines for Organic Data Validation, 10/99, as applicable; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # NASP15

A validation was performed on the Pesticides/PCB Data from SDG NASP15. The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
*	• GC Performance
	• Calibration
*	• Blanks
	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicates
*	• Laboratory Control Samples
*	• Field Duplicates
*	• Compound Identification
	• Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration MAG15041 analyzed on 8/16/01 on Instrument SGMECD1 on the RTX-CLP columns exhibited a non-compliant %D greater than 50% but less than 90%. For the following samples and non-compliant compounds, the reported positive and non-detect results are qualified as estimated, J/UJ.

041B640803	methoxychlor (52%)

Calibrations (continued)

The continuing calibration MAG17128 analyzed on 8/18/01 at 0912 on Instrument SGMECD1/2 exhibited non-compliant %Ds greater than 15% but less than 50% on one or both columns for which qualifications were required. For the following samples and non-compliant compounds, the reported positive results are qualified as estimated, J.

041J64030K	heptachlor (20.1%)
041J64030K	gamma-chlordane (16.0%)
041J640301	4,4'-DDD (27.8%/21.7%)
041J640602	

The closing continuing calibration MAG17162 analyzed on 8/19/01 at 0244 on Instrument SGMECD1/2 exhibited non-compliant %Ds greater than 15% on one or both columns for which qualifications were required. For the following samples and non-compliant compounds, the reported positive results are qualified as estimated, J.

041J64030K	heptachlor (18.9%)
041J64030K	gamma-chlordane (15.5%)
041J640301	4,4'-DDD (44.8%/39.1%)
041J640602	
041J640301	4,4'-DDT (21.1%/21.5%)
041J640202	
041J640302	
041J640602	
041J640701	

Surrogate Recoveries

The following sample exhibited a non-compliant surrogate recovery for the compound decachlorobiphenyl on the RTX-CLP2 column (28%). All reported positive and non-detect results in the sample are qualified as estimated, J/UJ.

041J64030K

Compound Quantitation

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.

2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.

3. The positive sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U.

4. The positive sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ.

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041J640301	heptachlor epoxide	164.2	P	U	3
	gamma-chlordane	41.4	P	J	2
	4,4'-DDD	100.0	P	J	2
041J640301K	heptachlor	58.8	P	J	2
	gamma-chlordane	35.3	P		1
	4,4'-DDE	69.8	P	J	2
	4,4'-DDD	97.4	P	J	2
041J640602	4,4'-DDE	37.8	P		1
	4,4'-DDD	79.1	P	J	2
	AR1260	45.2	P	J	2
041J640302	gamma-chlordane	115.8	P	U	3
	4,4'-DDE	132.4	P	U	3
	4,4'-DDT	50.0	P	J	2
040MZ21602	gamma-chlordane	161.6	P	U	3
	4,4'-DDE	159.8	P	U	3

Compound Quantitation (continued)

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.	Ref. #
041M640202	gamma-chlordane	127.5	P	U	3
	4,4'-DDE	95.7	P	J	2
041J642401	gamma-BHC	75.9	P	J	2
041J640501	gamma-chlordane	153.8	P	U	3
041J640701	gamma-BHC	83.6	P	J	2

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

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L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

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BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
041B640803	methoxychlor (52%)	+/-	J/UJ
041J64030K	heptachlor (20.1%)	+	J
041J64030K 041J640301 041J640602	gamma-chlordane (16.0%) 4,4'-DDD (27.8%/21.7%)	+	J
041J64030K	heptachlor (18.9%)	+	J
041J64030K 041J640301 041J640602	gamma-chlordane (15.5%) 4,4'-DDD (44.8%/39.1%)	+	J
041J640301 041J640202 041J640302 041J640602 041J640701	4,4'-DDT (21.1%/21.5%)	+	J
041J64030K	All compounds	+/-	J/UJ
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	All P > 100% And < 10X CRQL	+	U
ALL	All P > 100% And > 10X CRQL	+	NJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # NASP15

A validation was performed on the Metals Data from SDG NASP15. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
	●	Blanks
*	●	Interferences
	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

tiisue samples

Elements	Conc.	Samples affected
Barium	0.035 mg/kg	no impact
Calcium	0.81 mg/kg	no impact
Chromium	0.18 mg/kg	all tissue samples below 0.9 mg/kg
Lead	0.30 mg/kg	all tissue samples below 1.5 mg/kg

Manganese	0.06 mg/kg	no impact
Sodium	33.7 mg/kg	no impact

solid samples

Iron	2.53 mg/kg	no impact

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

The preparation blanks exhibited negative bias for the following elements.

tissue samples

Elements	Conc.	Samples affected
Thallium	-0.54 mg/kg	all tissue samples below 5.4 mg/kg
Zinc	-0.32 mg/kg	all tissue samples below 3.2 mg/kg

solid samples

Cadmium	-0.06 mg/kg	all solid samples below 0.6 mg/kg

This reviewer qualifies all samples results below 10 times the absolute value of the negative blank value.

Matrix Spike Recovery results

The matrix spike recovery results for the solid samples for Mercury (68%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" and "UJ".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all tissue samples below 0.9 mg/kg	Cr.	+	U
all tissue samples below 1.5 mg/kg	Pb.		
all solid samples below 0.6 mg/kg	Cd.	+/U	J/UJ
all tissue samples below 5.4 mg/kg	Tl.		
all tissue samples below 6.3 mg/kg	Zn.		
all solid samples	Hg.	+/U	J/UJ
all "B" results	all analytes	B	J

ENSAFE VERIFICATION SUMMARY REPORT
SAMPLE DELIVERY GROUP PEN16

Site Name: Pensacola — Site 41
Project No.: 0036-001-00-130-00
Laboratory: STL Savannah Laboratory
Sample Delivery Group: PEN16
Matrix: Sediment and Aqueous Blanks
Tier Level: II
Validation Guidance: National Functional Guidelines for Organic Data Review, USEPA, 1994
National Functional Guidelines for Inorganic Data Review, USEPA, 1994

Analysis: Volatile Organic Compounds (VOCs) by Method 8260B
Low Concentration Polynuclear Aromatic Hydrocarbons (PAHs) by Method 8270C
Semivolatile Organic Compounds (SVOCs) minus PAHs by Method 8270C
Chlorinated Pesticides by Method 8081A
Polychlorinated Biphenyls (PCBs) by Method 8082
Total & Dissolved Metals by Methods 6010B/7470A/7471A
Total Organic Carbon (TOC) by Method 9060

Table 1
Sample Summary

Sample ID	Lab ID	Sample Type	Sample Date	VOC	Low PAH	SVOC	Pest	PCB	Total Metals	Dissolved Metals	TOC
041M5B0202	S442931*1	Sediment	4/6/2004	X	X	X	X	X	X		X
041M5B0202	S442931*1*DL	Sediment	4/6/2004				X	X			
041M5B0301	S442931*2	Sediment	4/6/2004	X	X	X	X	X	X		X
041M5B0301	S442931*2*DL	Sediment	4/6/2004				X	X			
041M5B0401	S442931*4	Sediment	4/6/2004	X	X	X	X	X	X		X
041M5B0401	S442931*4*DL	Sediment	4/6/2004				X	X			
041M5B0501	S442931*5	Sediment	4/6/2004	X	X	X	X	X	X		X
041M5B0501	S442931*5*DL	Sediment	4/6/2004				X	X			
041M5B0601	S442931*6	Sediment	4/6/2004	X	X	X	X	X	X		X
041M5B0601	S442931*6*DL	Sediment	4/6/2004				X	X			
041N5B0301	S442931*3	Dup of 041M5B0301	4/6/2004	X	X	X	X	X	X		X
041N5B0301	S442931*3*DL	Dup of 041M5B0301	4/6/2004				X	X			
041TB00001	S442931*9	Trip Blank	4/6/2004	X							
041EM00001	S442931*8	Equipment Blank	4/6/2004	X	X	X	X	X	X	X	
041FE00001	S442931*7	Field Blank	4/6/2004	X	X	X	X	X	X	X	
041FE00001	S442931*7*RE	Field Blank	4/6/2004			X					

Notes:
VOCs = Volatile Organic Compounds by Method 8260B
Low PAH = Low Concentration Polynuclear Aromatic Hydrocarbons by Method 8270C
SVOC = Semivolatile Organic Compounds minus PAHs by Method 8270C
Pest = Chlorinated Pesticides by Method 8081A
PCBs = Polychlorinated Biphenyls by Method 8082
TOC = Total Organic Carbon by Method 9060
DL = Sample was diluted.
RE = Sample was re-analyzed.
X = Sample was analyzed for the method indicated in the column header.

The following flags were used to annotate laboratory qualifiers:

Laboratory Qualifiers

U = **Undetected** — The analyte was not detected above the sample quantitation limit (SQL), which is defined as the method detection limit adjusted for sample preparation factors.

I = **Estimated** — The analyte was detected above the SQL but less than the method quantitation limit (MQL) and is estimated.

V = **Blank Contamination** — The parameter was found in both the sample and the associated laboratory method blank.

When the QC parameters did not fall within the specific method or data review guidelines, the data evaluator annotated or "flagged" the corresponding compounds. Flags used during data review are as follows:

Data Review Qualifiers

U = **Undetected** — The parameter was analyzed but not detected or was found in a sample, but at a concentration less than 10 times the blank concentration for common organic constituents (methylene chloride, acetone, 2-butanone, and phthalate esters) or five times the blank concentration for other constituents.

J = **Estimated Value** — One or more QC parameters were outside control.

UJ = **Undetected and Estimated** — The parameter was analyzed but not detected and was estimated because at least one QC parameter was outside of control limits.

VERIFICATION RESULTS

Data verification was performed on the sediment samples from sample delivery group (SDG) PEN16. All samples were received intact by the laboratory and with the proper documentation. The data verification consisted of reviewing the following parameters:

* Data completeness
* Holding times
  Surrogate Recoveries (organics only)
  Laboratory control samples (LCS)
  Field Duplicate Precision
  Laboratory blanks
  Equipment rinsate blank
  Field blank
  Trip Blank (VOCs only)
  Diluted Sample Results

An asterisk (*) above indicates that all criteria were met. All sediment results were reported on a dry-weight basis. A matrix spike/matrix spike duplicate was not included for this SDG. The following sections describe specific outliers that were qualified during the verification process. Data that were not flagged will not be discussed further in the following sections.

Surrogate Recoveries

All pesticide and low PAH samples (except 041M5B0401) were diluted. Upon dilution, the surrogate percent recoveries (%Rs) were not recovered (0%). Because the diluted surrogates

were diluted out and undiluted surrogates were acceptable, the diluted results are acceptable without qualification per Method 8000B.

Laboratory Control Samples

The LCS %R for pesticide aldrin was 127%, which was slightly above the 32-124% QC limit. No flags were applied because the associated results were undetected (after blank assessment), and %Rs above the QC limit indicated high result bias.

Field Duplicate Precision

Samples 041M5B0301 and 041N5B0301 were field duplicates. The relative percent differences (RPDs) were calculated. Several analytes were qualified because they had RPDs greater than 50, as shown in Table 2.

Table 2
Field Duplicate Outliers and Qualifications

Method	Parameter	041M5B0301 Result	Qual	041N5B0301 Result	Qual	Units	RPD	Flags
PEST	4,4'-DDE	23	I	12	I	µg/Kg	-62.9	None: already I-flagged
SVOCs	3-Methylphenol/ 4-Methylphenol	73	I	410	I	µg/Kg	139.5	None: already I-flagged
	Di-n-butylphthalate	330	I	59	U	µg/Kg	-139.3	041N5B0301 flagged "UJ"
Total Metals	Aluminum	860		1500		mg/Kg	54.2	J-flag both results
	Barium	3.3		6.1		mg/Kg	59.6	J-flag both results
	Cadmium	1.0		5.1		mg/Kg	134.4	J-flag both results
	Chromium	24		63		mg/Kg	89.7	J-flag both results
	Cobalt	0.4	I	1.0	I	mg/Kg	85.7	None: already I-flagged
	Copper	12		29		mg/Kg	82.9	J-flag both results
	Iron	470		1600		mg/Kg	109.2	J-flag both results
	Lead	38		94		mg/Kg	84.8	J-flag both results
	Nickel	1.2	I	3.7	I	mg/Kg	102.0	None: already I-flagged
	Silver	0.18	U	0.58	I	mg/Kg	105.3	041M5B0301 flagged "UJ"
	Vanadium	1.1	I	2.5		mg/Kg	77.8	041N5B0301 J-flagged
	Zinc	45		120		mg/Kg	90.9	J-flag both results

Notes:
Qual = qualifier
RPD = relative percent difference
PEST = chlorinated pesticides
µg/Kg = micrograms per kilogram
I = The analyte was detected above the sample quantitation limit but less than the method quantitation limit.
SVOCs = semivolatile organic compounds
U = The analyte was not detected above the sample quantitation limit.
UJ = The parameter was analyzed but not detected. The sample quantitation limit was estimated because at least one QC parameter was outside of control limits.
mg/Kg = milligrams per kilogram
J = positive result was estimated

Blank Results

Naphthalene and phenanthrene were detected in the field blank, and aldrin was detected in field and laboratory blanks. Organic samples were flagged in accordance with *Organic Functional Guidelines* where detections were not believed to be site related. According to *Organic Functional Guidelines*, a sample result should not be considered positive unless the concentration of the compound in the sample exceeds 10 times the amount in **any** blank for common laboratory contaminants (i.e., methylene chloride, acetone, and 2-butanone) or five times the amount for

other constituents. These amounts are referred to as action levels. Because blank samples may not be prepared using the same sample weight or volume or the same dilution, these variables were considered when using these blank criteria.

Concentrations detected in organic blanks are shown in Table 3. Investigative samples were flagged in accordance with *Organic Functional Guidelines* when blank artifacts indicated false positives were reported in investigative samples.

Several metals were detected in laboratory, field, and equipment blanks. However, no qualifications were made to samples due to blank artifacts. This decision was based on professional judgment and because metals are naturally occurring in potable water; therefore, the metals results represent worst-case concentrations.

Table 3
Organic Blank Outliers and Flagged Samples

Method	Sample Id	Blank Type	Parameter	Result	Qual	Units	Action Level	Action Level Units	Action
LOW PAH	041FE00001	Field	Naphthalene	0.11	I	µg/L	18.15	µg/Kg	None: All results were undetected
	041FE00001	Field	Phenanthrene	0.052	I	µg/L	8.58	µg/Kg	041M5B0202, 041M5B0301, 041N5B0301, and 041M5B0501 flagged "U."
PEST	BLK0EN1614	Lab	Aldrin	1.4	I	µg/Kg	7	µg/Kg	041M5B0401, 041M5B0401DL, 041M5B0501, 041M5B0601, and 041M5B0601DL flagged "U."
	BLK0EN1623	Lab	Aldrin	0.026	I	µg/L	4.29	µg/Kg	

Notes:
Qual = qualifier
Low PAH = low concentration polyaromatic hydrocarbons
I = The analyte was detected above the sample quantitation limit but less than the method quantitation limit.
µg/L = micrograms per liter
µg/Kg = micrograms per kilogram
U = The analyte was flagged as not detected due to blank artifacts.
PEST = chlorinated pesticides

Diluted Sample Results

All pesticide samples were diluted because the performance evaluation standard indicated decomposition of 4,4'-DDT, which affects 4,4'-DDT, 4,4'-DDD, and 4,4'-DDE sample results. The initial (undiluted) results for these compounds may not represent true concentrations. Therefore, results from the secondary dilution were used for 4,4'-DDT, 4,4'-DDD, and 4,4'-DDE in the following samples: 041M5B0202, 041M5B0301, 041M5B0401, 041M5B0501, 041M5B0601, and 041N5B0301. Because 4,4'-DDT decomposition does not affect the remaining pesticides and PCBs, they were reported from the initial (undiluted) run to provide results that represent acceptable quality and the lowest quantitation limits.

Summary of Data Qualifications

Analytes outside individual QC criteria were flagged during this evaluation. No positive results were rejected and values flagged as estimated during data review may be biased high or low, but the results are usable for assessing the nature and extent of contamination and risk assessment according to USEPA guidelines. All other results were acceptable without qualification. Data review qualifications performed on analytical results are summarized in Table 4.

Table 4
Qualification Summary - SDG PEN16

Method	Sample ID	Parameter	Lab Qualifier	Review Qualifier	4,4'-DDT Decomposition	Blanks	Field Duplicate Precision
Low PAH	041M5B0202, 041M5B0301, 041M5B0401, 041N5B0301	Phenanthrene	I	U		X	
PEST	041M5B0202, 041M5B0301, 041M5B0601, 041N5B0301	4,4'-DDD	I	U	X		
PEST	041M5B0401, 041M5B0501	4,4'-DDD	U	U	X		
PEST	041M5B0401, 041M5B0501	4,4'-DDE	I	U	X		
PEST	041M5B0202	4,4'-DDE		I	X		
PEST	041M5B0301, 041N5B0301	4,4'-DDE		I	X		X
PEST	041M5B0601	4,4'-DDE		I	X		
PEST	041M5B0202, 041M5B0301, 041M5B0401, 041M5B0501, 041M5B0601, 041N5B0301	4,4'-DDT	U	U	X		
PEST	041M5B0501, 041M5B0401, 041M5B0601	Aldrin	IV or V	U		X	
SVOC	041M5B0301, 041N5B0301	3-Methylphenol/ 4-Methylphenol	I	I			X
SVOC	041M5B0301, 041N5B0301	Di-n-butylphthalate	I or U	I or UJ			X
Total Metals	041M5B0301, 041N5B0301	Aluminum, Barium, Cadmium, Chromium, Copper, Iron, Lead, Zinc		J			X
Total Metals	041M5B0301, 041N5B0301	Cobalt, Nickel	I	I			X
Total Metals	041N5B0301, 041M5B0301	Silver	I or U	I or UJ			X
Total Metals	041M5B0301, 041N5B0301	Vanadium	I	I or J			X

Notes:
SDG = sample delivery group
Low PAH = low concentration polynuclear aromatic hydrocarbons
I = The analyte was detected above the sample quantitation limit but less than the method quantitation limit.
U = *Lab qualifier:* The analyte was not detected above the sample quantitation limit.
Data Review Qualifier: The analyte was flagged as not detected due to blank artifacts.
X = An X indicates that the result was flagged during data review for the reason indicated in the column header.
PEST = chlorinated pesticides
V = The parameter was found both in the sample and associated laboratory method blank.
UJ = The parameter was analyzed but not detected. The sample quantitation limit was estimated because at least one QC parameter was outside of control limits.
J = positive result was estimated

ENSAFE VERIFICATION SUMMARY REPORT
SAMPLE DELIVERY GROUP PEN17

Site Name: Pensacola — Site 41
Project No.: 0036-001-00-130-00
Laboratory: STL Savannah Laboratory
Sample Delivery Group: PEN17
Matrix: Sediment, Surface Water, and Aqueous Blanks
Tier Level: II
Validation Guidance: National Functional Guidelines for Organic Data Review, USEPA, 1994
National Functional Guidelines for Inorganic Data Review, USEPA, 1994

Analysis: Volatile Organic Compounds (VOCs) by Method 8260B
Low Concentration Polynuclear Aromatic Hydrocarbons (PAHs) by Method 8270C
Semivolatile Organic Compounds (SVOCs) minus PAHs by Method 8270C
Chlorinated Pesticides by Method 8081A
Polychlorinated Biphenyls (PCBs) by Method 8082
Total & Dissolved Metals by Methods 6010B/7470A/7471A
Total Organic Carbon (TOC) by Method 9060

Table 1
Sample Summary

Sample ID	Lab ID	Sample Type	Sample Date	VOC	Low PAH	SVOC	Pest	PCB	Total Metals	Dissolved Metals	TOC
041M19A101	S443041*1	Sediment	4/8/2004	X	X	X	X	X	X		X
041M19A101	S443041*1*DL	Sediment	4/8/2004				X	X			
033W000102	S443041*5	Surface Water	4/8/2004						X	X	
041W061002	S443041*2	Surface Water	4/8/2004	X					X	X	
041W150102	S443041*8	Surface Water	4/8/2004						X	X	
041W170102	S443041*7	Surface Water	4/8/2004						X	X	
041W19A102	S443041*9	Surface Water	4/8/2004						X	X	
041W63A202	S443041*6	Surface Water	4/8/2004						X	X	
041W720102	S443041*10	Surface Water	4/8/2004						X	X	
041R720102	S443041*11	Dup of 041W720102	4/8/2004						X	X	
041EW00001	S443041*3	Equipment Blank	4/8/2004	X					X	X	
041TB00002	S443041*4	Trip Blank	4/8/2004	X							

Notes:
VOCs = Volatile Organic Compounds by Method 8260B
Low PAH = Low Concentration Polynuclear Aromatic Hydrocarbons by Method 8270C
SVOC = Semivolatile Organic Compounds minus PAHs by Method 8270C
Pest = Chlorinated Pesticides by Method 8081A
PCBs = Polychlorinated Biphenyls by Method 8082
TOC = Total Organic Carbon by Method 9060
DL = Sample was diluted.
X = Sample was analyzed for the method indicated in the column header.

The following flags were used to annotate laboratory qualifiers:

Laboratory Qualifiers
U = **Undetected** — The analyte was not detected above the sample quantitation limit (SQL), which is defined as the method detection limit adjusted for sample preparation factors.

I = **Estimated** — The analyte was detected above the SQL but less than the method quantitation limit (MQL) and is estimated.

V = **Blank Contamination** — The parameter was found in both the sample and the associated laboratory method blank.

When the QC parameters did not fall within the specific method or data review guidelines, the data evaluator annotated or "flagged" the corresponding compounds. Flags used during data review are as follows:

Data Review Qualifiers

U = **Undetected** — The parameter was analyzed but not detected or was found in a sample, but at a concentration less than 10 times the blank concentration for common organic constituents (methylene chloride, acetone, 2-butanone, and phthalate esters) or 5 times the blank concentration for other constituents.

J = **Estimated Value** — One or more QC parameters were outside control.

UJ = **Undetected and Estimated** — The parameter was analyzed but not detected. The sample quantitation limit was estimated because at least one QC parameter was outside of control limits.

VERIFICATION RESULTS

Data verification was performed on the sediment samples from sample delivery group (SDG) PEN17. All samples were received intact by the laboratory and with the proper documentation. The data verification consisted of reviewing the following parameters:

* Data completeness
* Holding times
* Surrogate Recoveries (organics only)
  Laboratory control samples (LCS)
  Field Duplicate Precision
  Laboratory blanks
  Equipment rinsate blank
  Field blank
  Trip Blank (VOCs only)
  Diluted Sample Results

An asterisk (*) above indicates that all criteria were met. All sediment results were reported on a dry-weight basis. A matrix spike/matrix spike duplicate was not included for this SDG. The following sections describe specific outliers that were qualified during the verification process. Data that were not flagged will not be discussed further in the following sections.

Laboratory Control Samples

The LCS percent recovery (%R) for pesticide aldrin was 127%, which was slightly above the 32-124% QC limit. No flags were applied because the associated results were undetected and %Rs above the QC limit indicated high result bias.

Field Duplicate Precision

Samples 041W720102 and 041R720102 were field duplicates. The relative percent differences (RPDs) were calculated. Two metals were qualified because they had RPDs greater than 35, as shown in Table 2.

Table 2
Field Duplicate Outliers and Qualifications

Method	Parameter	041W720102 Result	Qual	041R720102 Result	Qual	Units	RPD	Flags
Total Metals	Beryllium	0.78	I	0.41	I	µg/L	-62.2	None: already I-flagged
	Zinc	1.7	I	0.6	U	µg/L	-95.7	041R720102 flagged "UJ"

Notes:
Qual = qualifier
RPD = relative percent difference
I = The analyte was detected above the sample quantitation limit but less than the method quantitation limit.
µg/L = micrograms per liter
U = The analyte was not detected above the sample quantitation limit.
UJ = The parameter was analyzed but not detected. The sample quantitation limit was estimated because at least one QC parameter was outside of control limits.

Blank Results

Acetone, 2-butanone, and aldrin were detected in various blanks. Organic samples were flagged in accordance with *Organic Functional Guidelines* where detections were not believed to be site related. According to *Organic Functional Guidelines*, a sample result should not be considered positive unless the concentration of the compound in the sample exceeds 10 times the amount in **any** blank for common laboratory contaminants (i.e., methylene chloride, acetone, and 2-butanone) or five times the amount for other constituents. These amounts are referred to as action levels. Because blank samples may not be prepared using the same sample weight or volume or the same dilution, these variables were considered when using these blank criteria.

Concentrations detected in organic blanks are shown in Table 3. Investigative samples were flagged in accordance with *Organic Functional Guidelines* when blank artifacts indicated false positives were reported in investigative samples.

Several metals were detected in laboratory, field, and equipment blanks. However, no qualifications were made to samples due to blank artifacts. This decision was based on professional judgment and because metals are naturally occurring in potable water; therefore, the metals results represent worst-case concentrations.

Table 3
Organic Blank Outliers and Flagged Samples

Method	Sample Id	Blank Type	Parameter	Result	Qual	Units	Action Level	Action Level Units	Action
VOC	041TB00002	Trip	Acetone	8.7	I	µg/L	87	µg/Kg or µg/L	None: All results were undetected
VOC	041EW00001	Equipment	2-Butanone	6.1	I	µg/L	61	µg/Kg or µg/L	041W061002 flagged "U."
	041TB00002	Trip	2-Butanone	7.3	I	µg/L	73		
	BLK0EN1725	Lab	2-Butanone	5.7	I	µg/L	57		
PEST	BLK0EN1716	Lab	Aldrin	0.026	I	µg/Kg	0.13	µg/Kg	None: All results were undetected

Notes:
Qual = qualifier
VOC = volatile organic compounds
I = The analyte was detected above the sample quantitation limit but less than the method quantitation limit.
µg/L = micrograms per liter
µg/Kg = micrograms per kilogram
U = The analyte was flagged as not detected due to blank artifacts.
PEST = chlorinated pesticides

Diluted Sample Results

Pesticide sample 041M19A101 was diluted because the performance evaluation standard indicated decomposition of 4,4'-DDT, which affects 4,4'-DDT, 4,4'-DDD, and 4,4'-DDE sample results. These compounds were not detected in the initial (undiluted) sample. Therefore, no adverse effects are expected on sample results, these compounds were reported from the initial (undiluted) analytical run, and the secondary dilution was not used. Because 4,4'-DDT decomposition does not affect the remaining pesticides and PCBs, they were also reported from the initial (undiluted) run to provide results that represent acceptable quality and the lowest quantitation limits.

Summary of Data Qualifications

Analytes outside individual QC criteria were flagged during this evaluation. No positive results were rejected and values flagged as estimated during data review may be biased high or low, but the results are usable for assessing the nature and extent of contamination and risk assessment according to USEPA guidelines. All other results were acceptable without qualification. Data review qualifications performed on analytical results are summarized in Table 4.

Table 4
Qualification Summary - SDG PEN17

Method	Sample ID	Parameter	Lab Qualifier	Review Qualifier	Blanks	Field Duplicate Precision
VOC	041W061002	2-Butanone	IV	U	X	X
Total Metals	041W720102, 041R720102	Zinc	I or U	I or UJ		X

Notes:
SDG = sample delivery group
VOCs = volatile organic compounds
I = The analyte was detected above the sample quantitation limit but less than the method quantitation limit.
V = The parameter was found both in the sample and associated laboratory method blank.
U = *Lab qualifier:* The analyte was not detected above the sample quantitation limit.
Data Review Qualifier: The analyte was flagged as not detected due to blank artifacts.
X = An X indicates that the result was flagged during data review for the reason indicated in the column header.
UJ = The parameter was analyzed but not detected. The sample quantitation limit was was estimated because at least one QC parameter was outside of control limits.