Analytical Resources, Incorporated
Analytical Chemists and Consultants

AMEC E&I
Received
SEP 15 2011
SEATTLE ORG. 5009

September 14, 2011

John Long
AMEC/Geomatrix
600 University Suite 1020
Seattle, WA 98101

RE: Client Project: Former Rhone Poulenc- 8769 Shoreline Investigation
ARI Job Number: TK37

Dear John:

Please find enclosed the final data package for samples for the project referenced above. ARI received ten soil samples and one trip blank on August 29, 2011.

Please refer to the case narrative for details on the analyses of these samples.

A copy of this package will be kept on file at ARI. If you have questions or problems, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Enclosures

cc: file TK37

KFB/esj

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Table of Contents: ARI Job TK37

Client: AMEC Geomatrix

Project: 8769 FRP Shoreline Investigation 2011

AMEC E&E Received SEP 15 2011 SEATTLE ORG. 5009

	Page From:	Page To:
Inventory Sheet		
Cover Letter	1	1
Chain of Custody Documentation	2	4
Case Narrative, Data Qualifiers, Control Limits	5	26
Volatile Analysis		
Report and Summary QC Forms	27	67
Semivolatile Analysis		
Report and Summary QC Forms	68	109
PCB Analysis		
Report and Summary QC Forms	110	148
TPHD Analysis		
Report and Summary QC Forms	149	171
TPHG Analysis		
Report and Summary QC Forms	172	190
Metals Analysis		
Report and Summary QC Forms	191	227
Geotechnical Analysis		
Report and Summary QC Forms	228	237
Total Solids		
Report and Summary QC Forms	238	244
Volatile Raw Data		
Preparation Log	245	246
Initial Calibration	247	372
Run Logs, Continuing Calibrations, and Raw Data	373	520
Semivolatile Raw Data		
Extractions Bench Sheets and Notes	521	525
Initial Calibration	526	720
Run Logs, Continuing Calibrations, and Raw Data	721	895

Signature

September-12-2011
Date

Table of Contents: ARI Job TK37

Client: AMEC Geomatrix

Project: 8769 FRP Shoreline Investigation 2011

	Page From:	Page To:
PCB Raw Data		
Extractions Bench Sheets and Notes	896	898
Initial Calibration	899	1005
Run Logs, Continuing Calibrations, and Raw Data	1006	1112
TPHD Raw Data		
Extractions Bench Sheets and Notes	1113	1115
Initial Calibration	1116	1181
Run Logs, Continuing Calibrations, and Raw Data	1182	1276
TPHG Raw Data		
Preparation Log	1277	1278
Initial Calibration	1279	1339
Run Logs, Continuing Calibrations, and Raw Data	1340	1392
Metals Raw Data		
Preparation Bench Sheets and Notes	1393	1396
Run Logs, Calibrations, and Raw Data	1397	1590
Geotechnical Raw Data		
Analyst Notes and Raw Data	1591	1595

Signature

September-12-2011
Date

Chain of Custody Documentation

ARI Job ID: TK37

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: TK37	Turn-around Requested: STANDARD
ARI Client Company: AMEC GMX	Phone: (206) 342-1773
Client Contact: JOHN LONG / NIK BACHER	
Client Project Name: FRP SHORELINE INVESTIGATION 2011	
Client Project #: 8769	Samplers: NIK BACHER

Page: 3 of 3

Date: 8/29/11 | Ice Present?

No. of Coolers: | Cooler Temps: 2.0 5.4

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Metals 6010B	Mercury 7471A	VOCs 8260C	MVTPH-G	MVTPH-Dx	SVOCs 8270	PCBs 8082	D4422	D2216	D4318	D2937 API RP40 EPA 9060	Notes/Comments
FRP-082911-021	8/29/11	1400	SOIL	6	X	X	X	X	X	X	X					
FRP-082911-022		1405		6	X	X	X	X	X	X	X					
FRP-082911-023		1410		6	X	X	X	X	X	X	X					
FRP-082911-024		1415		6	X	X	X	X	X	X	X					
FRP-082911-025		1420		6	X	X	X	X	X	X	X					
FRP-082911-026		1425		2						~~X~~ NO		X	X	X	X	
FRP-082911-027		1500		6	X	X	X	X	X	X	X					
FRP-082911-028		1505		6	X	X	X	X	X	X	X					
FRP-082911-029		1510		6	X	X	X	X	X	X	X					
FRP-082911-030		1515		6	X	X	X	X	X	X	X					
TRIP BLANK				2			X									

Comments/Special Instructions: See QAPP for list of metals.

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
Printed Name: Nik Bacher	Printed Name: Taylor Streeter	Printed Name:	Printed Name:
Company: AMEC	Company: ARI	Company:	Company:
Date & Time: 8/29/11 1650	Date & Time: 8-29-11 1655	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Amec

Project Name: FRP Shoreline investigation 2

COC No(s): (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: TK37

Tracking No: (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 2.0 5.4

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90941619

Cooler Accepted by: JL Date: 8-29-11 Time: 1655

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VDC Trip Blank was made at ARI	NA *	8/25/11	

Was Sample Split by ARI : (NA) YES Date/Time: Equipment: Split by:

Samples Logged by: AV Date: 8/30/11 Time: 930

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

* TB = 100 – no labels, but made 8/25/11 with FRP bottle order

By: AV Date: 8/30/11

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: TK37

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative
Project: 8769 Shoreline Investigation 2011
ARI Job No.: TK37
September 14, 2011

Sample Receipt:

Please find enclosed the original chain of custody (COC) record and analytical results for the project referenced above. Analytical Resources, Inc. accepted ten soil samples and one trip blank in good condition on August 29, 2011. The samples were received with cooler temperatures of 2.0 and 5.4°C. Please see the Cooler Receipt Form for further details.

Volatiles by Method 8260C:

The Laboratory analyzed the samples on 8/2/11 within the method recommended holding time.

Initial calibration (s): The initial calibration is out of control high for 2-Chloroethylvinylether.

Continuing calibration (s): The CCAL is out of control low for all associated FORM III "Q" flagged analytes with the exception of bromomethane and 2-chloroethylvinylether which are out of control high. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Samples: There were no anomalies associated with these samples.

Surrogates: All surrogate recoveries were in control.

LCS/LCSD (s): The LCS and/or LCSD are out of control high for 2-Chloroethylvinylether and Methylene Chloride.

Method Blank: The method blank contained methylene Chloride. All associated samples that contain analyte have been flagged with a "B" qualifier.

Semivolatile Organics by Method 8270D:

The Laboratory extracted the samples on 9/2/11 and the extracts were analyzed on 9/8/11 within the method recommended holding time.

Initial calibration (s): Are in control.

Continuing calibration (s): The CCAL is out of control high for all associated FORM III "Q" flagged analytes.

Samples: There were no anomalies associated with these samples.

Surrogates: Are in control.

LCS/LCSD (s): All percent recoveries for the analytes of interest were within compliance.

Method Blank: The method blank contained bis(2-Ethylhexyl)phthalate. All associated samples that contain analyte have been flagged with a "B" qualifier.

Matrix spike/ Matrix spike duplicate/ RPD(s): The matrix spike and matrix spike duplicate for sample FRP-082911-030 is out of control low for Hexachlorocyclopentadiene and 3,3-Dichlorobenzidine.

PCB Analysis:

The Laboratory extracted the samples on 9/5/11 and the extracts were analyzed on 9/9/11 within the method recommended holding time.

Initial calibration (s): Are in control.

Continuing calibration (s): The 1254 CCAL fails low on one column. The data has been reported from the column in control.

Method Blank (s): All method blanks were free of contamination

Surrogate(s): All sample surrogate recoveries are within control limits.

Samples: There were no anomalies associated with these samples.

LCS/LCSD (s): All percent recoveries and RPDs were in control.

Matrix spike/ Matrix spike duplicate/ RPD(s): Are in control.

NWTPH-Dx:

The Laboratory extracted the samples on 9/2/11 and the extracts were analyzed on 9/5/11 and 9/6/11 within the method recommended holding time.

Initial calibration (s): All analytes were within method acceptance criteria.

Continuing calibration (s): All analytes of interest were within method acceptance criteria.

Method Blank (s): All method blanks were free of contamination

Surrogate(s): The surrogate O-Terphenyl is out of control low for the matrix spike.

Samples: There were no anomalies associated with these samples.

LCS/LCSD (s): All percent recoveries and RPDs were in control.

Matrix spike/ Matrix spike duplicate/ RPD(s): The matrix spike for sample FRP-082911-021 is out of control low.

NWTPH-Gx:

The Laboratory analyzed the samples on 9/6/11 within the method recommended holding time.

Initial calibration (s): All analytes were within method acceptance criteria.

Continuing calibration (s): All analytes of interest were within method acceptance criteria.

Method Blank (s): All method blanks were free of contamination

Surrogate(s): Are in control.

Samples: There were no anomalies associated with these samples.

LCS/LCSD (s): All percent recoveries and RPDs were in control.

Matrix spike/ Matrix spike duplicate/ RPD(s): Are in control.

Total Metals by 200.8, 6010 and 7471A

The samples were digested on 9/1/11 and analyzed between 9/5/11 and 9/6/11 within the method recommended holding time.

Initial calibration (s): All analytes were within method acceptance criteria.

Continuing calibration (s): All analytes of interest were within method acceptance criteria.

Samples: No anomalies were encountered for these samples.

Method Blank(s): All method blanks were free of contamination.

LCS: Is in control.

Matrix spike/ Matrix spike duplicate/ RPD(s): Are in control.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Client: AMEC Geomatrix	**ARI Job No.:** TK37
Client Project: FRP Shoreline Investigation 2011	**Client Project No.:** 8769

Case Narrative

1. One sample was submitted on August 30, 2011 for grain size analysis, Atterberg limits, bulk density and moisture content determination. The sample was in good condition.
2. The Atterberg limits determination was run according to ASTM D4318.
3. Grain size distribution was run according to ASTM D422, sieve and hydrometer analysis. The sample was set up according to ASTM D421. A standard milkshake-type mixer was used to disperse the hydrometer sample. A specific gravity of 2.65 was used in the hydrometer calculations. The sample was run in a single batch, and one sample from another job on this project, FRP-082911-005, was chosen for triplicate analysis. The triplicate data is reported on the QA summary.
4. The moisture content was run according to ASTM D2216.
5. Bulk (wet/dry) density was run according to ASTM D7263. The sample was batch with another job, and triplicate analysis was run on sample FRP-082911-005.
6. The data is provided in summary tables and plots.
7. There were no noted anomalies in the sample or methods on this project.

Released by: _____ Date: 9/8/11
Title: *Geotechnical Division Manager*

Reviewed by: _____ Date: 9-8-2011
Title: *Lead Technician*

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TK37
Client: AMEC Geomatrix
Project Event: 8769
Project Name: FRP Shoreline Investigation 2011

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	FRP-082911-021	TK37A	11-18809	Soil	08/29/11 14:00	08/29/11 16:55
2.	FRP-082911-022	TK37B	11-18810	Soil	08/29/11 14:05	08/29/11 16:55
3.	FRP-082911-023	TK37C	11-18811	Soil	08/29/11 14:10	08/29/11 16:55
4.	FRP-082911-024	TK37D	11-18812	Soil	08/29/11 14:15	08/29/11 16:55
5.	FRP-082911-025	TK37E	11-18813	Soil	08/29/11 14:20	08/29/11 16:55
6.	FRP-082911-027	TK37F	11-18814	Soil	08/29/11 15:00	08/29/11 16:55
7.	FRP-082911-028	TK37G	11-18815	Soil	08/29/11 15:05	08/29/11 16:55
8.	FRP-082911-029	TK37H	11-18816	Soil	08/29/11 15:10	08/29/11 16:55
9.	FRP-082911-030	TK37I	11-18817	Soil	08/29/11 15:15	08/29/11 16:55
10.	FRP-082911-026	TK37J	11-18818	Soil	08/29/11 14:25	08/29/11 16:55
11.	Trip Blanks	TK37K	11-18819	Water	08/29/11	08/29/11 16:55

Printed 08/30/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

TK37 : 00011

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

TK37 : 00012

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

TK37 : 06613

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1889-3	ABN	100/150	MEOH	03/01/12
B	1874-2	SIM PNA	15/75	ACETONE	10/05/11
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1887-1	LOW PCB	0.2	ACETONE	12/16/11
E	1771-3	HERB	62.5	MEOH	10/06/11
F	1791-3	PCP	12.5	ACETONE	12/09/11
G	1863-2	d8-DIOXANE	100	MEOH	11/19/11
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1868-3	LOW S. PNA	1.5	ACETONE	10/05/11
J	1787-2	TBT-PORE	0.125	MECL2	11/27/11
K	1795-2	MED PCB	20	ACETONE	12/16/11
L	1862-3	TBT	2.5	MECL2	11/27/11
M	1888-4	EPH	1500	MECL2	04/04/12
N	1876-3	PCB	2	ACETONE	12/16/11
O	1879-2	TPH	450	MECL2	02/04/12
P	1868-1	HCID	2250	MECL2	02/04/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1791-4	LOW PCP	1.25	ACETONE	12/09/11

TK37:00014

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1888-2	PCB 1660	20	ACETONE	08/30/12
2#	NA	BCOC PEST	10	ACETONE	NA
3	1885-1	PEST	01/02/10	ACETONE	12/15/11
4	1885-2	LOW PEST	.1/.2/1	ACETONE	12/15/11
5	1779-1	EPH	1500	MECL2	11/11/11
6	1791-5	PCP	12.5/125	ACETONE	12/10/11
7	1888-1	ABN	100	MEOH	08/30/12
8	1785-3	TBT	2.5	MECL2	11/27/11
9	1786-3	PORE TBT	.125/.25	MECL2	11/27/11
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1838-4	LOW PCB	2	ACETONE	01/31/12
14					
15	1814-2	SIM PNA	15/75	MEOH	01/04/12
16	1879-3	1,4-DIOXANE	100	MEOH	02/05/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1814-3	LOW SIM PNA	1.5	ACETONE	01/04/12
19	1873-2	AK103	7500	ACETONE	01/02/12
20	1886-4	PNA	100	ACETONE	01/07/12
21	1874-3	SKY/BHT	100	MEOH	01/14/12
22	1864-3	HERB	02 to 2500	MEOH	12/03/11
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#	NA	DIPHENYL	100	MEOH	NA
26	1869-1	OP-PEST	25	MEOH	10/01/11
27	NA	STEROLS	200	MEOH	NA
28#	1807-1	ADD. PEST	2	ACETONE	08/31/11
29#	NA	DECANES	100	MEOH	NA

TK37 : 00015

LCS SOLUTIONS

30	NA	EDB/DBCP	0.2	MEOH	NA
31	1835-2	TERPINEOL	100	MEOH	09/02/11
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33	NA	RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36	NA	ALKYL PNA B	10	MEOH	NA
37	1773-1	CAR/PERY	100	ACETONE	10/14/11
38	1872-2	ABN ACID	200-450	MEOH	12/29/11
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1757-4	FULL RESIN	250	ACETONE	08/14/11
51	1772-1	DDTS	0.01	ACETONE	04/24/11
52	NA	1232 PCB	20	ACETONE	NA
53	1852-2	DALAPON	50	MEOH	12/03/11
54	1753-1	T-CHLORDANE	10	ACETONE	07/21/11
55	1753-2	TOXAPHENE	50	ACETONE	07/21/11
56	1874-1	ABN BASE	50-200	MEOH	01/05/12
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

TK37 : 00016

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80 - 120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80 - 120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80 - 120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80 - 120**	75 - 130
Trichloroethene	**80 - 120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80 - 120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

TK37 : 00017

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	**84** - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

TK37 : 00018

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

TK37 : 00019

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Soil & Sediment Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Method 8270D with Ultrasonic Extraction [1,8]

Effective: 5/11/11

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction / Analytical Method:	**8270D**	**8270D ME[2]**	**PSEP [3]**	**PSEP ME[2,3]**
Sample Weight / Final Volume:	7.5 g to 0.5 mL	7.5 g to 0.5 mL	10 g to 1 mL	10 g to 1 mL
LCS Spike Recovery [9]				
Phenol	48 - **100**	41 - **100**	30 - 160	30 - 160
Bis-(2-chloroethyl) ether	32 - **100**	22 - 104	30 - 160	30 - 160
2-Chlorophenol	44 - **100**	37 - **100**	30 - 160	30 - 160
1,3-Dichlorobenzene	39 - **100**	33 - **100**	30 - 160	30 - 160
1,4-Dichlorobenzene	40 - **100**	34 - **100**	30 - 160	30 - 160
Benzyl Alcohol	**10** - **100**	**10** - **100**	30 - 160	30 - 160
1,2-Dichlorobenzene	42 - **100**	36 - **100**	30 - 160	30 - 160
2-Methylphenol	44 - **100**	37 - **100**	30 - 160	30 - 160
2,2'-oxybis(1-chloropropane)	21 - **100**	**10** - 107	30 - 160	30 - 160
4-Methylphenol	45 - **100**	37 - 100	30 - 160	30 - 160
N-Nitroso-di-n-propylamine	36 - **100**	27 - 101	30 - 160	30 - 160
Hexachloroethane	35 - **100**	28 - **100**	30 - 160	30 - 160
Nitrobenzene	27 - 102	15 - 115	30 - 160	30 - 160
Isophorone	47 - **100**	39 - 105	30 - 160	30 - 160
2-Nitrophenol	46 - **100**	40 - **100**	30 - 160	30 - 160
2,4-Dimethyphenol	41 - **100**	34 - **100**	30 - 160	30 - 160
Bis-(2-chloroethoxy) methane	40 - **100**	32 - **100**	30 - 160	30 - 160
Benzoic Acid [4]	**10** - 138	**10** - 159	30 - 160	30 - 160
2,4-Dichlorophenol	48 - **100**	41 - **100**	30 - 160	30 - 160
1,2,4-Trichlorobenzene	43 - **100**	35 - **100**	30 - 160	30 - 160
Naphthalene	44 - **100**	38 - **100**	30 - 160	30 - 160
4-Chloroaniline [4]	16 - **100**	**10** - 113	30 - 160	30 - 160
2-Chloronaphthalene	48 - **100**	42 - **100**	30 - 160	30 - 160
Hexachlorobutadiene	40 - **100**	33 - **100**	30 - 160	30 - 160
4-Chloro-3-methylphenol	50 - **100**	42 - 104	30 - 160	30 - 160
2-Methylnaphthalene	48 - **100**	42 - **100**	30 - 160	30 - 160
Hexachlorocyclopentadiene	20 - 114	**10** - 130	30 - 160	30 - 160
2,4,6-Trichlorophenol	51 - **100**	44 - 100	30 - 160	30 - 160
2,4,5-Trichlorophenol	50 - **100**	43 - 103	30 - 160	30 - 160
2-Nitroaniline	45 - **100**	36 - 106	30 - 160	30 - 160
Dimethylphthalate	53 - **100**	46 - 103	30 - 160	30 - 160
Acenaphthylene	50 - **100**	43 - 100	30 - 160	30 - 160
2,6-Dinitrotoluene	54 - 100	46 - 108	30 - 160	30 - 160
3-Nitroaniline [4]	22 - 117	**10** - 133	30 - 160	30 - 160
Acenaphthene	48 - **100**	41 - **100**	30 - 160	30 - 160

TK37:00020

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Soil & Sediment Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Method 8270D with Ultrasonic Extraction [1,8]

Effective: 5/11/11

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction / Analytical Method:	**8270D**	**8270D ME[2]**	**PSEP [3]**	**PSEP ME[2,3]**
Sample Weight / Final Volume:	7.5 g to 0.5 mL	7.5 g to 0.5 mL	10 g to 1 mL	10 g to 1 mL
2,4-Dinitrophenol	12 - 147	**10** - 170	30 - 160	30 - 160
Dibenzofuran	53 - **100**	47 - **100**	30 - 160	30 - 160
4-Nitrophenol	18 - 107	**10** - 122	30 - 160	30 - 160
2,4-Dinitrotoluene	57 - 106	49 - 114	30 - 160	30 - 160
Fluorene	54 - **100**	48 - 100	30 - 160	30 - 160
Diethylphthlalate	52 - 100	44 - 108	30 - 160	30 - 160
4-Chlorophenyl-phenyl ether	54 - **100**	48 - **100**	30 - 160	30 - 160
4-Nitroaniline	27 - 110	13 - 124	30 - 160	30 - 160
4,6-Dinitro-2-Methylphenol	21 - 122	**10** - 139	30 - 160	30 - 160
N-Nitrosodiphenylamine	44 - 145	27 - 162	30 - 160	30 - 160
4-Bromophenyl-phenyl ether	52 - **100**	45 - 101	30 - 160	30 - 160
Hexachlorobenzene	50 - **100**	42 - 104	30 - 160	30 - 160
Pentachlorophenol	45 - **100**	36 - 108	30 - 160	30 - 160
Phenanthrene	53 - **100**	46 - 101	30 - 160	30 - 160
Anthracene	49 - **100**	41 - 105	30 - 160	30 - 160
Carbazole	45 - 111	34 - 122	30 - 160	30 - 160
Di-n-butylphthalate	55 - 106	47 - 115	30 - 160	30 - 160
Fluoranthene	54 - 105	46 - 114	30 - 160	30 - 160
Pyrene	48 - 106	38 - 116	30 - 160	30 - 160
Butylbenzylphthalate	46 - 111	35 - 122	30 - 160	30 - 160
Benzo(a)Anthracene	51 - 101	43 - 109	30 - 160	30 - 160
3,3'-Dichlorbenzidine [4]	**10** - 112	**10** - 129	30 - 160	30 - 160
Chrysene	56 - **100**	50 - 102	30 - 160	30 - 160
Bis(2-Ethylhexyl) phthalate	57 - 114	48 - 124	30 - 160	30 - 160
Di-n-octylphthalate	56 - 100	49 - 107	30 - 160	30 - 160
Benzofluoranthene(s) (Total)	30 - 160[10]	30 - 160[10]	30 - 160	30 - 160
Benzo(a)Pyrene	51 - **100**	43 - 105	30 - 160	30 - 160
Indeno(1,2,3-cd)Pyrene	38 - 104	27 - 115	30 - 160	30 - 160
Dibenz(a,h)anthracene	41 - 107	30 - 118	30 - 160	30 - 160
Benzo(g,h,i)Perylene	36 - 107	24 - 119	30 - 160	30 - 160
Aniline [4]	**10** - **100**	**10** - 103	30 - 160	30 - 160
1,2-Diphenylhydrazine (Azobenzene)	48 - 101	39 - 110	30 - 160	30 - 160
N-Nitrosodimethylamine	31 - **100**	21 - 101	30 - 160	30 - 160
1-Methylnaphthalene	48 - **100**	41 - **100**	30 - 160	30 - 160
Pyridine	**10** - **100**	**10** - **100**	30 - 160	30 - 160
MB/LCS Surrogate Recovery				

TK37:00021

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Soil & Sediment Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Method 8270D with Ultrasonic Extraction [1,8]

Effective: 5/11/11

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction / Analytical Method:	**8270D**	**8270D ME[2]**	**PSEP [3]**	**PSEP ME[2,3]**
Sample Weight / Final Volume:	7.5 g to 0.5 mL	7.5 g to 0.5 mL	10 g to 1 mL	10 g to 1 mL
d4-2-Chlorophenol	43 - **100**	(5)	30 - 160	(5)
d4-1,2-Dichlorobenzene	34 - **100**	(5)	30 - 160	(5)
2,4,6-Tribromophenol	47 - 109	(5)	30 - 160	(5)
2-Fluorophenol	14 - 100	(5)	30 - 160	(5)
d5-Phenol [4]	39 - **100**	**10** - 133	30 - 160	30 -160
d5-Nitrobenzene	39 - **100**	(5)	30 - 160	(5)
2-Fluorobiphenyl	44 - **100**	(5)	30 - 160	(5)
d14-p-Terphenyl	55 - 106	(5)	30 - 160	(5)
Sample Surrogate Recovery				
d4-2-Chlorophenol	33 - **100**	(5)	30 - 160	(5)
d4-1,2-Dichlorobenzene	30 - **100**	(5)	30 - 160	(5)
2,4,6-Tribromophenol	28 - 116	(5)	30 - 160	(5)
2-Fluorophenol	**10** - **100**	(5)	30 - 160	(5)
d5-Phenol [4]	31 - **100**	21 - 101	30 - 160	30 -160
d5-Nitrobenzene	32 - **100**	(5)	30 - 160	(5)
2-Fluorobiphenyl	36 - **100**	(5)	30 - 160	(5)
d14-p-Terphenyl	35 - 113	(5)	30 - 160	(5)

(1) Control Limits calculated using all data generated 1/1/08 through 12/1/08.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard [6] as beyond the CL but still within the ME limits. ARI defines ME limits as 4 standard deviations around the mean with upper limit ≥ 100% A maximum of 4 marginal exceedances are acceptable. (≥ 5 marginal exceedances in an analysis require corrective action).
(3). Preparation = Microwave Extraction (EPA method 3546) & Gel Permeation Chromatography (GPC) clean-up.
(4) These are "**poor performers**" defined in the DoD QSM [7] as compounds that "produce low mean recoveries and high standard deviations, resulting in wide LCS control limits with particularly low lower control limits (sometimes-negative values). ARI does not control batch acceptance based on these compounds since there is a high level of uncertainty in their recovery."
(5) Marginal Exceedances not allowed for surrogate unless it is a "poor performer".
(6) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(7) Page 182 of: **Department of Defense Quality Systems Manual for Environmental Laboratories, Version 3 Final, March 2005** Prepared By Environmental Data Quality Workgroup, Department of Navy, Lead Service (Based NELAC Chapter 5 (Quality Systems) NELAC Voted Version – 5 June 2003
(8) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(9) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(10) Default limits pending generation of historic limits for total benzofluoranthrenes (7/29/10)

TK37 : 00022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Quality Control Criteria for Analysis of Solid Matrix Samples for Aroclors (Polychlorinated Biphenyls – PCB) EPA Method 8082B

Analysis Code	Target RL	Extraction	LOQ[1]	Analyte	LOD[2]	Spike Recovery Control Limits[3]			RPD[4]
						LCS	MB/LCS Surrogate	Sample Surrogate	
Soil / Sediment Samples (Microwave Extraction – EPA Method 3546)									
PCBSMI 15-3067F	33 µg/kg	12g to 4 mL	33 µg/kg	Aroclor 1016	9.83	48 – 106	--	--	≤ 40
				Aroclor 1260	7.06	50 – 121	--	--	
				TCMX	--	--	46 – 111	50 – 114	
				DCBP	--	--	51 – 112	42 – 127	
PCBSMP 05-3017F	20 µg/kg	12.5 g to 2.5 mL[7]	20 µg/kg	Aroclor 1016	9.33	52 – 101	--	--	≤ 40
				Aroclor 1260	10.82	52 – 126	--	--	
				TCMX	--	--	47 – 110	46 – 113	
				DCBP	--	--	48 – 119	40 – 130	
PCBSMM 07-3024F	10 µg/kg	12.5 g to 2.5 mL[7]	10 µg/kg	Aroclor 1016	0.759	53 – **100**	--	--	≤ 40
				Aroclor 1260	1.066	58 – 112	--	--	
				TCMX	--	--	43 – 108	35 – 119	
				DCBP	--	--	48 – 118	33 – 143	
PCBSMM 07-3024F	4 µg/kg	12.5 g to 2.5 mL[7]	4 µg/kg	Aroclor 1016	0.577	37 – 106	--	--	≤ 40
				Aroclor 1260	0.610	50 – 116	--	--	
				TCMX	--	--	35 – 100	38 – 102	
				DCBP	--	--	40 – 109	34 – 141	
Medium Level – Solids, Product, Paint Chips, etc (Vortex Extraction – EPA Method 3580A)-reported on an "as received" basis									
PCBSVX 12-3019F	800 µg/kg	5 g to 40 mL	800 µg/kg	Aroclor 1016	63.3	59 – 108	--	--	≤ 40
				Aroclor 1260	123	43 – 177	--	--	
				TCMX	--	--	49 – 110	28 – 106	
				DCBP	--	--	51 – 127	22 – 168	
Oil (Vortex Extraction – EPA method 3580A) -reported on an "as received" basis									
PCBOVX 13-3020F	1 µg/kg	2 g to 20 mL	1 mg/kg	Aroclor 1016	(6)	30 – 160	--	--	≤ 40
				Aroclor 1260	(6)	30 – 160	--	--	
				TCMX	--	--	30 – 160	30 – 160	
				DCBP	--	--	30 – 160	30 – 160	
Wipe (Vortex Extraction – EPA method 3580A) -reported as µg per wipe "as received"									
PCBIVX 14-3031F	1 µg/Wipe	10 mL	1 µg/Wipe	Aroclor 1016	(6)	30 – 160	--	--	≤ 40
				Aroclor 1260	(6)	30 – 160	--	--	
				TCMX	--	--	30 – 160	30 – 160	
				DCBP	--	--	30 – 160	30 – 160	

(1) Limit of Quantitation as defined in ARI SOP 1018S. The spike concentration used to determine the LOD.
(2) Limit of Detection as defined in ARI SOP 1018S
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

(5) 30 – 160 are default limits used when there is insufficient data to calculate historic control limits
(6) LOD studies in process (5/1/11)
(7) LOQ determined by lowest concentration used to calibrate the GC-ECD instrument.

TK37 : 00023

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Quality Control Criteria
Total Petroleum Hydrocarbons
(Diesel & Motor Oil)

Analysis Code	Analyte[5]	LOD[1]	LOQ[2] ppm	Spike % Recovery Control Limits[3]			RPD[4]
				LCS	MB/LCS Surrogate	Sample Surrogate	
HCIWVX	NWTPH-HCID – Water Samples	--	0.50 [7]	--	--	50-150	≤ 40
HCISVX	NWTPH-HCID – Solid Samples	--	50 [7]	--	--	50-150	
Aqueous Samples – No Extract Clean-up – Separatory Funnel Extraction – 500 to 1.0 mL							
DIESWI	DRO – NWTPH-Dext (C_{12}-C_{24})	0.022	0.1	64-112	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C_{10}-C_{25})	0.022	0.1	75-125 [6]	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C_{24}-C_{38})	0.044	0.2	64-112	50-150	50-150	
AK3WSI	RRO – AK103 (C_{25}-C_{36})	0.030 [8]	0.2	60-120 [6]	60-120	50-150	
Aqueous Samples – With Acid and/or Silica Gel Clean-up – Separatory Funnel Extraction – 500 to 1.0 mL							
DIESWI	DRO – NWTPH-Dext (C_{12}-C_{24})	0.039	0.1	61-104	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C_{10}-C_{25})	0.042	0.1	75-125 [6]	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C_{24}-C_{38})	0.010	0.2	61-104	50-150	50-150	
AK3WSI	RRO – AK103 (C_{25}-C_{36})	0.030 [8]	0.2	60-120 [6]	60-120	50-150	
Solid Matrix Samples – No Extract Clean-up – Microwave Extraction – 10 g to 1 mL							
DIESMI	DRO – NWTPH-Dext (C_{12}-C_{24})	1.35	5	62-119	50-150	50-150	≤ 40
AK2SMI	DRO – AK102 (C_{10}-C_{25})	2.43	5	75-125 [6]	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C_{24}-C_{36})	2.48	10	62-119	50-150	50-150	
AK3SMI	RRO – AK103 (C_{25}-C_{36})	0.665 [9]	10	60-120 [6]	60-120	50-150	
Solid Matrix Samples – With Acid and/or Silica Gel Clean-up – Microwave Extraction – 10 g to 1 mL							
DIESMI	DRO – NWTPH-Dext (C_{12}-C_{24})	1.28	5	60-108	50-150	50-150	≤ 40
AK2SMI	DRO – AK102 (C_{10}-C_{25})	2.06	5	75-125 [6]	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C_{24}-C_{38})	1.57	10	60-108	50-150	50-150	
AK3SMI	RRO – AK103 (C_{25}-C_{36})	0.665 [9]	10	60-120 [6]	60-120	50-150	

(1) Limit of Detection as defined in ARI SOP 1018S.
(2) Limit of Quantitation as defined in ARI SOP 1018S. The spike concentration used to determine the LOD and the concentration of the lowest standard used to calibrate the GC-FID instrument.
(3) All surrogate recovery limits are specified in the published methods (AK102, AK103 & NWTPH-Dext). The surrogate standard is *o*-Terphenyl.
(4) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

(5) DRO = Diesel Range Organics and RRO = Residual Range Organics as defined in the methods referenced in footnote 3.
(6) Method specified LCS acceptance limits.
(7) Method specified reporting limits
(8) MDL study QD55 completed 2/12/10
(9) MDL study QD35 completed 1/29/10

TK37 : 00024

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits BTEX – EPA Method 8021 & Gasoline – Methods NWTPH-G and AK101[1,2]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Matrix:	**Aqueous Samples**		**Soil / Sediment Samples**	
Analytical Method:	Method 8021B	NWTPH-G AK-101	Method 8021B	NWTPH-G AK-101
LCS Spike Recovery [3]				
Benzene	73 - **120**		72 - **120**	
Toluene	73 - **120**		72 - **120**	
Ethyl benzene	69 - **120**		71 - **120**	
m,p-Xylenes	72 - **120**		72 - **120**	
o-Xlyene	73 - **120**		72 - **120**	
MTBE	30 - 182		40 - 163	
Gasoline		75 - 124		74 - 124
Method Blank/LCS Surrogate Recovery				
Trifluorotoluene (TFT)	79 - **120**	**80 - 120**	80 - **120**	**80 - 120**
Bromobenzene	79 - **120**	**80 - 120**	77 - **120**	**80 - 120**
Sample Surrogate Recovery				
Trifluorotoluene (TFT)	**80 - 120**	**80** - 120	68 - 124	66 - 123
Bromobenzene	**80 - 120**	**80** - 120	62 - 134	62 - 130

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:
a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(3) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

TK37 : 00025

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

TK37 : 00026

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: TK37

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-021**
 SAMPLE

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 14:47

Sample Amount: 4.63 g-dry-wt
Percent Moisture: 8.5%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.28	1.1	< 1.1 U
74-83-9	Bromomethane	0.20	1.1	< 1.1 U
75-01-4	Vinyl Chloride	0.25	1.1	< 1.1 U
75-00-3	Chloroethane	0.50	1.1	< 1.1 U
75-09-2	Methylene Chloride	0.69	2.2	< 2.2 U
67-64-1	**Acetone**	**0.52**	**5.4**	**70 ~~Q~~ J**
75-15-0	Carbon Disulfide	0.60	1.1	< 1.1 U
75-35-4	1,1-Dichloroethene	0.36	1.1	< 1.1 U
75-34-3	1,1-Dichloroethane	0.22	1.1	< 1.1 U
156-60-5	trans-1,2-Dichloroethene	0.29	1.1	< 1.1 U
156-59-2	cis-1,2-Dichloroethene	0.26	1.1	< 1.1 U
67-66-3	Chloroform	0.25	1.1	< 1.1 U
107-06-2	1,2-Dichloroethane	0.21	1.1	< 1.1 U
78-93-3	**2-Butanone**	**0.55**	**5.4**	**6.2 ~~Q~~ J**
71-55-6	1,1,1-Trichloroethane	0.24	1.1	< 1.1 U
56-23-5	Carbon Tetrachloride	0.23	1.1	< 1.1 U
108-05-4	Vinyl Acetate	0.41	5.4	< 5.4 U
75-27-4	Bromodichloromethane	0.27	1.1	< 1.1 U
78-87-5	1,2-Dichloropropane	0.17	1.1	< 1.1 U
10061-01-5	cis-1,3-Dichloropropene	0.24	1.1	< 1.1 U
79-01-6	Trichloroethene	0.23	1.1	< 1.1 U
124-48-1	Dibromochloromethane	0.29	1.1	< 1.1 U
79-00-5	1,1,2-Trichloroethane	0.31	1.1	< 1.1 U
71-43-2	**Benzene**	**0.32**	**1.1**	**1.0 J**
10061-02-6	trans-1,3-Dichloropropene	0.23	1.1	< 1.1 U
110-75-8	2-Chloroethylvinylether	0.30	5.4	< 5.4 U
75-25-2	Bromoform	0.32	1.1	< 1.1 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.45	5.4	< 5.4 U
591-78-6	2-Hexanone	0.47	5.4	< 5.4 U J
127-18-4	Tetrachloroethene	0.28	1.1	< 1.1 U
79-34-5	1,1,2,2-Tetrachloroethane	0.27	1.1	< 1.1 U
108-88-3	**Toluene**	**0.16**	**1.1**	**0.5 J**
108-90-7	Chlorobenzene	0.24	1.1	< 1.1 U
100-41-4	Ethylbenzene	0.22	1.1	< 1.1 U
100-42-5	Styrene	0.15	1.1	< 1.1 U
75-69-4	Trichlorofluoromethane	0.29	1.1	< 1.1 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.31	2.2	< 2.2 U
179601-23-1	m,p-Xylene	0.42	1.1	< 1.1 U
95-47-6	o-Xylene	0.24	1.1	< 1.1 U
95-50-1	1,2-Dichlorobenzene	0.32	1.1	< 1.1 U
541-73-1	1,3-Dichlorobenzene	0.25	1.1	< 1.1 U
106-46-7	1,4-Dichlorobenzene	0.25	1.1	< 1.1 U
107-02-8	Acrolein	4.1	54	< 54 U
74-88-4	Methyl Iodide	0.23	1.1	< 1.1 U
74-96-4	Bromoethane	0.48	2.2	< 2.2 U
107-13-1	Acrylonitrile	1.1	5.4	< 5.4 U J
563-58-6	1,1-Dichloropropene	0.34	1.1	< 1.1 U
74-95-3	Dibromomethane	0.16	1.1	< 1.1 U
630-20-6	1,1,1,2-Tetrachloroethane	0.25	1.1	< 1.1 U
96-12-8	1,2-Dibromo-3-chloropropane	0.63	5.4	< 5.4 U J

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-021**
 SAMPLE

Lab Sample ID: TK37A
LIMS ID: I1-18809
Matrix: Soil
Date Analyzed: 09/02/11 14:47

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.56	2.2	< 2.2 U J
110-57-6	trans-1,4-Dichloro-2-butene	0.47	5.4	< 5.4 U
108-67-8	1,3,5-Trimethylbenzene	0.27	1.1	< 1.1 U
95-63-6	1,2,4-Trimethylbenzene	0.25	1.1	< 1.1 U
87-68-3	Hexachlorobutadiene	0.44	5.4	< 5.4 U
106-93-4	Ethylene Dibromide	0.19	1.1	< 1.1 U
74-97-5	Bromochloromethane	0.35	1.1	< 1.1 U
594-20-7	2,2-Dichloropropane	0.32	1.1	< 1.1 U
142-28-9	1,3-Dichloropropane	0.23	1.1	< 1.1 U
98-82-8	Isopropylbenzene	0.25	1.1	< 1.1 U
103-65-1	n-Propylbenzene	0.29	1.1	< 1.1 U
108-86-1	Bromobenzene	0.17	1.1	< 1.1 U
95-49-8	2-Chlorotoluene	0.32	1.1	< 1.1 U
106-43-4	4-Chlorotoluene	0.30	1.1	< 1.1 U
98-06-6	tert-Butylbenzene	0.33	1.1	< 1.1 U
135-98-8	sec-Butylbenzene	0.26	1.1	< 1.1 U
99-87-6	4-Isopropyltoluene	0.25	1.1	< 1.1 U
104-51-8	n-Butylbenzene	0.28	1.1	< 1.1 U
120-82-1	1,2,4-Trichlorobenzene	0.36	5.4	< 5.4 U
91-20-3	Naphthalene	0.46	5.4	< 5.4 U
87-61-6	1,2,3-Trichlorobenzene	0.33	5.4	< 5.4 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	109%
d8-Toluene	100%
Bromofluorobenzene	87.0%
d4-1,2-Dichlorobenzene	99.0%

QA 2/24/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-022**
 SAMPLE

Lab Sample ID: TK37B
LIMS ID: 11-18810
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 15:14

Sample Amount: 3.82 g-dry-wt
Percent Moisture: 25.2%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.34	1.3	< 1.3 U
74-83-9	Bromomethane	0.24	1.3	< 1.3 U
75-01-4	Vinyl Chloride	0.31	1.3	< 1.3 U
75-00-3	Chloroethane	0.60	1.3	< 1.3 U
75-09-2	Methylene Chloride	0.83	2.6	< 2.6 U
67-64-1	**Acetone**	**0.63**	**6.5**	**86 ~~Q~~ J**
75-15-0	Carbon Disulfide	0.73	1.3	< 1.3 U
75-35-4	1,1-Dichloroethene	0.44	1.3	< 1.3 U
75-34-3	1,1-Dichloroethane	0.27	1.3	< 1.3 U
156-60-5	trans-1,2-Dichloroethene	0.35	1.3	< 1.3 U
156-59-2	cis-1,2-Dichloroethene	0.31	1.3	< 1.3 U
67-66-3	Chloroform	0.31	1.3	< 1.3 U
107-06-2	1,2-Dichloroethane	0.25	1.3	< 1.3 U
78-93-3	**2-Butanone**	**0.67**	**6.5**	**9.8 ~~Q~~ J**
71-55-6	1,1,1-Trichloroethane	0.30	1.3	< 1.3 U
56-23-5	Carbon Tetrachloride	0.28	1.3	< 1.3 U
108-05-4	Vinyl Acetate	0.50	6.5	< 6.5 U
75-27-4	Bromodichloromethane	0.33	1.3	< 1.3 U
78-87-5	1,2-Dichloropropane	0.21	1.3	< 1.3 U
10061-01-5	cis-1,3-Dichloropropene	0.30	1.3	< 1.3 U
79-01-6	Trichloroethene	0.28	1.3	< 1.3 U
124-48-1	Dibromochloromethane	0.35	1.3	< 1.3 U
79-00-5	1,1,2-Trichloroethane	0.37	1.3	< 1.3 U
71-43-2	**Benzene**	**0.39**	**1.3**	**2.6**
10061-02-6	trans-1,3-Dichloropropene	0.28	1.3	< 1.3 U
110-75-8	2-Chloroethylvinylether	0.36	6.5	< 6.5 U
75-25-2	Bromoform	0.39	1.3	< 1.3 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.55	6.5	< 6.5 U
591-78-6	2-Hexanone	0.57	6.5	< 6.5 U J
127-18-4	Tetrachloroethene	0.34	1.3	< 1.3 U
79-34-5	1,1,2,2-Tetrachloroethane	0.33	1.3	< 1.3 U
108-88-3	**Toluene**	**0.20**	**1.3**	**0.4 J**
108-90-7	Chlorobenzene	0.29	1.3	< 1.3 U
100-41-4	Ethylbenzene	0.26	1.3	< 1.3 U
100-42-5	Styrene	0.18	1.3	< 1.3 U
75-69-4	Trichlorofluoromethane	0.35	1.3	< 1.3 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.38	2.6	< 2.6 U
179601-23-1	m,p-Xylene	0.51	1.3	< 1.3 U
95-47-6	o-Xylene	0.29	1.3	< 1.3 U
95-50-1	1,2-Dichlorobenzene	0.38	1.3	< 1.3 U
541-73-1	1,3-Dichlorobenzene	0.30	1.3	< 1.3 U
106-46-7	1,4-Dichlorobenzene	0.30	1.3	< 1.3 U
107-02-8	Acrolein	5.0	65	< 65 U
74-88-4	Methyl Iodide	0.28	1.3	< 1.3 U
74-96-4	Bromoethane	0.58	2.6	< 2.6 U
107-13-1	Acrylonitrile	1.3	6.5	< 6.5 U J
563-58-6	1,1-Dichloropropene	0.41	1.3	< 1.3 U
74-95-3	Dibromomethane	0.19	1.3	< 1.3 U
630-20-6	1,1,1,2-Tetrachloroethane	0.30	1.3	< 1.3 U
96-12-8	1,2-Dibromo-3-chloropropane	0.77	6.5	< 6.5 U J

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-022**
 SAMPLE

Lab Sample ID: TK37B
LIMS ID: 11-18810
Matrix: Soil
Date Analyzed: 09/02/11 15:14

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.68	2.6	< 2.6 U
110-57-6	trans-1,4-Dichloro-2-butene	0.57	6.5	< 6.5 U
108-67-8	1,3,5-Trimethylbenzene	0.33	1.3	< 1.3 U
95-63-6	1,2,4-Trimethylbenzene	0.30	1.3	< 1.3 U
87-68-3	Hexachlorobutadiene	0.54	6.5	< 6.5 U
106-93-4	Ethylene Dibromide	0.23	1.3	< 1.3 U
74-97-5	Bromochloromethane	0.42	1.3	< 1.3 U
594-20-7	2,2-Dichloropropane	0.38	1.3	< 1.3 U
142-28-9	1,3-Dichloropropane	0.27	1.3	< 1.3 U
98-82-8	Isopropylbenzene	0.30	1.3	< 1.3 U
103-65-1	n-Propylbenzene	0.36	1.3	< 1.3 U
108-86-1	Bromobenzene	0.20	1.3	< 1.3 U
95-49-8	2-Chlorotoluene	0.39	1.3	< 1.3 U
106-43-4	4-Chlorotoluene	0.36	1.3	< 1.3 U
98-06-6	tert-Butylbenzene	0.40	1.3	< 1.3 U
135-98-8	sec-Butylbenzene	0.31	1.3	< 1.3 U
99-87-6	4-Isopropyltoluene	0.31	1.3	< 1.3 U
104-51-8	n-Butylbenzene	0.34	1.3	< 1.3 U
120-82-1	1,2,4-Trichlorobenzene	0.43	6.5	< 6.5 U
91-20-3	Naphthalene	0.56	6.5	< 6.5 U
87-61-6	1,2,3-Trichlorobenzene	0.40	6.5	< 6.5 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	113%
d8-Toluene	100%
Bromofluorobenzene	96.1%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-023**
 SAMPLE

Lab Sample ID: TK37C
LIMS ID: 11-18811
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 15:42

Sample Amount: 3.89 g-dry-wt
Percent Moisture: 22.6%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.34	1.3	< 1.3 U
74-83-9	Bromomethane	0.24	1.3	< 1.3 U
75-01-4	Vinyl Chloride	0.30	1.3	< 1.3 U
75-00-3	Chloroethane	0.59	1.3	< 1.3 U
75-09-2	Methylene Chloride	0.82	2.6	< 2.6 U
67-64-1	**Acetone**	**0.62**	**6.4**	**43 Q** J
75-15-0	Carbon Disulfide	0.72	1.3	< 1.3 U
75-35-4	1,1-Dichloroethene	0.43	1.3	< 1.3 U
75-34-3	1,1-Dichloroethane	0.26	1.3	< 1.3 U
156-60-5	trans-1,2-Dichloroethene	0.34	1.3	< 1.3 U
156-59-2	cis-1,2-Dichloroethene	0.31	1.3	< 1.3 U
67-66-3	Chloroform	0.30	1.3	< 1.3 U
107-06-2	1,2-Dichloroethane	0.25	1.3	< 1.3 U
78-93-3	**2-Butanone**	**0.66**	**6.4**	**3.5 JQ** J
71-55-6	1,1,1-Trichloroethane	0.29	1.3	< 1.3 U
56-23-5	Carbon Tetrachloride	0.27	1.3	< 1.3 U
108-05-4	Vinyl Acetate	0.49	6.4	< 6.4 U
75-27-4	Bromodichloromethane	0.33	1.3	< 1.3 U
78-87-5	1,2-Dichloropropane	0.21	1.3	< 1.3 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.3	< 1.3 U
79-01-6	Trichloroethene	0.27	1.3	< 1.3 U
124-48-1	Dibromochloromethane	0.34	1.3	< 1.3 U
79-00-5	1,1,2-Trichloroethane	0.37	1.3	< 1.3 U
71-43-2	**Benzene**	**0.38**	**1.3**	**1.2 J**
10061-02-6	trans-1,3-Dichloropropene	0.28	1.3	< 1.3 U
110-75-8	2-Chloroethylvinylether	0.35	6.4	< 6.4 U
75-25-2	Bromoform	0.38	1.3	< 1.3 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.54	6.4	< 6.4 U
591-78-6	2-Hexanone	0.56	6.4	< 6.4 U J
127-18-4	Tetrachloroethene	0.33	1.3	< 1.3 U
79-34-5	1,1,2,2-Tetrachloroethane	0.33	1.3	< 1.3 U
108-88-3	Toluene	0.19	1.3	< 1.3 U
108-90-7	Chlorobenzene	0.28	1.3	< 1.3 U
100-41-4	Ethylbenzene	0.26	1.3	< 1.3 U
100-42-5	Styrene	0.18	1.3	< 1.3 U
75-69-4	Trichlorofluoromethane	0.34	1.3	< 1.3 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.37	2.6	< 2.6 U
179601-23-1	m,p-Xylene	0.50	1.3	< 1.3 U
95-47-6	o-Xylene	0.29	1.3	< 1.3 U
95-50-1	1,2-Dichlorobenzene	0.38	1.3	< 1.3 U
541-73-1	1,3-Dichlorobenzene	0.29	1.3	< 1.3 U
106-46-7	1,4-Dichlorobenzene	0.30	1.3	< 1.3 U
107-02-8	Acrolein	4.9	64	< 64 U
74-88-4	Methyl Iodide	0.28	1.3	< 1.3 U
74-96-4	Bromoethane	0.57	2.6	< 2.6 U
107-13-1	Acrylonitrile	1.3	6.4	< 6.4 U J
563-58-6	1,1-Dichloropropene	0.40	1.3	< 1.3 U
74-95-3	Dibromomethane	0.19	1.3	< 1.3 U
630-20-6	1,1,1,2-Tetrachloroethane	0.30	1.3	< 1.3 U
96-12-8	1,2-Dibromo-3-chloropropane	0.75	6.4	< 6.4 U J

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: FRP-082911-023
SAMPLE

Lab Sample ID: TK37C
LIMS ID: 11-18811
Matrix: Soil
Date Analyzed: 09/02/11 15:42

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.66	2.6	< 2.6 U
110-57-6	trans-1,4-Dichloro-2-butene	0.56	6.4	< 6.4 U
108-67-8	1,3,5-Trimethylbenzene	0.33	1.3	< 1.3 U
95-63-6	1,2,4-Trimethylbenzene	0.30	1.3	< 1.3 U
87-68-3	Hexachlorobutadiene	0.53	6.4	< 6.4 U
106-93-4	Ethylene Dibromide	0.23	1.3	< 1.3 U
74-97-5	Bromochloromethane	0.42	1.3	< 1.3 U
594-20-7	2,2-Dichloropropane	0.38	1.3	< 1.3 U
142-28-9	1,3-Dichloropropane	0.27	1.3	< 1.3 U
98-82-8	Isopropylbenzene	0.30	1.3	< 1.3 U
103-65-1	n-Propylbenzene	0.35	1.3	< 1.3 U
108-86-1	Bromobenzene	0.20	1.3	< 1.3 U
95-49-8	2-Chlorotoluene	0.39	1.3	< 1.3 U
106-43-4	4-Chlorotoluene	0.36	1.3	< 1.3 U
98-06-6	tert-Butylbenzene	0.39	1.3	< 1.3 U
135-98-8	sec-Butylbenzene	0.31	1.3	< 1.3 U
99-87-6	4-Isopropyltoluene	0.30	1.3	< 1.3 U
104-51-8	n-Butylbenzene	0.34	1.3	< 1.3 U
120-82-1	1,2,4-Trichlorobenzene	0.43	6.4	< 6.4 U
91-20-3	Naphthalene	0.55	6.4	< 6.4 U
87-61-6	1,2,3-Trichlorobenzene	0.39	6.4	< 6.4 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	111%
d8-Toluene	102%
Bromofluorobenzene	93.2%
d4-1,2-Dichlorobenzene	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-024**
 SAMPLE

Lab Sample ID: TK37D
LIMS ID: 11-18812
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 16:09

Sample Amount: 4.08 g-dry-wt
Percent Moisture: 23.0%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.32	1.2	< 1.2 U
74-83-9	Bromomethane	0.23	1.2	< 1.2 U
75-01-4	Vinyl Chloride	0.29	1.2	< 1.2 U
75-00-3	Chloroethane	0.57	1.2	< 1.2 U
75-09-2	Methylene Chloride	0.78	2.4	< 2.4 U
67-64-1	**Acetone**	**0.59**	**6.1**	**29 ~~Q~~ J**
75-15-0	**Carbon Disulfide**	**0.69**	**1.2**	**1.4**
75-35-4	1,1-Dichloroethene	0.41	1.2	< 1.2 U
75-34-3	1,1-Dichloroethane	0.25	1.2	< 1.2 U
156-60-5	trans-1,2-Dichloroethene	0.33	1.2	< 1.2 U
156-59-2	cis-1,2-Dichloroethene	0.29	1.2	< 1.2 U
67-66-3	Chloroform	0.29	1.2	< 1.2 U
107-06-2	1,2-Dichloroethane	0.23	1.2	< 1.2 U
78-93-3	2-Butanone	0.63	6.1	< 6.1 UJ
71-55-6	1,1,1-Trichloroethane	0.28	1.2	< 1.2 U
56-23-5	Carbon Tetrachloride	0.26	1.2	< 1.2 U
108-05-4	Vinyl Acetate	0.47	6.1	< 6.1 U
75-27-4	Bromodichloromethane	0.31	1.2	< 1.2 U
78-87-5	1,2-Dichloropropane	0.20	1.2	< 1.2 U
10061-01-5	cis-1,3-Dichloropropene	0.28	1.2	< 1.2 U
79-01-6	Trichloroethene	0.26	1.2	< 1.2 U
124-48-1	Dibromochloromethane	0.33	1.2	< 1.2 U
79-00-5	1,1,2-Trichloroethane	0.35	1.2	< 1.2 U
71-43-2	**Benzene**	**0.36**	**1.2**	**0.7 J**
10061-02-6	trans-1,3-Dichloropropene	0.26	1.2	< 1.2 U
110-75-8	2-Chloroethylvinylether	0.34	6.1	< 6.1 U
75-25-2	Bromoform	0.36	1.2	< 1.2 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.51	6.1	< 6.1 U
591-78-6	2-Hexanone	0.54	6.1	< 6.1 UJ
127-18-4	Tetrachloroethene	0.31	1.2	< 1.2 U
79-34-5	1,1,2,2-Tetrachloroethane	0.31	1.2	< 1.2 U
108-88-3	Toluene	0.19	1.2	< 1.2 U
108-90-7	Chlorobenzene	0.27	1.2	< 1.2 U
100-41-4	Ethylbenzene	0.25	1.2	< 1.2 U
100-42-5	Styrene	0.17	1.2	< 1.2 U
75-69-4	Trichlorofluoromethane	0.33	1.2	< 1.2 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.35	2.4	< 2.4 U
179601-23-1	m,p-Xylene	0.48	1.2	< 1.2 U
95-47-6	o-Xylene	0.27	1.2	< 1.2 U
95-50-1	1,2-Dichlorobenzene	0.36	1.2	< 1.2 U
541-73-1	1,3-Dichlorobenzene	0.28	1.2	< 1.2 U
106-46-7	1,4-Dichlorobenzene	0.28	1.2	< 1.2 U
107-02-8	Acrolein	4.7	61	< 61 U
74-88-4	Methyl Iodide	0.26	1.2	< 1.2 U
74-96-4	Bromoethane	0.54	2.4	< 2.4 U
107-13-1	Acrylonitrile	1.3	6.1	< 6.1 UJ
563-58-6	1,1-Dichloropropene	0.38	1.2	< 1.2 U
74-95-3	Dibromomethane	0.18	1.2	< 1.2 U
630-20-6	1,1,1,2-Tetrachloroethane	0.29	1.2	< 1.2 U
96-12-8	1,2-Dibromo-3-chloropropane	0.72	6.1	< 6.1 UJ

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-024**
 SAMPLE

Lab Sample ID: TK37D
LIMS ID: 11-18812
Matrix: Soil
Date Analyzed: 09/02/11 16:09

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.63	2.4	< 2.4 UJ
110-57-6	trans-1,4-Dichloro-2-butene	0.54	6.1	< 6.1 U
108-67-8	1,3,5-Trimethylbenzene	0.31	1.2	< 1.2 U
95-63-6	1,2,4-Trimethylbenzene	0.28	1.2	< 1.2 U
87-68-3	Hexachlorobutadiene	0.50	6.1	< 6.1 U
106-93-4	Ethylene Dibromide	0.22	1.2	< 1.2 U
74-97-5	Bromochloromethane	0.40	1.2	< 1.2 U
594-20-7	2,2-Dichloropropane	0.36	1.2	< 1.2 U
142-28-9	1,3-Dichloropropane	0.26	1.2	< 1.2 U
98-82-8	Isopropylbenzene	0.29	1.2	< 1.2 U
103-65-1	n-Propylbenzene	0.33	1.2	< 1.2 U
108-86-1	Bromobenzene	0.19	1.2	< 1.2 U
95-49-8	2-Chlorotoluene	0.37	1.2	< 1.2 U
106-43-4	4-Chlorotoluene	0.34	1.2	< 1.2 U
98-06-6	tert-Butylbenzene	0.38	1.2	< 1.2 U
135-98-8	sec-Butylbenzene	0.29	1.2	< 1.2 U
99-87-6	4-Isopropyltoluene	0.29	1.2	< 1.2 U
104-51-8	n-Butylbenzene	0.32	1.2	< 1.2 U
120-82-1	1,2,4-Trichlorobenzene	0.41	6.1	< 6.1 U
91-20-3	Naphthalene	0.53	6.1	< 6.1 U
87-61-6	1,2,3-Trichlorobenzene	0.37	6.1	< 6.1 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	116%
d8-Toluene	103%
Bromofluorobenzene	97.3%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-025**
 SAMPLE

Lab Sample ID: TK37E
LIMS ID: 11-18813
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 16:37

Sample Amount: 3.85 g-dry-wt
Percent Moisture: 24.6%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.34	1.3	< 1.3 U
74-83-9	Bromomethane	0.24	1.3	< 1.3 U
75-01-4	Vinyl Chloride	0.31	1.3	< 1.3 U
75-00-3	Chloroethane	0.60	1.3	< 1.3 U
75-09-2	Methylene Chloride	0.82	2.6	< 2.6 U
67-64-1	**Acetone**	**0.63**	**6.5**	**11 ~~Q~~ J**
75-15-0	Carbon Disulfide	0.73	1.3	< 1.3 U
75-35-4	1,1-Dichloroethene	0.44	1.3	< 1.3 U
75-34-3	1,1-Dichloroethane	0.26	1.3	< 1.3 U
156-60-5	trans-1,2-Dichloroethene	0.35	1.3	< 1.3 U
156-59-2	cis-1,2-Dichloroethene	0.31	1.3	< 1.3 U
67-66-3	Chloroform	0.30	1.3	< 1.3 U
107-06-2	1,2-Dichloroethane	0.25	1.3	< 1.3 U
78-93-3	2-Butanone	0.67	6.5	< 6.5 UJ
71-55-6	1,1,1-Trichloroethane	0.29	1.3	< 1.3 U
56-23-5	Carbon Tetrachloride	0.28	1.3	< 1.3 U
108-05-4	Vinyl Acetate	0.49	6.5	< 6.5 U
75-27-4	Bromodichloromethane	0.33	1.3	< 1.3 U
78-87-5	1,2-Dichloropropane	0.21	1.3	< 1.3 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.3	< 1.3 U
79-01-6	Trichloroethene	0.28	1.3	< 1.3 U
124-48-1	Dibromochloromethane	0.35	1.3	< 1.3 U
79-00-5	1,1,2-Trichloroethane	0.37	1.3	< 1.3 U
71-43-2	Benzene	0.38	1.3	< 1.3 U
10061-02-6	trans-1,3-Dichloropropene	0.28	1.3	< 1.3 U
110-75-8	2-Chloroethylvinylether	0.36	6.5	< 6.5 U
75-25-2	Bromoform	0.39	1.3	< 1.3 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.55	6.5	< 6.5 U
591-78-6	2-Hexanone	0.57	6.5	< 6.5 UJ
127-18-4	Tetrachloroethene	0.33	1.3	< 1.3 U
79-34-5	1,1,2,2-Tetrachloroethane	0.33	1.3	< 1.3 U
108-88-3	Toluene	0.20	1.3	< 1.3 U
108-90-7	Chlorobenzene	0.28	1.3	< 1.3 U
100-41-4	Ethylbenzene	0.26	1.3	< 1.3 U
100-42-5	Styrene	0.18	1.3	< 1.3 U
75-69-4	Trichlorofluoromethane	0.35	1.3	< 1.3 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.37	2.6	< 2.6 U
179601-23-1	m,p-Xylene	0.51	1.3	< 1.3 U
95-47-6	o-Xylene	0.29	1.3	< 1.3 U
95-50-1	1,2-Dichlorobenzene	0.38	1.3	< 1.3 U
541-73-1	1,3-Dichlorobenzene	0.29	1.3	< 1.3 U
106-46-7	1,4-Dichlorobenzene	0.30	1.3	< 1.3 U
107-02-8	Acrolein	4.9	65	< 65 U
74-88-4	Methyl Iodide	0.28	1.3	< 1.3 U
74-96-4	Bromoethane	0.57	2.6	< 2.6 U
107-13-1	Acrylonitrile	1.3	6.5	< 6.5 UJ
563-58-6	1,1-Dichloropropene	0.41	1.3	< 1.3 U
74-95-3	Dibromomethane	0.19	1.3	< 1.3 U
630-20-6	1,1,1,2-Tetrachloroethane	0.30	1.3	< 1.3 U
96-12-8	1,2-Dibromo-3-chloropropane	0.76	6.5	< 6.5 UJ

FORM I

TK37:00036

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: FRP-082911-025
SAMPLE

Lab Sample ID: TK37E
LIMS ID: 11-18813
Matrix: Soil
Date Analyzed: 09/02/11 16:37

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.67	2.6	< 2.6 U UJ
110-57-6	trans-1,4-Dichloro-2-butene	0.57	6.5	< 6.5 U
108-67-8	1,3,5-Trimethylbenzene	0.33	1.3	< 1.3 U
95-63-6	1,2,4-Trimethylbenzene	0.30	1.3	< 1.3 U
87-68-3	Hexachlorobutadiene	0.53	6.5	< 6.5 U
106-93-4	Ethylene Dibromide	0.23	1.3	< 1.3 U
74-97-5	Bromochloromethane	0.42	1.3	< 1.3 U
594-20-7	2,2-Dichloropropane	0.38	1.3	< 1.3 U
142-28-9	1,3-Dichloropropane	0.27	1.3	< 1.3 U
98-82-8	Isopropylbenzene	0.30	1.3	< 1.3 U
103-65-1	n-Propylbenzene	0.35	1.3	< 1.3 U
108-86-1	Bromobenzene	0.20	1.3	< 1.3 U
95-49-8	2-Chlorotoluene	0.39	1.3	< 1.3 U
106-43-4	4-Chlorotoluene	0.36	1.3	< 1.3 U
98-06-6	tert-Butylbenzene	0.40	1.3	< 1.3 U
135-98-8	sec-Butylbenzene	0.31	1.3	< 1.3 U
99-87-6	4-Isopropyltoluene	0.31	1.3	< 1.3 U
104-51-8	n-Butylbenzene	0.34	1.3	< 1.3 U
120-82-1	1,2,4-Trichlorobenzene	0.43	6.5	< 6.5 U
91-20-3	Naphthalene	0.56	6.5	< 6.5 U
87-61-6	1,2,3-Trichlorobenzene	0.40	6.5	< 6.5 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	102%
Bromofluorobenzene	95.6%
d4-1,2-Dichlorobenzene	102%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-027**
Page 1 of 2 **SAMPLE**

Lab Sample ID: TK37F
LIMS ID: 11-18814
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 17:04

Sample Amount: 3.85 g-dry-wt
Percent Moisture: 11.7%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.34	1.3	< 1.3 U
74-83-9	Bromomethane	0.24	1.3	< 1.3 U
75-01-4	Vinyl Chloride	0.31	1.3	< 1.3 U
75-00-3	Chloroethane	0.60	1.3	< 1.3 U
75-09-2	Methylene Chloride	0.82	2.6	< 2.6 U
67-64-1	**Acetone**	**0.63**	**6.5**	**41 ~~Q~~ J**
75-15-0	Carbon Disulfide	0.73	1.3	< 1.3 U
75-35-4	1,1-Dichloroethene	0.44	1.3	< 1.3 U
75-34-3	1,1-Dichloroethane	0.26	1.3	< 1.3 U
156-60-5	trans-1,2-Dichloroethene	0.35	1.3	< 1.3 U
156-59-2	cis-1,2-Dichloroethene	0.31	1.3	< 1.3 U
67-66-3	Chloroform	0.30	1.3	< 1.3 U
107-06-2	1,2-Dichloroethane	0.25	1.3	< 1.3 U
78-93-3	**2-Butanone**	**0.67**	**6.5**	**4.0 ~~JQ~~ J**
71-55-6	1,1,1-Trichloroethane	0.29	1.3	< 1.3 U
56-23-5	Carbon Tetrachloride	0.28	1.3	< 1.3 U
108-05-4	Vinyl Acetate	0.49	6.5	< 6.5 U
75-27-4	Bromodichloromethane	0.33	1.3	< 1.3 U
78-87-5	1,2-Dichloropropane	0.21	1.3	< 1.3 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.3	< 1.3 U
79-01-6	Trichloroethene	0.28	1.3	< 1.3 U
124-48-1	Dibromochloromethane	0.35	1.3	< 1.3 U
79-00-5	1,1,2-Trichloroethane	0.37	1.3	< 1.3 U
71-43-2	**Benzene**	**0.38**	**1.3**	**1.2 J**
10061-02-6	trans-1,3-Dichloropropene	0.28	1.3	< 1.3 U
110-75-8	2-Chloroethylvinylether	0.36	6.5	< 6.5 U
75-25-2	Bromoform	0.39	1.3	< 1.3 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.55	6.5	< 6.5 U
591-78-6	2-Hexanone	0.57	6.5	< 6.5 UJ
127-18-4	Tetrachloroethene	0.33	1.3	< 1.3 U
79-34-5	1,1,2,2-Tetrachloroethane	0.33	1.3	< 1.3 U
108-88-3	**Toluene**	**0.20**	**1.3**	**1.0 J**
108-90-7	Chlorobenzene	0.28	1.3	< 1.3 U
100-41-4	Ethylbenzene	0.26	1.3	< 1.3 U
100-42-5	Styrene	0.18	1.3	< 1.3 U
75-69-4	Trichlorofluoromethane	0.35	1.3	< 1.3 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.37	2.6	< 2.6 U
179601-23-1	m,p-Xylene	0.51	1.3	< 1.3 U
95-47-6	o-Xylene	0.29	1.3	< 1.3 U
95-50-1	1,2-Dichlorobenzene	0.38	1.3	< 1.3 U
541-73-1	1,3-Dichlorobenzene	0.29	1.3	< 1.3 U
106-46-7	1,4-Dichlorobenzene	0.30	1.3	< 1.3 U
107-02-8	Acrolein	4.9	65	< 65 U
74-88-4	Methyl Iodide	0.28	1.3	< 1.3 U
74-96-4	Bromoethane	0.57	2.6	< 2.6 U
107-13-1	Acrylonitrile	1.3	6.5	< 6.5 UJ
563-58-6	1,1-Dichloropropene	0.41	1.3	< 1.3 U
74-95-3	Dibromomethane	0.19	1.3	< 1.3 U
630-20-6	1,1,1,2-Tetrachloroethane	0.30	1.3	< 1.3 U
96-12-8	1,2-Dibromo-3-chloropropane	0.76	6.5	< 6.5 UJ

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-027**
 SAMPLE

Lab Sample ID: TK37F
LIMS ID: 11-18814
Matrix: Soil
Date Analyzed: 09/02/11 17:04

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.67	2.6	< 2.6 U
110-57-6	trans-1,4-Dichloro-2-butene	0.57	6.5	< 6.5 U
108-67-8	1,3,5-Trimethylbenzene	0.33	1.3	< 1.3 U
95-63-6	1,2,4-Trimethylbenzene	0.30	1.3	< 1.3 U
87-68-3	Hexachlorobutadiene	0.53	6.5	< 6.5 U
106-93-4	Ethylene Dibromide	0.23	1.3	< 1.3 U
74-97-5	Bromochloromethane	0.42	1.3	< 1.3 U
594-20-7	2,2-Dichloropropane	0.38	1.3	< 1.3 U
142-28-9	1,3-Dichloropropane	0.27	1.3	< 1.3 U
98-82-8	Isopropylbenzene	0.30	1.3	< 1.3 U
103-65-1	n-Propylbenzene	0.35	1.3	< 1.3 U
108-86-1	Bromobenzene	0.20	1.3	< 1.3 U
95-49-8	2-Chlorotoluene	0.39	1.3	< 1.3 U
106-43-4	4-Chlorotoluene	0.36	1.3	< 1.3 U
98-06-6	tert-Butylbenzene	0.40	1.3	< 1.3 U
135-98-8	sec-Butylbenzene	0.31	1.3	< 1.3 U
99-87-6	4-Isopropyltoluene	0.31	1.3	< 1.3 U
104-51-8	n-Butylbenzene	0.34	1.3	< 1.3 U
120-82-1	1,2,4-Trichlorobenzene	0.43	6.5	< 6.5 U
91-20-3	Naphthalene	0.56	6.5	< 6.5 U
87-61-6	1,2,3-Trichlorobenzene	0.40	6.5	< 6.5 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	114%
d8-Toluene	101%
Bromofluorobenzene	93.9%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-028**
 SAMPLE

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 17:32

Sample Amount: 3.94 g-dry-wt
Percent Moisture: 11.4%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.33	1.3	< 1.3 U
74-83-9	Bromomethane	0.24	1.3	< 1.3 U
75-01-4	Vinyl Chloride	0.30	1.3	< 1.3 U
75-00-3	Chloroethane	0.59	1.3	< 1.3 U
75-09-2	Methylene Chloride	0.81	2.5	< 2.5 U
67-64-1	**Acetone**	**0.61**	**6.3**	**24 ~~Q~~ J**
75-15-0	Carbon Disulfide	0.71	1.3	< 1.3 U
75-35-4	1,1-Dichloroethene	0.43	1.3	< 1.3 U
75-34-3	1,1-Dichloroethane	0.26	1.3	< 1.3 U
156-60-5	trans-1,2-Dichloroethene	0.34	1.3	< 1.3 U
156-59-2	cis-1,2-Dichloroethene	0.30	1.3	< 1.3 U
67-66-3	Chloroform	0.30	1.3	< 1.3 U
107-06-2	1,2-Dichloroethane	0.24	1.3	< 1.3 U
78-93-3	2-Butanone	0.65	6.3	< 6.3 U J
71-55-6	1,1,1-Trichloroethane	0.29	1.3	< 1.3 U
56-23-5	Carbon Tetrachloride	0.27	1.3	< 1.3 U
108-05-4	Vinyl Acetate	0.48	6.3	< 6.3 U
75-27-4	Bromodichloromethane	0.32	1.3	< 1.3 U
78-87-5	1,2-Dichloropropane	0.21	1.3	< 1.3 U
10061-01-5	cis-1,3-Dichloropropene	0.29	1.3	< 1.3 U
79-01-6	Trichloroethene	0.27	1.3	< 1.3 U
124-48-1	Dibromochloromethane	0.34	1.3	< 1.3 U
79-00-5	1,1,2-Trichloroethane	0.36	1.3	< 1.3 U
71-43-2	**Benzene**	**0.38**	**1.3**	**0.5 J**
10061-02-6	trans-1,3-Dichloropropene	0.27	1.3	< 1.3 U
110-75-8	2-Chloroethylvinylether	0.35	6.3	< 6.3 U
75-25-2	Bromoform	0.38	1.3	< 1.3 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.53	6.3	< 6.3 U
591-78-6	2-Hexanone	0.56	6.3	< 6.3 U J
127-18-4	Tetrachloroethene	0.33	1.3	< 1.3 U
79-34-5	1,1,2,2-Tetrachloroethane	0.32	1.3	< 1.3 U
108-88-3	Toluene	0.19	1.3	< 1.3 U
108-90-7	Chlorobenzene	0.28	1.3	< 1.3 U
100-41-4	Ethylbenzene	0.26	1.3	< 1.3 U
100-42-5	Styrene	0.18	1.3	< 1.3 U
75-69-4	Trichlorofluoromethane	0.34	1.3	< 1.3 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.36	2.5	< 2.5 U
179601-23-1	m,p-Xylene	0.50	1.3	< 1.3 U
95-47-6	o-Xylene	0.28	1.3	< 1.3 U
95-50-1	1,2-Dichlorobenzene	0.37	1.3	< 1.3 U
541-73-1	1,3-Dichlorobenzene	0.29	1.3	< 1.3 U
106-46-7	1,4-Dichlorobenzene	0.29	1.3	< 1.3 U
107-02-8	Acrolein	4.8	63	< 63 U
74-88-4	Methyl Iodide	0.27	1.3	< 1.3 U
74-96-4	Bromoethane	0.56	2.5	< 2.5 U
107-13-1	Acrylonitrile	1.3	6.3	< 6.3 U J
563-58-6	1,1-Dichloropropene	0.40	1.3	< 1.3 U
74-95-3	Dibromomethane	0.19	1.3	< 1.3 U
630-20-6	1,1,1,2-Tetrachloroethane	0.30	1.3	< 1.3 U
96-12-8	1,2-Dibromo-3-chloropropane	0.74	6.3	< 6.3 U J

on 2nd

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-028**
 SAMPLE

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Date Analyzed: 09/02/11 17:32

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.66	2.5	< 2.5 UJ
110-57-6	trans-1,4-Dichloro-2-butene	0.55	6.3	< 6.3 U
108-67-8	1,3,5-Trimethylbenzene	0.32	1.3	< 1.3 U
95-63-6	1,2,4-Trimethylbenzene	0.29	1.3	< 1.3 U
87-68-3	Hexachlorobutadiene	0.52	6.3	< 6.3 U
106-93-4	Ethylene Dibromide	0.22	1.3	< 1.3 U
74-97-5	Bromochloromethane	0.41	1.3	< 1.3 U
594-20-7	2,2-Dichloropropane	0.37	1.3	< 1.3 U
142-28-9	1,3-Dichloropropane	0.27	1.3	< 1.3 U
98-82-8	Isopropylbenzene	0.30	1.3	< 1.3 U
103-65-1	n-Propylbenzene	0.35	1.3	< 1.3 U
108-86-1	Bromobenzene	0.19	1.3	< 1.3 U
95-49-8	2-Chlorotoluene	0.38	1.3	< 1.3 U
106-43-4	4-Chlorotoluene	0.35	1.3	< 1.3 U
98-06-6	tert-Butylbenzene	0.39	1.3	< 1.3 U
135-98-8	sec-Butylbenzene	0.30	1.3	< 1.3 U
99-87-6	4-Isopropyltoluene	0.30	1.3	< 1.3 U
104-51-8	n-Butylbenzene	0.33	1.3	< 1.3 U
120-82-1	1,2,4-Trichlorobenzene	0.42	6.3	< 6.3 U
91-20-3	Naphthalene	0.54	6.3	< 6.3 U
87-61-6	1,2,3-Trichlorobenzene	0.39	6.3	< 6.3 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	115%
d8-Toluene	102%
Bromofluorobenzene	99.2%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-029**
 SAMPLE

Lab Sample ID: TK37H
LIMS ID: 11-18816
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 17:59

Sample Amount: 3.58 g-dry-wt
Percent Moisture: 25.9%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.37	1.4	< 1.4 U
74-83-9	Bromomethane	0.26	1.4	< 1.4 U
75-01-4	Vinyl Chloride	0.33	1.4	< 1.4 U
75-00-3	Chloroethane	0.65	1.4	< 1.4 U
75-09-2	Methylene Chloride	0.89	2.8	< 2.8 U
67-64-1	**Acetone**	**0.67**	**7.0**	**21 J**
75-15-0	**Carbon Disulfide**	**0.78**	**1.4**	**3.9**
75-35-4	1,1-Dichloroethene	0.47	1.4	< 1.4 U
75-34-3	1,1-Dichloroethane	0.28	1.4	< 1.4 U
156-60-5	trans-1,2-Dichloroethene	0.37	1.4	< 1.4 U
156-59-2	cis-1,2-Dichloroethene	0.34	1.4	< 1.4 U
67-66-3	Chloroform	0.33	1.4	< 1.4 U
107-06-2	1,2-Dichloroethane	0.27	1.4	< 1.4 U
78-93-3	2-Butanone	0.72	7.0	< 7.0 UJ
71-55-6	1,1,1-Trichloroethane	0.32	1.4	< 1.4 U
56-23-5	Carbon Tetrachloride	0.30	1.4	< 1.4 U
108-05-4	Vinyl Acetate	0.53	7.0	< 7.0 U
75-27-4	Bromodichloromethane	0.35	1.4	< 1.4 U
78-87-5	1,2-Dichloropropane	0.23	1.4	< 1.4 U
10061-01-5	cis-1,3-Dichloropropene	0.32	1.4	< 1.4 U
79-01-6	Trichloroethene	0.30	1.4	< 1.4 U
124-48-1	Dibromochloromethane	0.37	1.4	< 1.4 U
79-00-5	1,1,2-Trichloroethane	0.40	1.4	< 1.4 U
71-43-2	**Benzene**	**0.41**	**1.4**	**0.9 J**
10061-02-6	trans-1,3-Dichloropropene	0.30	1.4	< 1.4 U
110-75-8	2-Chloroethylvinylether	0.39	7.0	< 7.0 U
75-25-2	Bromoform	0.41	1.4	< 1.4 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.59	7.0	< 7.0 U
591-78-6	2-Hexanone	0.61	7.0	< 7.0 UJ
127-18-4	Tetrachloroethene	0.36	1.4	< 1.4 U
79-34-5	1,1,2,2-Tetrachloroethane	0.35	1.4	< 1.4 U
108-88-3	Toluene	0.21	1.4	< 1.4 U
108-90-7	Chlorobenzene	0.31	1.4	< 1.4 U
100-41-4	Ethylbenzene	0.28	1.4	< 1.4 U
100-42-5	Styrene	0.19	1.4	< 1.4 U
75-69-4	Trichlorofluoromethane	0.37	1.4	< 1.4 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.40	2.8	< 2.8 U
179601-23-1	m,p-Xylene	0.55	1.4	< 1.4 U
95-47-6	o-Xylene	0.31	1.4	< 1.4 U
95-50-1	1,2-Dichlorobenzene	0.41	1.4	< 1.4 U
541-73-1	1,3-Dichlorobenzene	0.32	1.4	< 1.4 U
106-46-7	1,4-Dichlorobenzene	0.32	1.4	< 1.4 U
107-02-8	Acrolein	5.3	70	< 70 U
74-88-4	Methyl Iodide	0.30	1.4	< 1.4 U
74-96-4	Bromoethane	0.61	2.8	< 2.8 U
107-13-1	Acrylonitrile	1.4	7.0	< 7.0 UJ
563-58-6	1,1-Dichloropropene	0.44	1.4	< 1.4 U
74-95-3	Dibromomethane	0.21	1.4	< 1.4 U
630-20-6	1,1,1,2-Tetrachloroethane	0.33	1.4	< 1.4 U
96-12-8	1,2-Dibromo-3-chloropropane	0.82	7.0	< 7.0 UJ

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-029**
 SAMPLE

Lab Sample ID: TK37H
LIMS ID: 11-18816
Matrix: Soil
Date Analyzed: 09/02/11 17:59

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.72	2.8	< 2.8 U
110-57-6	trans-1,4-Dichloro-2-butene	0.61	7.0	< 7.0 U
108-67-8	1,3,5-Trimethylbenzene	0.35	1.4	< 1.4 U
95-63-6	1,2,4-Trimethylbenzene	0.32	1.4	< 1.4 U
87-68-3	Hexachlorobutadiene	0.57	7.0	< 7.0 U
106-93-4	Ethylene Dibromide	0.25	1.4	< 1.4 U
74-97-5	Bromochloromethane	0.45	1.4	< 1.4 U
594-20-7	2,2-Dichloropropane	0.41	1.4	< 1.4 U
142-28-9	1,3-Dichloropropane	0.29	1.4	< 1.4 U
98-82-8	Isopropylbenzene	0.33	1.4	< 1.4 U
103-65-1	n-Propylbenzene	0.38	1.4	< 1.4 U
108-86-1	Bromobenzene	0.21	1.4	< 1.4 U
95-49-8	2-Chlorotoluene	0.42	1.4	< 1.4 U
106-43-4	4-Chlorotoluene	0.39	1.4	< 1.4 U
98-06-6	tert-Butylbenzene	0.43	1.4	< 1.4 U
135-98-8	sec-Butylbenzene	0.34	1.4	< 1.4 U
99-87-6	4-Isopropyltoluene	0.33	1.4	< 1.4 U
104-51-8	n-Butylbenzene	0.37	1.4	< 1.4 U
120-82-1	1,2,4-Trichlorobenzene	0.46	7.0	< 7.0 U
91-20-3	Naphthalene	0.60	7.0	< 7.0 U
87-61-6	1,2,3-Trichlorobenzene	0.43	7.0	< 7.0 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	113%
d8-Toluene	101%
Bromofluorobenzene	89.5%
d4-1,2-Dichlorobenzene	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-030**
 SAMPLE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 18:27

Sample Amount: 4.44 g-dry-wt
Percent Moisture: 16.2%

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.30	1.1	< 1.1 U
74-83-9	Bromomethane	0.21	1.1	< 1.1 U
75-01-4	Vinyl Chloride	0.26	1.1	< 1.1 U
75-00-3	Chloroethane	0.52	1.1	< 1.1 U
75-09-2	Methylene Chloride	0.72	2.3	< 2.3 U
67-64-1	**Acetone**	**0.54**	**5.6**	**21 ~~Q~~ J**
75-15-0	**Carbon Disulfide**	**0.63**	**1.1**	**1.9**
75-35-4	1,1-Dichloroethene	0.38	1.1	< 1.1 U
75-34-3	1,1-Dichloroethane	0.23	1.1	< 1.1 U
156-60-5	trans-1,2-Dichloroethene	0.30	1.1	< 1.1 U
156-59-2	cis-1,2-Dichloroethene	0.27	1.1	< 1.1 U
67-66-3	Chloroform	0.26	1.1	< 1.1 U
107-06-2	1,2-Dichloroethane	0.22	1.1	< 1.1 U
78-93-3	**2-Butanone**	**0.58**	**5.6**	**2.1 ~~JQ~~ J**
71-55-6	1,1,1-Trichloroethane	0.25	1.1	< 1.1 U
56-23-5	Carbon Tetrachloride	0.24	1.1	< 1.1 U
108-05-4	Vinyl Acetate	0.43	5.6	< 5.6 U
75-27-4	Bromodichloromethane	0.29	1.1	< 1.1 U
78-87-5	1,2-Dichloropropane	0.18	1.1	< 1.1 U
10061-01-5	cis-1,3-Dichloropropene	0.25	1.1	< 1.1 U
79-01-6	Trichloroethene	0.24	1.1	< 1.1 U
124-48-1	Dibromochloromethane	0.30	1.1	< 1.1 U
79-00-5	1,1,2-Trichloroethane	0.32	1.1	< 1.1 U
71-43-2	Benzene	0.33	1.1	< 1.1 U
10061-02-6	trans-1,3-Dichloropropene	0.24	1.1	< 1.1 U
110-75-8	2-Chloroethylvinylether	0.31	5.6	< 5.6 U
75-25-2	Bromoform	0.33	1.1	< 1.1 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.47	5.6	< 5.6 U
591-78-6	2-Hexanone	0.49	5.6	< 5.6 U J
127-18-4	Tetrachloroethene	0.29	1.1	< 1.1 U
79-34-5	1,1,2,2-Tetrachloroethane	0.28	1.1	< 1.1 U
108-88-3	**Toluene**	**0.17**	**1.1**	**0.6 J**
108-90-7	Chlorobenzene	0.25	1.1	< 1.1 U
100-41-4	Ethylbenzene	0.23	1.1	< 1.1 U
100-42-5	Styrene	0.16	1.1	< 1.1 U
75-69-4	Trichlorofluoromethane	0.30	1.1	< 1.1 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.32	2.3	< 2.3 U
179601-23-1	m,p-Xylene	0.44	1.1	< 1.1 U
95-47-6	o-Xylene	0.25	1.1	< 1.1 U
95-50-1	1,2-Dichlorobenzene	0.33	1.1	< 1.1 U
541-73-1	1,3-Dichlorobenzene	0.26	1.1	< 1.1 U
106-46-7	1,4-Dichlorobenzene	0.26	1.1	< 1.1 U
107-02-8	Acrolein	4.3	56	< 56 U
74-88-4	Methyl Iodide	0.24	1.1	< 1.1 U
74-96-4	Bromoethane	0.50	2.3	< 2.3 U
107-13-1	Acrylonitrile	1.2	5.6	< 5.6 U J
563-58-6	1,1-Dichloropropene	0.35	1.1	< 1.1 U
74-95-3	Dibromomethane	0.17	1.1	< 1.1 U
630-20-6	1,1,1,2-Tetrachloroethane	0.26	1.1	< 1.1 U
96-12-8	1,2-Dibromo-3-chloropropane	0.66	5.6	< 5.6 U J

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: FRP-082911-030**
 SAMPLE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Date Analyzed: 09/02/11 18:27

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.58	2.3	< 2.3 U
110-57-6	trans-1,4-Dichloro-2-butene	0.49	5.6	< 5.6 U
108-67-8	1,3,5-Trimethylbenzene	0.29	1.1	< 1.1 U
95-63-6	1,2,4-Trimethylbenzene	0.26	1.1	< 1.1 U
87-68-3	Hexachlorobutadiene	0.46	5.6	< 5.6 U
106-93-4	Ethylene Dibromide	0.20	1.1	< 1.1 U
74-97-5	Bromochloromethane	0.36	1.1	< 1.1 U
594-20-7	2,2-Dichloropropane	0.33	1.1	< 1.1 U
142-28-9	1,3-Dichloropropane	0.24	1.1	< 1.1 U
98-82-8	Isopropylbenzene	0.26	1.1	< 1.1 U
103-65-1	n-Propylbenzene	0.31	1.1	< 1.1 U
108-86-1	Bromobenzene	0.17	1.1	< 1.1 U
95-49-8	2-Chlorotoluene	0.34	1.1	< 1.1 U
106-43-4	4-Chlorotoluene	0.31	1.1	< 1.1 U
98-06-6	tert-Butylbenzene	0.34	1.1	< 1.1 U
135-98-8	sec-Butylbenzene	0.27	1.1	< 1.1 U
99-87-6	4-Isopropyltoluene	0.27	1.1	< 1.1 U
104-51-8	n-Butylbenzene	0.30	1.1	< 1.1 U
120-82-1	1,2,4-Trichlorobenzene	0.37	5.6	< 5.6 U
91-20-3	Naphthalene	0.48	5.6	< 5.6 U
87-61-6	1,2,3-Trichlorobenzene	0.34	5.6	< 5.6 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	115%
d8-Toluene	103%
Bromofluorobenzene	96.8%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-090211	Method Blank	Low	88.6%	101%	94.9%	97.8%	0
LCS-090211	Lab Control	Low	86.9%	102%	97.8%	98.3%	0
LCSD-090211	Lab Control Dup	Low	84.5%	102%	98.3%	99.9%	0
TK37A	FRP-082911-021	Low	109%	100%	87.0%	99.0%	0
TK37B	FRP-082911-022	Low	113%	100%	96.1%	101%	0
TK37C	FRP-082911-023	Low	111%	102%	93.2%	100%	0
TK37D	FRP-082911-024	Low	116%	103%	97.3%	102%	0
TK37E	FRP-082911-025	Low	110%	102%	95.6%	102%	0
TK37F	FRP-082911-027	Low	114%	101%	93.9%	102%	0
TK37G	FRP-082911-028	Low	115%	102%	99.2%	101%	0
TK37H	FRP-082911-029	Low	113%	101%	89.5%	103%	0
TK37I	FRP-082911-030	Low	115%	103%	96.8%	101%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 11-18809 to 11-18817

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-090211**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-090211
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PKC
LCSD: FINN5/PKC
Date Analyzed LCS: 09/02/11 11:25
LCSD: 09/02/11 11:53

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	53.2	50.0	106%	51.4	50.0	103%	3.4%
Bromomethane	62.3 Q	50.0	125%	60.2 Q	50.0	120%	3.4%
Vinyl Chloride	48.3	50.0	96.6%	47.0	50.0	94.0%	2.7%
Chloroethane	54.6	50.0	109%	53.2	50.0	106%	2.6%
Methylene Chloride	64.8 B	50.0	130%	62.3 B	50.0	125%	3.9%
Acetone	217 Q	250	86.8%	190 Q	250	76.0%	13.3%
Carbon Disulfide	54.9	50.0	110%	53.6	50.0	107%	2.4%
1,1-Dichloroethene	53.2	50.0	106%	51.4	50.0	103%	3.4%
1,1-Dichloroethane	54.2	50.0	108%	52.2	50.0	104%	3.8%
trans-1,2-Dichloroethene	53.6	50.0	107%	51.1	50.0	102%	4.8%
cis-1,2-Dichloroethene	56.2	50.0	112%	52.4	50.0	105%	7.0%
Chloroform	52.5	50.0	105%	48.7	50.0	97.4%	7.5%
1,2-Dichloroethane	42.5	50.0	85.0%	40.8	50.0	81.6%	4.1%
2-Butanone	229 Q	250	91.6%	206 Q	250	82.4%	10.6%
1,1,1-Trichloroethane	50.3	50.0	101%	48.5	50.0	97.0%	3.6%
Carbon Tetrachloride	47.4	50.0	94.8%	45.8	50.0	91.6%	3.4%
Vinyl Acetate	49.0	50.0	98.0%	49.7	50.0	99.4%	1.4%
Bromodichloromethane	48.9	50.0	97.8%	46.7	50.0	93.4%	4.6%
1,2-Dichloropropane	51.2	50.0	102%	49.8	50.0	99.6%	2.8%
cis-1,3-Dichloropropene	51.7	50.0	103%	49.9	50.0	99.8%	3.5%
Trichloroethene	49.4	50.0	98.8%	49.2	50.0	98.4%	0.4%
Dibromochloromethane	50.2	50.0	100%	49.2	50.0	98.4%	2.0%
1,1,2-Trichloroethane	49.0	50.0	98.0%	46.3	50.0	92.6%	5.7%
Benzene	51.6	50.0	103%	50.7	50.0	101%	1.8%
trans-1,3-Dichloropropene	51.0	50.0	102%	47.5	50.0	95.0%	7.1%
2-Chloroethylvinylether	99.5 Q	50.0	199%	94.3 Q	50.0	189%	5.4%
Bromoform	47.1	50.0	94.2%	45.4	50.0	90.8%	3.7%
4-Methyl-2-Pentanone (MIBK)	230	250	92.0%	211	250	84.4%	8.6%
2-Hexanone	229 Q	250	91.6%	211 Q	250	84.4%	8.2%
Tetrachloroethene	50.7	50.0	101%	50.7	50.0	101%	0.0%
1,1,2,2-Tetrachloroethane	46.3	50.0	92.6%	44.3	50.0	88.6%	4.4%
Toluene	51.6	50.0	103%	50.9	50.0	102%	1.4%
Chlorobenzene	52.7	50.0	105%	51.8	50.0	104%	1.7%
Ethylbenzene	52.1	50.0	104%	52.4	50.0	105%	0.6%
Styrene	51.7	50.0	103%	50.8	50.0	102%	1.8%
Trichlorofluoromethane	55.5	50.0	111%	53.6	50.0	107%	3.5%
1,1,2-Trichloro-1,2,2-trifluoroetha	58.0	50.0	116%	58.5	50.0	117%	0.9%
m,p-Xylene	102	100	102%	106	100	106%	3.8%
o-Xylene	51.9	50.0	104%	52.2	50.0	104%	0.6%
1,2-Dichlorobenzene	51.3	50.0	103%	50.2	50.0	100%	2.2%
1,3-Dichlorobenzene	51.1	50.0	102%	50.7	50.0	101%	0.8%
1,4-Dichlorobenzene	51.4	50.0	103%	51.2	50.0	102%	0.4%
Acrolein	245	250	98.0%	224	250	89.6%	9.0%
Methyl Iodide	60.3	50.0	121%	57.4	50.0	115%	4.9%
Bromoethane	54.8	50.0	110%	52.8	50.0	106%	3.7%
Acrylonitrile	47.4 Q	50.0	94.8%	43.1 Q	50.0	86.2%	9.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-090211**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-090211
LIMS ID: 11-18809
Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,1-Dichloropropene	50.0	50.0	100%	48.3	50.0	96.6%	3.5%
Dibromomethane	47.6	50.0	95.2%	44.6	50.0	89.2%	6.5%
1,1,1,2-Tetrachloroethane	49.2	50.0	98.4%	47.9	50.0	95.8%	2.7%
1,2-Dibromo-3-chloropropane	42.6 Q	50.0	85.2%	39.0 Q	50.0	78.0%	8.8%
1,2,3-Trichloropropane	44.2 Q	50.0	88.4%	41.0 Q	50.0	82.0%	7.5%
trans-1,4-Dichloro-2-butene	45.0	50.0	90.0%	41.7	50.0	83.4%	7.6%
1,3,5-Trimethylbenzene	51.1	50.0	102%	50.6	50.0	101%	1.0%
1,2,4-Trimethylbenzene	51.7	50.0	103%	51.5	50.0	103%	0.4%
Hexachlorobutadiene	47.9	50.0	95.8%	47.6	50.0	95.2%	0.6%
Ethylene Dibromide	49.1	50.0	98.2%	45.9	50.0	91.8%	6.7%
Bromochloromethane	53.6	50.0	107%	51.4	50.0	103%	4.2%
2,2-Dichloropropane	51.6	50.0	103%	49.8	50.0	99.6%	3.6%
1,3-Dichloropropane	48.7	50.0	97.4%	46.7	50.0	93.4%	4.2%
Isopropylbenzene	51.7	50.0	103%	51.3	50.0	103%	0.8%
n-Propylbenzene	53.4	50.0	107%	53.7	50.0	107%	0.6%
Bromobenzene	49.1	50.0	98.2%	48.2	50.0	96.4%	1.8%
2-Chlorotoluene	48.1	50.0	96.2%	48.6	50.0	97.2%	1.0%
4-Chlorotoluene	53.5	50.0	107%	51.1	50.0	102%	4.6%
tert-Butylbenzene	48.9	50.0	97.8%	49.3	50.0	98.6%	0.8%
sec-Butylbenzene	52.5	50.0	105%	52.8	50.0	106%	0.6%
4-Isopropyltoluene	50.9	50.0	102%	51.2	50.0	102%	0.6%
n-Butylbenzene	53.4	50.0	107%	52.9	50.0	106%	0.9%
1,2,4-Trichlorobenzene	51.3	50.0	103%	50.3	50.0	101%	2.0%
Naphthalene	45.8	50.0	91.6%	43.6	50.0	87.2%	4.9%
1,2,3-Trichlorobenzene	48.8	50.0	97.6%	48.0	50.0	96.0%	1.7%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	86.9%	84.5%
d8-Toluene	102%	102%
Bromofluorobenzene	97.8%	98.3%
d4-1,2-Dichlorobenzene	98.3%	99.9%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0902A

Lab Name: ANALYTICAL RESOURCES INC

Client: GEOMATRIX, INC.

ARI Job No: TK37

Project: FRP SHORELINE INVESTIGA

Lab File ID: MB0902A

Lab Sample ID: MB0902A

Date Analyzed: 09/02/11

Time Analyzed: 1350

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0902	LCS0902	LCS0902	1125
02	LCS0902	LCS0902	LCS0902A	1153
03	TRIP BLANKS	TK37K	TK37K	1419
04	FRP-082911-0	TK37A	TK37A	1447
05	FRP-082911-0	TK37B	TK37B	1514
06	FRP-082911-0	TK37C	TK37C	1542
07	FRP-082911-0	TK37D	TK37D	1609
08	FRP-082911-0	TK37E	TK37E	1637
09	FRP-082911-0	TK37F	TK37F	1704
10	FRP-082911-0	TK37G	TK37G	1732
11	FRP-082911-0	TK37H	TK37H	1759
12	FRP-082911-0	TK37I	TK37I	1827
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-090211**
 METHOD BLANK

Lab Sample ID: MB-090211
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/06/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PKC
Date Analyzed: 09/02/11 13:50

Sample Amount: 5.00 g-dry-wt
Percent Moisture: NA

CAS Number	Analyte	MDL	RL	Result
74-87-3	Chloromethane	0.26	1.0	< 1.0 U
74-83-9	Bromomethane	0.19	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.24	1.0	< 1.0 U
75-00-3	Chloroethane	0.46	1.0	< 1.0 U
75-09-2	**Methylene Chloride**	**0.64**	**2.0**	**2.7**
67-64-1	Acetone	0.48	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.56	1.0	< 1.0 U
75-35-4	1,1-Dichloroethene	0.34	1.0	< 1.0 U
75-34-3	1,1-Dichloroethane	0.20	1.0	< 1.0 U
156-60-5	trans-1,2-Dichloroethene	0.27	1.0	< 1.0 U
156-59-2	cis-1,2-Dichloroethene	0.24	1.0	< 1.0 U
67-66-3	Chloroform	0.23	1.0	< 1.0 U
107-06-2	1,2-Dichloroethane	0.19	1.0	< 1.0 U
78-93-3	2-Butanone	0.51	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.23	1.0	< 1.0 U
56-23-5	Carbon Tetrachloride	0.21	1.0	< 1.0 U
108-05-4	Vinyl Acetate	0.38	5.0	< 5.0 U
75-27-4	Bromodichloromethane	0.25	1.0	< 1.0 U
78-87-5	1,2-Dichloropropane	0.16	1.0	< 1.0 U
10061-01-5	cis-1,3-Dichloropropene	0.23	1.0	< 1.0 U
79-01-6	Trichloroethene	0.21	1.0	< 1.0 U
124-48-1	Dibromochloromethane	0.27	1.0	< 1.0 U
79-00-5	1,1,2-Trichloroethane	0.29	1.0	< 1.0 U
71-43-2	Benzene	0.30	1.0	< 1.0 U
10061-02-6	trans-1,3-Dichloropropene	0.22	1.0	< 1.0 U
110-75-8	2-Chloroethylvinylether	0.28	5.0	< 5.0 U
75-25-2	Bromoform	0.30	1.0	< 1.0 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.42	5.0	< 5.0 U
591-78-6	2-Hexanone	0.44	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.26	1.0	< 1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	0.25	1.0	< 1.0 U
108-88-3	Toluene	0.15	1.0	< 1.0 U
108-90-7	Chlorobenzene	0.22	1.0	< 1.0 U
100-41-4	Ethylbenzene	0.20	1.0	< 1.0 U
100-42-5	Styrene	0.14	1.0	< 1.0 U
75-69-4	Trichlorofluoromethane	0.27	1.0	< 1.0 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.29	2.0	< 2.0 U
179601-23-1	m,p-Xylene	0.39	1.0	< 1.0 U
95-47-6	o-Xylene	0.22	1.0	< 1.0 U
95-50-1	1,2-Dichlorobenzene	0.29	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.23	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.23	1.0	< 1.0 U
107-02-8	Acrolein	3.8	50	< 50 U
74-88-4	Methyl Iodide	0.22	1.0	< 1.0 U
74-96-4	Bromoethane	0.44	2.0	< 2.0 U
107-13-1	Acrylonitrile	1.0	5.0	< 5.0 U
563-58-6	1,1-Dichloropropene	0.31	1.0	< 1.0 U
74-95-3	Dibromomethane	0.15	1.0	< 1.0 U
630-20-6	1,1,1,2-Tetrachloroethane	0.23	1.0	< 1.0 U
96-12-8	1,2-Dibromo-3-chloropropane	0.59	5.0	< 5.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-090211**
 METHOD BLANK

Lab Sample ID: MB-090211
LIMS ID: 11-18809
Matrix: Soil
Date Analyzed: 09/02/11 13:50

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
96-18-4	1,2,3-Trichloropropane	0.52	2.0	< 2.0 U
110-57-6	trans-1,4-Dichloro-2-butene	0.44	5.0	< 5.0 U
108-67-8	1,3,5-Trimethylbenzene	0.25	1.0	< 1.0 U
95-63-6	1,2,4-Trimethylbenzene	0.23	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	0.41	5.0	< 5.0 U
106-93-4	Ethylene Dibromide	0.18	1.0	< 1.0 U
74-97-5	Bromochloromethane	0.32	1.0	< 1.0 U
594-20-7	2,2-Dichloropropane	0.29	1.0	< 1.0 U
142-28-9	1,3-Dichloropropane	0.21	1.0	< 1.0 U
98-82-8	Isopropylbenzene	0.23	1.0	< 1.0 U
103-65-1	n-Propylbenzene	0.27	1.0	< 1.0 U
108-86-1	Bromobenzene	0.15	1.0	< 1.0 U
95-49-8	2-Chlorotoluene	0.30	1.0	< 1.0 U
106-43-4	4-Chlorotoluene	0.28	1.0	< 1.0 U
98-06-6	tert-Butylbenzene	0.31	1.0	< 1.0 U
135-98-8	sec-Butylbenzene	0.24	1.0	< 1.0 U
99-87-6	4-Isopropyltoluene	0.24	1.0	< 1.0 U
104-51-8	n-Butylbenzene	0.26	1.0	< 1.0 U
120-82-1	1,2,4-Trichlorobenzene	0.33	5.0	< 5.0 U
91-20-3	Naphthalene	0.43	5.0	< 5.0 U
87-61-6	1,2,3-Trichlorobenzene	0.30	5.0	< 5.0 U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	88.6%
d8-Toluene	101%
Bromofluorobenzene	94.9%
d4-1,2-Dichlorobenzene	97.8%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: GEOMATRIX, INC.

Lab Code: ARI Case No.: FRP SHORELINE INVESTIGATION SDG No.: TK37

Lab File ID: BFB0817A BFB Injection Date: 08/17/11

Instrument ID: FINN5 BFB Injection Time: 1806

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	26.4
75	30.0 - 66.0% of mass 95	52.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.8 (0.9)1
174	50.0 - 101.0% of mass 95	94.0
175	4.0 - 9.0% of mass 174	6.9 (7.3)1
176	93.0 - 101.0% of mass 174	90.9 (96.7)1
177	5.0 - 9.0% of mass 176	5.4 (5.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD1	IC0817	0010817	08/17/11	1842
02	VSTD5	IC0817	0050817	08/17/11	1932
03	VSTD200	IC0817	2000817	08/17/11	1959
04	VSTD150	IC0817	1500817	08/17/11	2027
05	VSTD100	IC0817	1000817	08/17/11	2054
06	VSTD50	IC0817	0500817	08/17/11	2122
07	VSTD10	IC0817	0100817	08/17/11	2149
08	VSTD2	IC0817	0020817	08/17/11	2244
09	ICV0817	ICV0817	ICV0817	08/17/11	2339
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA OLM3.2M

TK37:000052

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: GEOMATRIX, INC.

Lab Code: ARI Case No.: FRP SHORELINE INVESTIGATION SDG No.: TK37

Lab File ID: BFB0902 BFB Injection Date: 09/02/11

Instrument ID: FINN5 BFB Injection Time: 0937

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	25.1
75	30.0 - 66.0% of mass 95	49.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 101.0% of mass 95	96.8
175	4.0 - 9.0% of mass 174	4.9 (5.0)1
176	93.0 - 101.0% of mass 174	93.5 (96.6)1
177	5.0 - 9.0% of mass 176	5.5 (5.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0902	CC0902	CC0902A	09/02/11	1058
02	LCS0902	LCS0902	LCS0902	09/02/11	1125
03	LCS0902	LCS0902	LCS0902A	09/02/11	1153
04	MB0902A	MB0902A	MB0902A	09/02/11	1350
05	TRIP BLANKS	TK37K	TK37K	09/02/11	1419
06	FRP-082911-021	TK37A	TK37A	09/02/11	1447
07	FRP-082911-022	TK37B	TK37B	09/02/11	1514
08	FRP-082911-023	TK37C	TK37C	09/02/11	1542
09	FRP-082911-024	TK37D	TK37D	09/02/11	1609
10	FRP-082911-025	TK37E	TK37E	09/02/11	1637
11	FRP-082911-027	TK37F	TK37F	09/02/11	1704
12	FRP-082911-028	TK37G	TK37G	09/02/11	1732
13	FRP-082911-029	TK37H	TK37H	09/02/11	1759
14	FRP-082911-030	TK37I	TK37I	09/02/11	1827
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA OLM3.2M

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOMATRIX, INC.

ARI Job No: TK37 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF1: 0010817 RF2: 0020817 RF5: 0050817
RF10: 0100817 RF50: 0500817

COMPOUND	RF1	RF2	RF5	RF10	RF50
Chloromethane	1.220	0.918	0.947	0.990	0.997
Vinyl Chloride	0.915	0.804	0.996	1.151	1.086
Bromomethane	0.452	0.456	0.384	0.483	0.469
Chloroethane	0.446	0.508	0.455	0.515	0.457
Trichlorofluoromethane	0.864	0.785	0.885	0.973	0.951
Acrolein		0.093	0.090	0.095	0.091
112Trichloro122Trifluoroetha	0.525	0.454	0.515	0.548	0.528
Acetone	0.274	0.203	0.225	0.221	0.200
1,1-Dichloroethene	0.461	0.432	0.456	0.482	0.472
Bromoethane	0.335	0.325	0.352	0.391	0.376
Iodomethane	0.638	0.555	0.683	0.630	0.810
Methylene Chloride		0.898	0.735	0.690	0.555
Acrylonitrile		0.168	0.188	0.206	0.197
Carbon Disulfide	1.991	1.688	1.817	1.851	1.822
Trans-1,2-Dichloroethene	0.522	0.486	0.503	0.532	0.503
Vinyl Acetate		1.046	0.938	0.967	0.851
1,1-Dichloroethane	1.143	1.042	1.102	1.186	1.130
2-Butanone	0.282	0.294	0.272	0.327	0.312
2,2-Dichloropropane	0.758	0.646	0.709	0.736	0.741
Cis-1,2-Dichloroethene	0.504	0.496	0.522	0.572	0.535
Chloroform	1.025	0.943	0.985	1.050	1.007
Bromochloromethane	0.216	0.238	0.260	0.274	0.273
1,1,1-Trichloroethane	0.822	0.723	0.774	0.831	0.830
1,1-Dichloropropene	0.613	0.580	0.606	0.659	0.610
Carbon Tetrachloride	0.590	0.527	0.590	0.630	0.591
1,2-Dichloroethane	0.598	0.585	0.621	0.681	0.616
Benzene	1.584	1.460	1.557	1.668	1.477
Trichloroethene	0.486	0.417	0.474	0.485	0.453
1,2-Dichloropropane	0.536	0.495	0.529	0.558	0.514
Bromodichloromethane	0.568	0.526	0.580	0.587	0.568
Dibromomethane	0.244	0.264	0.275	0.288	0.271
2-Chloroethyl Vinyl Ether			0.063	0.087	0.082
4-Methyl-2-Pentanone	0.118	0.126	0.128	0.156	0.142
Cis 1,3-dichloropropene	0.573	0.529	0.574	0.623	0.624
Toluene	0.882	0.761	0.856	0.902	0.826
Trans 1,3-Dichloropropene	0.464	0.424	0.465	0.517	0.521
2-Hexanone	0.337	0.422	0.370	0.521	0.441

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOMATRIX, INC.

ARI Job No: TK37 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF1: 0010817 RF2: 0020817 RF5: 0050817
RF10: 0100817 RF50: 0500817

COMPOUND	RF1	RF2	RF5	RF10	RF50
1,1,2-Trichloroethane	0.296	0.276	0.295	0.322	0.295
1,3-Dichloropropane	0.574	0.569	0.609	0.673	0.634
Tetrachloroethene	0.568	0.439	0.544	0.544	0.516
Chlorodibromomethane	0.453	0.412	0.443	0.484	0.489
1,2-Dibromoethane	0.306	0.292	0.318	0.357	0.340
Chlorobenzene	0.951	0.955	1.032	1.124	1.020
Ethyl Benzene	1.853	1.704	1.854	1.987	1.779
1,1,1,2-Tetrachloroethane	0.478	0.370	0.409	0.427	0.400
m,p-xylene	0.658	0.599	0.658	0.701	0.637
o-Xylene	0.599	0.575	0.632	0.700	0.645
Styrene	1.042	0.960	1.035	1.137	1.031
Bromoform	0.618	0.547	0.646	0.661	0.690
1,1,2,2-Tetrachloroethane	0.902	0.866	0.886	1.000	0.953
1,2,3-Trichloropropane		0.160	0.183	0.213	0.209
Trans-1,4-Dichloro 2-Butene		0.272	0.311	0.346	0.346
N-Propyl Benzene	4.185	3.727	4.026	4.221	4.044
Bromobenzene	0.940	0.860	0.983	1.018	0.975
Isopropyl Benzene	3.438	3.036	3.345	3.553	3.468
2-Chloro Toluene	2.665	2.299	2.543	2.763	2.455
4-Chloro Toluene	2.736	2.568	2.645	2.735	2.654
T-Butyl Benzene	2.642	2.169	2.458	2.563	2.524
1,3,5-Trimethyl Benzene	2.764	2.479	2.741	2.948	2.800
1,2,4-Trimethylbenzene	2.755	2.428	2.706	2.862	2.748
S-Butyl Benzene	3.658	3.272	3.617	3.755	3.759
4-Isopropyl Toluene	2.789	2.454	2.655	2.844	2.791
1,3-Dichlorobenzene	1.706	1.512	1.623	1.665	1.579
1,4-Dichlorobenzene	1.609	1.461	1.592	1.620	1.534
N-Butyl Benzene	3.138	2.713	2.940	3.017	2.983
1,2-Dichlorobenzene	1.446	1.348	1.470	1.586	1.460
1,2-Dibromo 3-Chloropropane		0.168	0.166	0.214	0.200
1,2,4-Trichlorobenzene		1.154	1.187	1.261	1.127
Hexachloro 1,3-Butadiene	0.826	0.939	0.904	1.008	0.894
Naphthalene		2.139	1.756	2.364	2.035
1,2,3-Trichlorobenzene		1.142	1.063	1.252	1.053
Dichlorodifluoromethane	0.614	0.407	0.498	0.564	0.658
Methyl tert-Butyl Ether	1.226	1.088	1.171	1.282	1.236

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOMATRIX, INC.

ARI Job No: TK37 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF1: 0010817 RF2: 0020817 RF5: 0050817
RF10: 0100817 RF50: 0500817

COMPOUND	RF1	RF2	RF5	RF10	RF50
d4-1,2-Dichloroethane	0.646	0.688	0.648	0.671	0.680
d8-Toluene	1.172	1.214	1.191	1.202	1.194
4-Bromofluorobenzene	0.536	0.554	0.545	0.562	0.558
d4-1,2-Dichlorobenzene	0.885	0.897	0.894	0.890	0.913
Dibromofluoromethane	0.545	0.547	0.526	0.529	0.544

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOMATRIX, INC.

ARI Job No: TK37 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF100: 1000817 RF150: 1500817 RF200: 2000817

COMPOUND	RF100	RF150	RF200
Chloromethane	0.992	0.994	0.916
Vinyl Chloride	1.147	1.064	0.983
Bromomethane	0.443	0.434	0.392
Chloroethane	0.444	0.440	0.427
Trichlorofluoromethane	0.955	0.949	0.921
Acrolein	0.092	0.089	0.088
112Trichloro122Trifluoroetha	0.523	0.523	0.512
Acetone	0.200	0.192	0.188
1,1-Dichloroethene	0.460	0.469	0.455
Bromoethane	0.375	0.377	0.367
Iodomethane	0.812	0.830	0.818
Methylene Chloride	0.548	0.546	0.531
Acrylonitrile	0.200	0.199	0.199
Carbon Disulfide	1.791	1.788	1.695
Trans-1,2-Dichloroethene	0.500	0.502	0.498
Vinyl Acetate	0.849	0.842	0.838
1,1-Dichloroethane	1.134	1.144	1.116
2-Butanone	0.318	0.315	0.311
2,2-Dichloropropane	0.759	0.760	0.738
Cis-1,2-Dichloroethene	0.529	0.539	0.523
Chloroform	1.003	1.013	0.974
Bromochloromethane	0.275	0.283	0.274
1,1,1-Trichloroethane	0.831	0.830	0.811
1,1-Dichloropropene	0.600	0.586	0.579
Carbon Tetrachloride	0.594	0.577	0.577
1,2-Dichloroethane	0.616	0.607	0.602
Benzene	1.440	1.382	1.236
Trichloroethene	0.453	0.443	0.440
1,2-Dichloropropane	0.505	0.496	0.489
Bromodichloromethane	0.572	0.562	0.568
Dibromomethane	0.269	0.261	0.263
2-Chloroethyl Vinyl Ether	0.094	0.097	0.104
4-Methyl-2-Pentanone	0.143	0.138	0.136
Cis 1,3-dichloropropene	0.639	0.647	0.648
Toluene	0.823	0.829	0.810
Trans 1,3-Dichloropropene	0.559	0.566	0.563
2-Hexanone	0.416	0.346	0.277

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOMATRIX, INC.

ARI Job No: TK37 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF100: 1000817 RF150: 1500817 RF200: 2000817

COMPOUND	RF100	RF150	RF200
1,1,2-Trichloroethane	0.295	0.291	0.289
1,3-Dichloropropane	0.615	0.613	0.588
Tetrachloroethene	0.512	0.510	0.484
Chlorodibromomethane	0.490	0.489	0.477
1,2-Dibromoethane	0.349	0.359	0.354
Chlorobenzene	1.005	1.004	0.956
Ethyl Benzene	1.755	1.679	1.406
1,1,1,2-Tetrachloroethane	0.390	0.380	0.375
m,p-xylene	0.613	0.614	0.573
o-Xylene	0.633	0.640	0.614
Styrene	1.004	1.015	0.962
Bromoform	0.701	0.707	0.691
1,1,2,2-Tetrachloroethane	0.956	0.932	0.871
1,2,3-Trichloropropane	0.209	0.202	0.192
Trans-1,4-Dichloro 2-Butene	0.353	0.345	0.328
N-Propyl Benzene	3.899	3.569	2.917
Bromobenzene	0.955	0.971	0.943
Isopropyl Benzene	3.380	3.400	2.890
2-Chloro Toluene	2.402	2.584	2.213
4-Chloro Toluene	2.483	2.508	2.492
T-Butyl Benzene	2.452	2.528	2.347
1,3,5-Trimethyl Benzene	2.771	2.765	2.502
1,2,4-Trimethylbenzene	2.659	2.725	2.456
S-Butyl Benzene	3.533	3.427	2.925
4-Isopropyl Toluene	2.712	2.812	2.510
1,3-Dichlorobenzene	1.543	1.572	1.520
1,4-Dichlorobenzene	1.495	1.515	1.480
N-Butyl Benzene	2.921	2.889	2.643
1,2-Dichlorobenzene	1.427	1.421	1.385
1,2-Dibromo 3-Chloropropane	0.196	0.190	0.187
1,2,4-Trichlorobenzene	1.041	1.084	1.097
Hexachloro 1,3-Butadiene	0.816	0.865	0.866
Naphthalene	1.831	1.806	1.789
1,2,3-Trichlorobenzene	0.959	0.978	0.979
Dichlorodifluoromethane	0.650	0.632	0.599
Methyl tert-Butyl Ether	1.237	1.236	1.197

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: GEOMATRIX, INC.

ARI Job No: TK37 Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 Calibration Date: 08/17/11

LAB FILE ID: RF100: 1000817 RF150: 1500817 RF200: 2000817

COMPOUND	RF100	RF150	RF200
d4-1,2-Dichloroethane	0.677	0.670	0.673
d8-Toluene	1.210	1.180	1.225
4-Bromofluorobenzene	0.554	0.550	0.546
d4-1,2-Dichlorobenzene	0.920	0.896	0.913
Dibromofluoromethane	0.540	0.536	0.539

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC | Client: GEOMATRIX, INC.

ARI Job No: TK37 | Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 | Calibration Date: 08/17/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	0.997	9.7
Vinyl Chloride	AVRG	1.018	11.7
Bromomethane	AVRG	0.439	7.9
Chloroethane	AVRG	0.461	7.0
Trichlorofluoromethane	AVRG	0.910	6.9
Acrolein	AVRG	0.091	2.6
112Trichloro122Trifluoroetha	AVRG	0.516	5.3
Acetone	AVRG	0.213	13.1
1,1-Dichloroethene	AVRG	0.461	3.2
Bromoethane	AVRG	0.362	6.3
Iodomethane	AVRG	0.722	15.0
Methylene Chloride	LINR		0.9991
Acrylonitrile	AVRG	0.194	6.4
Carbon Disulfide	AVRG	1.805	5.3
Trans-1,2-Dichloroethene	AVRG	0.506	2.9
Vinyl Acetate	AVRG	0.904	8.9
1,1-Dichloroethane	AVRG	1.125	3.7
2-Butanone	AVRG	0.304	6.3
2,2-Dichloropropane	AVRG	0.731	5.2
Cis-1,2-Dichloroethene	AVRG	0.528	4.4
Chloroform	AVRG	1.000	3.3
Bromochloromethane	AVRG	0.262	8.8
1,1,1-Trichloroethane	AVRG	0.806	4.8
1,1-Dichloropropene	AVRG	0.604	4.3
Carbon Tetrachloride	AVRG	0.584	4.9
1,2-Dichloroethane	AVRG	0.616	4.7
Benzene	AVRG	1.476	9.0
Trichloroethene	AVRG	0.456	5.3
1,2-Dichloropropane	AVRG	0.515	4.6
Bromodichloromethane	AVRG	0.566	3.2
Dibromomethane	AVRG	0.267	4.8
2-Chloroethyl Vinyl Ether	AVRG	0.088	16.3
4-Methyl-2-Pentanone	AVRG	0.136	8.8
Cis 1,3-dichloropropene	AVRG	0.607	7.1
Toluene	AVRG	0.836	5.3
Trans 1,3-Dichloropropene	AVRG	0.510	10.5
2-Hexanone	AVRG	0.391	19.2

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOMATRIX, INC.

ARI Job No: TK37 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Calibration Date: 08/17/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.295	4.3
1,3-Dichloropropane	AVRG	0.609	5.6
Tetrachloroethene	AVRG	0.515	7.8
Chlorodibromomethane	AVRG	0.467	6.1
1,2-Dibromoethane	AVRG	0.334	7.7
Chlorobenzene	AVRG	1.006	5.7
Ethyl Benzene	AVRG	1.752	9.7
1,1,1,2-Tetrachloroethane	AVRG	0.404	8.8
m,p-xylene	AVRG	0.632	6.4
o-Xylene	AVRG	0.630	5.8
Styrene	AVRG	1.023	5.4
Bromoform	AVRG	0.658	8.2
1,1,2,2-Tetrachloroethane	AVRG	0.921	5.2
1,2,3-Trichloropropane	AVRG	0.195	9.8
Trans-1,4-Dichloro 2-Butene	AVRG	0.329	8.7
N-Propyl Benzene	AVRG	3.824	11.2
Bromobenzene	AVRG	0.956	4.8
Isopropyl Benzene	AVRG	3.314	6.9
2-Chloro Toluene	AVRG	2.491	7.4
4-Chloro Toluene	AVRG	2.603	4.0
T-Butyl Benzene	AVRG	2.460	6.0
1,3,5-Trimethyl Benzene	AVRG	2.721	5.7
1,2,4-Trimethylbenzene	AVRG	2.667	5.6
S-Butyl Benzene	AVRG	3.493	8.1
4-Isopropyl Toluene	AVRG	2.696	5.4
1,3-Dichlorobenzene	AVRG	1.590	4.4
1,4-Dichlorobenzene	AVRG	1.538	4.0
N-Butyl Benzene	AVRG	2.906	5.5
1,2-Dichlorobenzene	AVRG	1.443	4.9
1,2-Dibromo 3-Chloropropane	AVRG	0.189	9.2
1,2,4-Trichlorobenzene	AVRG	1.136	6.4
Hexachloro 1,3-Butadiene	AVRG	0.890	7.0
Naphthalene	AVRG	1.960	11.6
1,2,3-Trichlorobenzene	AVRG	1.061	10.0
Dichlorodifluoromethane	AVRG	0.578	14.9
Methyl tert-Butyl Ether	AVRG	1.209	4.8

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOMATRIX, INC.

ARI Job No: TK37 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Calibration Date: 08/17/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.669	2.2
d8-Toluene	AVRG	1.198	1.5
4-Bromofluorobenzene	AVRG	0.550	1.5
d4-1,2-Dichlorobenzene	AVRG	0.901	1.4
Dibromofluoromethane	AVRG	0.538	1.4

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOMATRIX, INC.

ARI Job No: TK37 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/02/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 1058

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	0.997	1.046	0.100	AVRG	4.9	
Vinyl Chloride	1.018	0.964	0.010	AVRG	-5.3	
Bromomethane	0.439	0.535	0.010	AVRG	21.9	<-
Chloroethane	0.462	0.495	0.010	AVRG	7.1	
Trichlorofluoromethane	0.910	1.002	0.010	AVRG	10.1	
Acrolein	0.091	0.074	0.010	AVRG	-18.7	
112Trichloro122Trifluoroetha	0.516	0.602	0.010	AVRG	16.7	
Acetone	0.213	0.148	0.010	AVRG	-30.5	<-
1,1-Dichloroethene	0.461	0.485	0.010	AVRG	5.2	
Bromoethane	0.362	0.390	0.010	AVRG	7.7	
Iodomethane	0.722	0.857	0.010	AVRG	18.7	
Methylene Chloride	50.000	59.525	0.010	LINR	19.0	
Acrylonitrile	0.194	0.154	0.010	AVRG	-20.6	<-
Carbon Disulfide	1.805	1.993	0.010	AVRG	10.4	
Trans-1,2-Dichloroethene	0.506	0.528	0.010	AVRG	4.3	
Vinyl Acetate	0.904	0.936	0.010	AVRG	3.5	
1,1-Dichloroethane	1.125	1.179	0.100	AVRG	4.8	
2-Butanone	0.304	0.231	0.010	AVRG	-24.0	<-
2,2-Dichloropropane	0.731	0.762	0.010	AVRG	4.2	
Cis-1,2-Dichloroethene	0.528	0.561	0.010	AVRG	6.2	
Chloroform	1.000	1.014	0.010	AVRG	1.4	
Bromochloromethane	0.262	0.267	0.010	AVRG	1.9	
1,1,1-Trichloroethane	0.806	0.803	0.010	AVRG	-0.4	
1,1-Dichloropropene	0.604	0.636	0.010	AVRG	5.3	
Carbon Tetrachloride	0.584	0.583	0.010	AVRG	-0.2	
1,2-Dichloroethane	0.616	0.512	0.010	AVRG	-16.9	
Benzene	1.476	1.578	0.010	AVRG	6.9	
Trichloroethene	0.456	0.487	0.010	AVRG	6.8	
1,2-Dichloropropane	0.515	0.533	0.010	AVRG	3.5	
Bromodichloromethane	0.566	0.560	0.010	AVRG	-1.1	
Dibromomethane	0.267	0.243	0.010	AVRG	-9.0	
2-Chloroethyl Vinyl Ether	0.088	0.164	0.010	AVRG	86.4	<-
4-Methyl-2-Pentanone	0.136	0.112	0.010	AVRG	-17.6	
Cis 1,3-dichloropropene	0.607	0.635	0.010	AVRG	4.6	
Toluene	0.836	0.899	0.010	AVRG	7.5	
Trans 1,3-Dichloropropene	0.510	0.510	0.010	AVRG	0.0	
2-Hexanone	0.391	0.310	0.010	AVRG	-20.7	<-

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOMATRIX, INC.

ARI Job No: TK37 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/02/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 1058

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.295	0.279	0.010	AVRG	-5.4	
1,3-Dichloropropane	0.609	0.569	0.010	AVRG	-6.6	
Tetrachloroethene	0.515	0.558	0.010	AVRG	8.3	
Chlorodibromomethane	0.467	0.460	0.010	AVRG	-1.5	
1,2-Dibromoethane	0.334	0.312	0.010	AVRG	-6.6	
Chlorobenzene	1.006	1.090	0.300	AVRG	8.3	
Ethyl Benzene	1.752	1.904	0.010	AVRG	8.7	
1,1,1,2-Tetrachloroethane	0.404	0.400	0.010	AVRG	-1.0	
m,p-xylene	0.632	0.700	0.010	AVRG	10.8	
o-Xylene	0.630	0.683	0.010	AVRG	8.4	
Styrene	1.023	1.096	0.010	AVRG	7.1	
Bromoform	0.658	0.596	0.100	AVRG	-9.4	
1,1,2,2-Tetrachloroethane	0.921	0.788	0.300	AVRG	-14.4	
1,2,3-Trichloropropane	0.195	0.154	0.010	AVRG	-21.0	<-
Trans-1,4-Dichloro 2-Butene	0.329	0.267	0.010	AVRG	-18.8	
N-Propyl Benzene	3.824	4.349	0.010	AVRG	13.7	
Bromobenzene	0.956	0.952	0.010	AVRG	-0.4	
Isopropyl Benzene	3.314	3.559	0.010	AVRG	7.4	
2-Chloro Toluene	2.490	2.640	0.010	AVRG	6.0	
4-Chloro Toluene	2.603	2.696	0.010	AVRG	3.6	
T-Butyl Benzene	2.460	2.555	0.010	AVRG	3.9	
1,3,5-Trimethyl Benzene	2.721	2.912	0.010	AVRG	7.0	
1,2,4-Trimethylbenzene	2.667	2.905	0.010	AVRG	8.9	
S-Butyl Benzene	3.493	3.887	0.010	AVRG	11.3	
4-Isopropyl Toluene	2.696	2.940	0.010	AVRG	9.0	
1,3-Dichlorobenzene	1.590	1.702	0.010	AVRG	7.0	
1,4-Dichlorobenzene	1.538	1.648	0.010	AVRG	7.2	
N-Butyl Benzene	2.906	3.310	0.010	AVRG	13.9	
1,2-Dichlorobenzene	1.443	1.504	0.010	AVRG	4.2	
1,2-Dibromo 3-Chloropropane	0.189	0.141	0.010	AVRG	-25.4	<-
1,2,4-Trichlorobenzene	1.136	1.216	0.010	AVRG	7.0	
Hexachloro 1,3-Butadiene	0.890	0.912	0.010	AVRG	2.5	
Naphthalene	1.960	1.671	0.010	AVRG	-14.7	
1,2,3-Trichlorobenzene	1.061	1.048	0.010	AVRG	-1.2	
Dichlorodifluoromethane	0.578	0.462	0.010	AVRG	-20.1	<-
Methyl tert-Butyl Ether	1.209	1.006	0.010	AVRG	-16.8	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOMATRIX, INC.

ARI Job No: TK37 — Project: FRP SHORELINE INVESTIGATION

Instrument ID: FINN5 — Cont. Calib. Date: 09/02/11

Init. Calib. Date: 08/17/11 — Cont. Calib. Time: 1058

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
d4-1,2-Dichloroethane	0.669	0.527	0.010	AVRG	-21.2	<-
d8-Toluene	1.198	1.254	0.010	AVRG	4.7	
4-Bromofluorobenzene	0.551	0.534	0.010	AVRG	-3.1	
d4-1,2-Dichlorobenzene	0.901	0.883	0.010	AVRG	-2.0	
Dibromofluoromethane	0.538	0.521	0.010	AVRG	-3.2	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOMATRIX, INC.

ARI Job No: TK37 — Project: FRP SHORELINE INVESTIGATION

Ical Midpoint ID: 0500817 — Ical Date: 08/17/11

Instrument ID: FINN5 — Project Run Date: 09/02/11

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	102251	6.44	137593	7.45	119527	10.59
	UPPER LIMIT	204502	6.94	275186	7.95	239054	11.09
	LOWER LIMIT	51126	5.94	68796	6.95	59764	10.09
	Sample ID						
01	LCS0902	106365	6.43	153225	7.44	136859	10.58
02	LCS0902	109794	6.43	156675	7.44	138576	10.58
03	MB0902A	106492	6.42	150407	7.43	136406	10.57
04	TRIP BLANKS	101736	6.43	145148	7.44	130065	10.57
05	FRP-082911-0	104645	6.43	152088	7.44	130553	10.58
06	FRP-082911-0	104319	6.42	152654	7.43	139860	10.57
07	FRP-082911-0	105358	6.42	152564	7.43	141360	10.57
08	FRP-082911-0	102281	6.44	150118	7.45	140164	10.59
09	FRP-082911-0	104050	6.44	151170	7.45	139434	10.58
10	FRP-082911-0	104302	6.43	152651	7.44	137489	10.57
11	FRP-082911-0	104203	6.42	151840	7.43	140099	10.57
12	FRP-082911-0	100859	6.42	145953	7.43	127832	10.56
13	FRP-082911-0	102345	6.42	148870	7.43	138594	10.56
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: GEOMATRIX, INC.

ARI Job No: TK37 — Project: FRP SHORELINE INVESTIGATION

Ical Midpoint ID: 0500817 — Ical Date: 08/17/11

Instrument ID: FINN5 — Project Run Date: 09/02/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	61044	13.27				
	UPPER LIMIT	122088	13.77				
	LOWER LIMIT	30522	12.77				
	Sample ID						
01	LCS0902	72700	13.27				
02	LCS0902	73255	13.26				
03	MB0902A	69140	13.26				
04	TRIP BLANKS	68315	13.26				
05	FRP-082911-0	53180	13.26				
06	FRP-082911-0	72555	13.26				
07	FRP-082911-0	69659	13.25				
08	FRP-082911-0	72838	13.27				
09	FRP-082911-0	71069	13.27				
10	FRP-082911-0	64727	13.26				
11	FRP-082911-0	73844	13.26				
12	FRP-082911-0	54097	13.25				
13	FRP-082911-0	70788	13.25				
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

Semivolatile Analysis
Report and Summary QC Forms

ARI Job ID: TK37

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-021
SAMPLE

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 21:13
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 8.6%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	8.5	20	< 20 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.3	20	< 20 U
95-57-8	2-Chlorophenol	2.3	20	< 20 U
541-73-1	1,3-Dichlorobenzene	2.6	20	< 20 U
106-46-7	1,4-Dichlorobenzene	2.8	20	< 20 U
100-51-6	Benzyl Alcohol	6.0	20	< 20 U
95-50-1	1,2-Dichlorobenzene	2.4	20	< 20 U
95-48-7	2-Methylphenol	5.1	20	< 20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.7	20	< 20 U
106-44-5	4-Methylphenol	6.5	39	< 39 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.3	20	< 20 U
67-72-1	Hexachloroethane	2.9	20	< 20 U
98-95-3	Nitrobenzene	4.0	20	< 20 U
78-59-1	Isophorone	2.8	20	< 20 U
88-75-5	2-Nitrophenol	38	98	< 98 U
105-67-9	2,4-Dimethylphenol	3.4	39	< 39 U
65-85-0	Benzoic Acid	99	390	< 390 U
111-91-1	bis(2-Chloroethoxy) Methane	2.0	20	< 20 U
120-83-2	2,4-Dichlorophenol	21	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	3.4	20	< 20 U
91-20-3	Naphthalene	2.7	20	< 20 U
106-47-8	4-Chloroaniline	22	260	< 260 U
87-68-3	Hexachlorobutadiene	4.5	98	< 98 U
59-50-7	4-Chloro-3-methylphenol	15	98	< 98 U
91-57-6	2-Methylnaphthalene	3.0	20	< 20 U
77-47-4	Hexachlorocyclopentadiene	65	390	< 390 U
88-06-2	2,4,6-Trichlorophenol	22	98	< 98 U
95-95-4	2,4,5-Trichlorophenol	21	98	< 98 U
91-58-7	2-Chloronaphthalene	2.6	20	< 20 U
88-74-4	2-Nitroaniline	18	98	< 98 U
131-11-3	Dimethylphthalate	2.8	20	< 20 U
208-96-8	Acenaphthylene	5.6	20	< 20 U
99-09-2	3-Nitroaniline	22	98	< 98 U
83-32-9	Acenaphthene	3.2	20	< 20 U
51-28-5	2,4-Dinitrophenol	110	830	< 830 U
100-02-7	4-Nitrophenol	34	98	< 98 U
132-64-9	Dibenzofuran	4.0	20	< 20 U
606-20-2	2,6-Dinitrotoluene	30	98	< 98 U
121-14-2	2,4-Dinitrotoluene	19	98	< 98 U
84-66-2	Diethylphthalate	36	49	< 49 U
7005-72-3	4-Chlorophenyl-phenylether	5.2	20	< 20 U
86-73-7	Fluorene	4.3	20	< 20 U
100-01-6	4-Nitroaniline	37	98	< 98 U
534-52-1	4,6-Dinitro-2-Methylphenol	21	200	< 200 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-021
SAMPLE

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Date Analyzed: 09/08/11 21:13

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	5.3	20	< 20 U
101-55-3	4-Bromophenyl-phenylether	4.9	20	< 20 U
118-74-1	Hexachlorobenzene	4.2	20	< 20 U
87-86-5	Pentachlorophenol	47	200	< 200 U
85-01-8	**Phenanthrene**	**3.6**	**20**	**18 J**
86-74-8	Carbazole	2.6	20	< 20 U
120-12-7	Anthracene	4.4	20	< 20 U
84-74-2	Di-n-Butylphthalate	8.0	20	< 20 U
206-44-0	Fluoranthene	2.8	20	< 20 U
129-00-0	Pyrene	1.9	20	< 20 U
85-68-7	Butylbenzylphthalate	6.0	20	< 20 U
91-94-1	3,3'-Dichlorobenzidine	17	150	< 150 U
56-55-3	Benzo(a)anthracene	3.2	20	< 20 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**14**	**24**	**45 B** U
218-01-9	**Chrysene**	**3.7**	**20**	**22**
117-84-0	Di-n-Octyl phthalate	5.7	20	< 20 U
50-32-8	Benzo(a)pyrene	5.3	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	4.2	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	4.3	20	< 20 U
90-12-0	1-Methylnaphthalene	2.6	20	< 20 U
TOTBFA	**Total Benzofluoranthenes**	**2.7**	**20**	**16 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	93.6%	2-Fluorobiphenyl	85.8%
d14-p-Terphenyl	85.0%	d4-1,2-Dichlorobenzene	74.8%
d5-Phenol	83.1%	2-Fluorophenol	80.7%
2,4,6-Tribromophenol	114%	d4-2-Chlorophenol	97.3%

CM 2/21/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-022
SAMPLE

Lab Sample ID: TK37B
LIMS ID: 11-18810
Matrix: Soil
Data Release Authorized: MW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 15:32
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 10.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 25.3%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	8.0	18	< 18 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.1	18	< 18 U
95-57-8	2-Chlorophenol	2.2	18	< 18 U
541-73-1	1,3-Dichlorobenzene	2.4	18	< 18 U
106-46-7	1,4-Dichlorobenzene	2.6	18	< 18 U
100-51-6	Benzyl Alcohol	5.6	18	< 18 U
95-50-1	1,2-Dichlorobenzene	2.3	18	< 18 U
95-48-7	2-Methylphenol	4.8	18	< 18 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.5	18	< 18 U
106-44-5	4-Methylphenol	6.1	37	< 37 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.1	18	< 18 U
67-72-1	Hexachloroethane	2.7	18	< 18 U
98-95-3	Nitrobenzene	3.7	18	< 18 U
78-59-1	Isophorone	2.6	18	< 18 U
88-75-5	2-Nitrophenol	36	92	< 92 U
105-67-9	2,4-Dimethylphenol	3.2	37	< 37 U
65-85-0	Benzoic Acid	93	370	< 370 U
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	< 18 U
120-83-2	2,4-Dichlorophenol	20	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	3.2	18	< 18 U
91-20-3	Naphthalene	2.5	18	< 18 U
106-47-8	4-Chloroaniline	21	250	< 250 U
87-68-3	Hexachlorobutadiene	4.2	92	< 92 U
59-50-7	4-Chloro-3-methylphenol	14	92	< 92 U
91-57-6	2-Methylnaphthalene	2.8	18	< 18 U
77-47-4	Hexachlorocyclopentadiene	61	370	< 370 U
88-06-2	2,4,6-Trichlorophenol	21	92	< 92 U
95-95-4	2,4,5-Trichlorophenol	20	92	< 92 U
91-58-7	2-Chloronaphthalene	2.4	18	< 18 U
88-74-4	2-Nitroaniline	17	92	< 92 U
131-11-3	Dimethylphthalate	2.7	18	< 18 U
208-96-8	Acenaphthylene	5.3	18	< 18 U
99-09-2	3-Nitroaniline	21	92	< 92 U
83-32-9	Acenaphthene	3.0	18	< 18 U
51-28-5	2,4-Dinitrophenol	100	780	< 780 U
100-02-7	4-Nitrophenol	32	92	< 92 U
132-64-9	Dibenzofuran	3.8	18	< 18 U
606-20-2	2,6-Dinitrotoluene	28	92	< 92 U
121-14-2	2,4-Dinitrotoluene	18	92	< 92 U
84-66-2	Diethylphthalate	34	46	< 46 U
7005-72-3	4-Chlorophenyl-phenylether	4.9	18	< 18 U
86-73-7	Fluorene	4.0	18	< 18 U
100-01-6	4-Nitroaniline	35	92	< 92 U
534-52-1	4,6-Dinitro-2-Methylphenol	20	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-022
SAMPLE

Lab Sample ID: TK37B
LIMS ID: 11-18810
Matrix: Soil
Date Analyzed: 09/08/11 15:32

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	5.0	18	< 18 U
101-55-3	4-Bromophenyl-phenylether	4.6	18	< 18 U
118-74-1	Hexachlorobenzene	3.9	18	< 18 U
87-86-5	Pentachlorophenol	45	180	< 180 U
85-01-8	Phenanthrene	3.3	18	< 18 U
86-74-8	Carbazole	2.5	18	< 18 U
120-12-7	Anthracene	4.1	18	< 18 U
84-74-2	Di-n-Butylphthalate	7.5	18	< 18 U
206-44-0	Fluoranthene	2.7	18	< 18 U
129-00-0	Pyrene	1.8	18	< 18 U
85-68-7	Butylbenzylphthalate	5.6	18	< 18 U
91-94-1	3,3'-Dichlorobenzidine	16	140	< 140 U
56-55-3	Benzo(a)anthracene	3.0	18	< 18 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**13**	**23**	**31 B** U
218-01-9	Chrysene	3.4	18	< 18 U
117-84-0	Di-n-Octyl phthalate	5.4	18	< 18 U
50-32-8	Benzo(a)pyrene	5.0	18	< 18 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.3	18	< 18 U
53-70-3	Dibenz(a,h)anthracene	4.0	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	4.0	18	< 18 U
90-12-0	1-Methylnaphthalene	2.5	18	< 18 U
TOTBFA	**Total Benzofluoranthenes**	**2.5**	**18**	**11 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	80.6%	2-Fluorobiphenyl	70.0%
d14-p-Terphenyl	77.0%	d4-1,2-Dichlorobenzene	78.0%
d5-Phenol	74.4%	2-Fluorophenol	74.4%
2,4,6-Tribromophenol	92.5%	d4-2-Chlorophenol	80.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-023
SAMPLE

Lab Sample ID: TK37C
LIMS ID: 11-18811
Matrix: Soil
Data Release Authorized: TMW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 16:06
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 11.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 24.4%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	7.8	18	< 18 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.0	18	< 18 U
95-57-8	2-Chlorophenol	2.2	18	< 18 U
541-73-1	1,3-Dichlorobenzene	2.4	18	< 18 U
106-46-7	1,4-Dichlorobenzene	2.6	18	< 18 U
100-51-6	Benzyl Alcohol	5.5	18	< 18 U
95-50-1	1,2-Dichlorobenzene	2.3	18	< 18 U
95-48-7	2-Methylphenol	4.7	18	< 18 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.4	18	< 18 U
106-44-5	4-Methylphenol	6.0	36	< 36 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.0	18	< 18 U
67-72-1	Hexachloroethane	2.7	18	< 18 U
98-95-3	Nitrobenzene	3.7	18	< 18 U
78-59-1	Isophorone	2.6	18	< 18 U
88-75-5	2-Nitrophenol	35	90	< 90 U
105-67-9	2,4-Dimethylphenol	3.1	36	< 36 U
65-85-0	Benzoic Acid	91	360	< 360 U
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	< 18 U
120-83-2	2,4-Dichlorophenol	19	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	3.1	18	< 18 U
91-20-3	Naphthalene	2.5	18	< 18 U
106-47-8	4-Chloroaniline	20	240	< 240 U
87-68-3	Hexachlorobutadiene	4.1	90	< 90 U
59-50-7	4-Chloro-3-methylphenol	14	90	< 90 U
91-57-6	2-Methylnaphthalene	2.8	18	< 18 U
77-47-4	Hexachlorocyclopentadiene	60	360	< 360 U
88-06-2	2,4,6-Trichlorophenol	20	90	< 90 U
95-95-4	2,4,5-Trichlorophenol	19	90	< 90 U
91-58-7	2-Chloronaphthalene	2.4	18	< 18 U
88-74-4	2-Nitroaniline	17	90	< 90 U
131-11-3	Dimethylphthalate	2.6	18	< 18 U
208-96-8	Acenaphthylene	5.2	18	< 18 U
99-09-2	3-Nitroaniline	20	90	< 90 U
83-32-9	Acenaphthene	3.0	18	< 18 U
51-28-5	2,4-Dinitrophenol	100	770	< 770 U
100-02-7	4-Nitrophenol	31	90	< 90 U
132-64-9	Dibenzofuran	3.7	18	< 18 U
606-20-2	2,6-Dinitrotoluene	28	90	< 90 U
121-14-2	2,4-Dinitrotoluene	18	90	< 90 U
84-66-2	Diethylphthalate	33	45	< 45 U
7005-72-3	4-Chlorophenyl-phenylether	4.8	18	< 18 U
86-73-7	Fluorene	3.9	18	< 18 U
100-01-6	4-Nitroaniline	34	90	< 90 U
534-52-1	4,6-Dinitro-2-Methylphenol	19	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-023
SAMPLE

Lab Sample ID: TK37C
LIMS ID: 11-18811
Matrix: Soil
Date Analyzed: 09/08/11 16:06

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	4.9	18	< 18 U
101-55-3	4-Bromophenyl-phenylether	4.5	18	< 18 U
118-74-1	Hexachlorobenzene	3.9	18	< 18 U
87-86-5	Pentachlorophenol	44	180	< 180 U
85-01-8	Phenanthrene	3.3	18	< 18 U
86-74-8	Carbazole	2.4	18	< 18 U
120-12-7	Anthracene	4.1	18	< 18 U
84-74-2	Di-n-Butylphthalate	7.4	18	< 18 U
206-44-0	Fluoranthene	2.6	18	< 18 U
129-00-0	Pyrene	1.8	18	< 18 U
85-68-7	Butylbenzylphthalate	5.5	18	< 18 U
91-94-1	3,3'-Dichlorobenzidine	16	140	< 140 U
56-55-3	Benzo(a)anthracene	3.0	18	< 18 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**13**	**23**	**31 ~~B~~ U**
218-01-9	Chrysene	3.4	18	< 18 U
117-84-0	Di-n-Octyl phthalate	5.3	18	< 18 U
50-32-8	Benzo(a)pyrene	4.9	18	< 18 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.2	18	< 18 U
53-70-3	Dibenz(a,h)anthracene	3.9	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	4.0	18	< 18 U
90-12-0	1-Methylnaphthalene	2.4	18	< 18 U
TOTBFA	Total Benzofluoranthenes	2.5	18	< 18 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	81.2%	2-Fluorobiphenyl	75.2%
d14-p-Terphenyl	89.2%	d4-1,2-Dichlorobenzene	70.8%
d5-Phenol	72.5%	2-Fluorophenol	74.1%
2,4,6-Tribromophenol	97.3%	d4-2-Chlorophenol	77.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-024
SAMPLE

Lab Sample ID: TK37D
LIMS ID: 11-18812
Matrix: Soil
Data Release Authorized: MW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 16:41
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 10.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 23.8%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	8.0	18	< 18 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.1	18	< 18 U
95-57-8	2-Chlorophenol	2.2	18	< 18 U
541-73-1	1,3-Dichlorobenzene	2.4	18	< 18 U
106-46-7	1,4-Dichlorobenzene	2.7	18	< 18 U
100-51-6	Benzyl Alcohol	5.6	18	< 18 U
95-50-1	1,2-Dichlorobenzene	2.3	18	< 18 U
95-48-7	2-Methylphenol	4.9	18	< 18 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.5	18	< 18 U
106-44-5	4-Methylphenol	6.1	37	< 37 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.1	18	< 18 U
67-72-1	Hexachloroethane	2.7	18	< 18 U
98-95-3	Nitrobenzene	3.8	18	< 18 U
78-59-1	Isophorone	2.7	18	< 18 U
88-75-5	2-Nitrophenol	36	93	< 93 U
105-67-9	2,4-Dimethylphenol	3.2	37	< 37 U
65-85-0	Benzoic Acid	94	370	< 370 U
111-91-1	bis(2-Chloroethoxy) Methane	1.9	18	< 18 U
120-83-2	2,4-Dichlorophenol	20	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	3.2	18	< 18 U
91-20-3	Naphthalene	2.6	18	< 18 U
106-47-8	4-Chloroaniline	21	250	< 250 U
87-68-3	Hexachlorobutadiene	4.2	93	< 93 U
59-50-7	4-Chloro-3-methylphenol	14	93	< 93 U
91-57-6	2-Methylnaphthalene	2.8	18	< 18 U
77-47-4	Hexachlorocyclopentadiene	62	370	< 370 U
88-06-2	2,4,6-Trichlorophenol	21	93	< 93 U
95-95-4	2,4,5-Trichlorophenol	20	93	< 93 U
91-58-7	2-Chloronaphthalene	2.4	18	< 18 U
88-74-4	2-Nitroaniline	17	93	< 93 U
131-11-3	Dimethylphthalate	2.7	18	< 18 U
208-96-8	Acenaphthylene	5.3	18	< 18 U
99-09-2	3-Nitroaniline	21	93	< 93 U
83-32-9	Acenaphthene	3.0	18	< 18 U
51-28-5	2,4-Dinitrophenol	100	790	< 790 U
100-02-7	4-Nitrophenol	32	93	< 93 U
132-64-9	Dibenzofuran	3.8	18	< 18 U
606-20-2	2,6-Dinitrotoluene	28	93	< 93 U
121-14-2	2,4-Dinitrotoluene	18	93	< 93 U
84-66-2	Diethylphthalate	34	46	< 46 U
7005-72-3	4-Chlorophenyl-phenylether	4.9	18	< 18 U
86-73-7	Fluorene	4.0	18	< 18 U
100-01-6	4-Nitroaniline	35	93	< 93 U
534-52-1	4,6-Dinitro-2-Methylphenol	20	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-024
SAMPLE

Lab Sample ID: TK37D
LIMS ID: 11-18812
Matrix: Soil
Date Analyzed: 09/08/11 16:41

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	5.0	18	< 18 U
101-55-3	4-Bromophenyl-phenylether	4.7	18	< 18 U
118-74-1	Hexachlorobenzene	4.0	18	< 18 U
87-86-5	Pentachlorophenol	45	180	< 180 U
85-01-8	Phenanthrene	3.4	18	< 18 U
86-74-8	Carbazole	2.5	18	< 18 U
120-12-7	Anthracene	4.2	18	< 18 U
84-74-2	Di-n-Butylphthalate	7.6	18	< 18 U
206-44-0	Fluoranthene	2.7	18	< 18 U
129-00-0	Pyrene	1.8	18	< 18 U
85-68-7	Butylbenzylphthalate	5.7	18	< 18 U
91-94-1	3,3'-Dichlorobenzidine	16	140	< 140 U
56-55-3	Benzo(a)anthracene	3.0	18	< 18 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**14**	**23**	**37 ~~B~~ U**
218-01-9	Chrysene	3.5	18	< 18 U
117-84-0	Di-n-Octyl phthalate	5.4	18	< 18 U
50-32-8	Benzo(a)pyrene	5.1	18	< 18 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.3	18	< 18 U
53-70-3	Dibenz(a,h)anthracene	4.0	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	4.1	18	< 18 U
90-12-0	1-Methylnaphthalene	2.5	18	< 18 U
TOTBFA	Total Benzofluoranthenes	2.5	18	< 18 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	82.2%	2-Fluorobiphenyl	72.2%
d14-p-Terphenyl	87.0%	d4-1,2-Dichlorobenzene	71.6%
d5-Phenol	73.2%	2-Fluorophenol	71.5%
2,4,6-Tribromophenol	98.9%	d4-2-Chlorophenol	77.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-025
SAMPLE

Lab Sample ID: TK37E
LIMS ID: 11-18813
Matrix: Soil
Data Release Authorized: MW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 17:15
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 11.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 23.5%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	7.7	18	< 18 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.0	18	< 18 U
95-57-8	2-Chlorophenol	2.1	18	< 18 U
541-73-1	1,3-Dichlorobenzene	2.4	18	< 18 U
106-46-7	1,4-Dichlorobenzene	2.6	18	< 18 U
100-51-6	Benzyl Alcohol	5.4	18	< 18 U
95-50-1	1,2-Dichlorobenzene	2.2	18	< 18 U
95-48-7	2-Methylphenol	4.7	18	< 18 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.4	18	< 18 U
106-44-5	4-Methylphenol	5.9	36	< 36 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.0	18	< 18 U
67-72-1	Hexachloroethane	2.6	18	< 18 U
98-95-3	Nitrobenzene	3.6	18	< 18 U
78-59-1	Isophorone	2.6	18	< 18 U
88-75-5	2-Nitrophenol	35	89	< 89 U
105-67-9	2,4-Dimethylphenol	3.1	36	< 36 U
65-85-0	Benzoic Acid	90	360	< 360 U
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	< 18 U
120-83-2	2,4-Dichlorophenol	19	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	3.1	18	< 18 U
91-20-3	Naphthalene	2.5	18	< 18 U
106-47-8	4-Chloroaniline	20	240	< 240 U
87-68-3	Hexachlorobutadiene	4.1	89	< 89 U
59-50-7	4-Chloro-3-methylphenol	14	89	< 89 U
91-57-6	2-Methylnaphthalene	2.7	18	< 18 U
77-47-4	Hexachlorocyclopentadiene	59	360	< 360 U
88-06-2	2,4,6-Trichlorophenol	20	89	< 89 U
95-95-4	2,4,5-Trichlorophenol	19	89	< 89 U
91-58-7	2-Chloronaphthalene	2.4	18	< 18 U
88-74-4	2-Nitroaniline	16	89	< 89 U
131-11-3	Dimethylphthalate	2.6	18	< 18 U
208-96-8	Acenaphthylene	5.1	18	< 18 U
99-09-2	3-Nitroaniline	20	89	< 89 U
83-32-9	Acenaphthene	2.9	18	< 18 U
51-28-5	2,4-Dinitrophenol	99	760	< 760 U
100-02-7	4-Nitrophenol	31	89	< 89 U
132-64-9	Dibenzofuran	3.7	18	< 18 U
606-20-2	2,6-Dinitrotoluene	27	89	< 89 U
121-14-2	2,4-Dinitrotoluene	17	89	< 89 U
84-66-2	Diethylphthalate	33	45	< 45 U
7005-72-3	4-Chlorophenyl-phenylether	4.7	18	< 18 U
86-73-7	Fluorene	3.9	18	< 18 U
100-01-6	4-Nitroaniline	34	89	< 89 U
534-52-1	4,6-Dinitro-2-Methylphenol	19	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-025
SAMPLE

Lab Sample ID: TK37E
LIMS ID: 11-18813
Matrix: Soil
Date Analyzed: 09/08/11 17:15

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	4.8	18	< 18 U
101-55-3	4-Bromophenyl-phenylether	4.5	18	< 18 U
118-74-1	Hexachlorobenzene	3.8	18	< 18 U
87-86-5	Pentachlorophenol	43	180	< 180 U
85-01-8	Phenanthrene	3.3	18	< 18 U
86-74-8	Carbazole	2.4	18	< 18 U
120-12-7	Anthracene	4.0	18	< 18 U
84-74-2	Di-n-Butylphthalate	7.3	18	< 18 U
206-44-0	Fluoranthene	2.6	18	< 18 U
129-00-0	Pyrene	1.7	18	< 18 U
85-68-7	Butylbenzylphthalate	5.5	18	< 18 U
91-94-1	3,3'-Dichlorobenzidine	16	130	< 130 U
56-55-3	Benzo(a)anthracene	2.9	18	< 18 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**13**	**22**	**31 B** U
218-01-9	Chrysene	3.4	18	< 18 U
117-84-0	Di-n-Octyl phthalate	5.2	18	< 18 U
50-32-8	Benzo(a)pyrene	4.9	18	< 18 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.2	18	< 18 U
53-70-3	Dibenz(a,h)anthracene	3.9	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	3.9	18	< 18 U
90-12-0	1-Methylnaphthalene	2.4	18	< 18 U
TOTBFA	Total Benzofluoranthenes	2.5	18	< 18 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	83.0%	2-Fluorobiphenyl	71.8%
d14-p-Terphenyl	86.2%	d4-1,2-Dichlorobenzene	73.4%
d5-Phenol	69.7%	2-Fluorophenol	66.5%
2,4,6-Tribromophenol	89.3%	d4-2-Chlorophenol	71.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-027
SAMPLE

Lab Sample ID: TK37F
LIMS ID: 11-18814
Matrix: Soil
Data Release Authorized: MW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 17:49
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 11.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 12.0%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	7.7	18	< 18 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.0	18	< 18 U
95-57-8	2-Chlorophenol	2.1	18	< 18 U
541-73-1	1,3-Dichlorobenzene	2.4	18	< 18 U
106-46-7	1,4-Dichlorobenzene	2.6	18	< 18 U
100-51-6	Benzyl Alcohol	5.4	18	< 18 U
95-50-1	1,2-Dichlorobenzene	2.2	18	< 18 U
95-48-7	2-Methylphenol	4.7	18	< 18 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.4	18	< 18 U
106-44-5	4-Methylphenol	5.9	36	< 36 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.0	18	< 18 U
67-72-1	Hexachloroethane	2.6	18	< 18 U
98-95-3	Nitrobenzene	3.6	18	< 18 U
78-59-1	Isophorone	2.6	18	< 18 U
88-75-5	2-Nitrophenol	35	89	< 89 U
105-67-9	2,4-Dimethylphenol	3.1	36	< 36 U
65-85-0	Benzoic Acid	90	360	< 360 U
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	< 18 U
120-83-2	2,4-Dichlorophenol	19	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	3.1	18	< 18 U
91-20-3	Naphthalene	2.5	18	< 18 U
106-47-8	4-Chloroaniline	20	240	< 240 U
87-68-3	Hexachlorobutadiene	4.1	89	< 89 U
59-50-7	4-Chloro-3-methylphenol	14	89	< 89 U
91-57-6	2-Methylnaphthalene	2.7	18	< 18 U
77-47-4	Hexachlorocyclopentadiene	59	360	< 360 U
88-06-2	2,4,6-Trichlorophenol	20	89	< 89 U
95-95-4	2,4,5-Trichlorophenol	19	89	< 89 U
91-58-7	2-Chloronaphthalene	2.4	18	< 18 U
88-74-4	2-Nitroaniline	16	89	< 89 U
131-11-3	Dimethylphthalate	2.6	18	< 18 U
208-96-8	Acenaphthylene	5.1	18	< 18 U
99-09-2	3-Nitroaniline	20	89	< 89 U
83-32-9	Acenaphthene	2.9	18	< 18 U
51-28-5	2,4-Dinitrophenol	99	760	< 760 U
100-02-7	4-Nitrophenol	31	89	< 89 U
132-64-9	Dibenzofuran	3.7	18	< 18 U
606-20-2	2,6-Dinitrotoluene	27	89	< 89 U
121-14-2	2,4-Dinitrotoluene	17	89	< 89 U
84-66-2	Diethylphthalate	33	45	< 45 U
7005-72-3	4-Chlorophenyl-phenylether	4.7	18	< 18 U
86-73-7	Fluorene	3.9	18	< 18 U
100-01-6	4-Nitroaniline	34	89	< 89 U
534-52-1	4,6-Dinitro-2-Methylphenol	19	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-027
SAMPLE

Lab Sample ID: TK37F
LIMS ID: 11-18814
Matrix: Soil
Date Analyzed: 09/08/11 17:49

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	4.8	18	< 18 U
101-55-3	4-Bromophenyl-phenylether	4.5	18	< 18 U
118-74-1	Hexachlorobenzene	3.8	18	< 18 U
87-86-5	**Pentachlorophenol**	**43**	**180**	**180**
85-01-8	**Phenanthrene**	**3.3**	**18**	**11 J**
86-74-8	Carbazole	2.4	18	< 18 U
120-12-7	Anthracene	4.0	18	< 18 U
84-74-2	Di-n-Butylphthalate	7.3	18	< 18 U
206-44-0	Fluoranthene	2.6	18	< 18 U
129-00-0	Pyrene	1.7	18	< 18 U
85-68-7	Butylbenzylphthalate	5.5	18	< 18 U
91-94-1	3,3'-Dichlorobenzidine	16	130	< 130 U
56-55-3	Benzo(a)anthracene	2.9	18	< 18 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**13**	**22**	**72 ~~B~~** U
218-01-9	Chrysene	3.4	18	< 18 U
117-84-0	Di-n-Octyl phthalate	5.2	18	< 18 U
50-32-8	Benzo(a)pyrene	4.9	18	< 18 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.2	18	< 18 U
53-70-3	Dibenz(a,h)anthracene	3.9	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	3.9	18	< 18 U
90-12-0	1-Methylnaphthalene	2.4	18	< 18 U
TOTBFA	Total Benzofluoranthenes	2.5	18	< 18 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	86.8%	2-Fluorobiphenyl	70.8%
d14-p-Terphenyl	84.8%	d4-1,2-Dichlorobenzene	74.2%
d5-Phenol	73.7%	2-Fluorophenol	72.8%
2,4,6-Tribromophenol	104%	d4-2-Chlorophenol	77.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-028
SAMPLE

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 18:23
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 11.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 11.4%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	7.8	18	< 18 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.0	18	< 18 U
95-57-8	2-Chlorophenol	2.1	18	< 18 U
541-73-1	1,3-Dichlorobenzene	2.4	18	< 18 U
106-46-7	1,4-Dichlorobenzene	2.6	18	< 18 U
100-51-6	Benzyl Alcohol	5.5	18	< 18 U
95-50-1	1,2-Dichlorobenzene	2.2	18	< 18 U
95-48-7	2-Methylphenol	4.7	18	< 18 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.4	18	< 18 U
106-44-5	4-Methylphenol	5.9	36	< 36 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.0	18	< 18 U
67-72-1	Hexachloroethane	2.6	18	< 18 U
98-95-3	Nitrobenzene	3.6	18	< 18 U
78-59-1	Isophorone	2.6	18	< 18 U
88-75-5	2-Nitrophenol	35	90	< 90 U
105-67-9	2,4-Dimethylphenol	3.1	36	< 36 U
65-85-0	Benzoic Acid	91	360	< 360 U
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	< 18 U
120-83-2	2,4-Dichlorophenol	19	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	3.1	18	< 18 U
91-20-3	**Naphthalene**	**2.5**	**18**	**63**
106-47-8	4-Chloroaniline	20	240	< 240 U
87-68-3	Hexachlorobutadiene	4.1	90	< 90 U
59-50-7	4-Chloro-3-methylphenol	14	90	< 90 U
91-57-6	**2-Methylnaphthalene**	**2.7**	**18**	**170**
77-47-4	Hexachlorocyclopentadiene	60	360	< 360 U
88-06-2	2,4,6-Trichlorophenol	20	90	< 90 U
95-95-4	2,4,5-Trichlorophenol	19	90	< 90 U
91-58-7	2-Chloronaphthalene	2.4	18	< 18 U
88-74-4	2-Nitroaniline	17	90	< 90 U
131-11-3	Dimethylphthalate	2.6	18	< 18 U
208-96-8	Acenaphthylene	5.1	18	< 18 U
99-09-2	3-Nitroaniline	20	90	< 90 U
83-32-9	Acenaphthene	2.9	18	< 18 U
51-28-5	2,4-Dinitrophenol	100	760	< 760 U
100-02-7	4-Nitrophenol	31	90	< 90 U
132-64-9	**Dibenzofuran**	**3.7**	**18**	**11 J**
606-20-2	2,6-Dinitrotoluene	27	90	< 90 U
121-14-2	2,4-Dinitrotoluene	17	90	< 90 U
84-66-2	Diethylphthalate	33	45	< 45 U
7005-72-3	4-Chlorophenyl-phenylether	4.7	18	< 18 U
86-73-7	**Fluorene**	**3.9**	**18**	**15 J**
100-01-6	4-Nitroaniline	34	90	< 90 U
534-52-1	4,6-Dinitro-2-Methylphenol	19	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-028
SAMPLE

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Date Analyzed: 09/08/11 18:23

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	4.8	18	< 18 U
101-55-3	4-Bromophenyl-phenylether	4.5	18	< 18 U
118-74-1	Hexachlorobenzene	3.8	18	< 18 U
87-86-5	Pentachlorophenol	43	180	< 180 U
85-01-8	**Phenanthrene**	**3.3**	**18**	**40**
86-74-8	Carbazole	2.4	18	< 18 U
120-12-7	Anthracene	4.0	18	< 18 U
84-74-2	Di-n-Butylphthalate	7.3	18	< 18 U
206-44-0	**Fluoranthene**	**2.6**	**18**	**14 J**
129-00-0	**Pyrene**	**1.7**	**18**	**15 J**
85-68-7	Butylbenzylphthalate	5.5	18	< 18 U
91-94-1	3,3'-Dichlorobenzidine	16	140	< 140 U
56-55-3	Benzo(a)anthracene	3.0	18	< 18 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**13**	**22**	**37 ~~B~~ U**
218-01-9	Chrysene	3.4	18	< 18 U
117-84-0	Di-n-Octyl phthalate	5.2	18	< 18 U
50-32-8	Benzo(a)pyrene	4.9	18	< 18 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.2	18	< 18 U
53-70-3	Dibenz(a,h)anthracene	3.9	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	3.9	18	< 18 U
90-12-0	**1-Methylnaphthalene**	**2.4**	**18**	**61**
TOTBFA	**Total Benzofluoranthenes**	**2.5**	**18**	**9.9 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	83.8%	2-Fluorobiphenyl	72.8%
d14-p-Terphenyl	79.0%	d4-1,2-Dichlorobenzene	71.2%
d5-Phenol	71.6%	2-Fluorophenol	72.7%
2,4,6-Tribromophenol	103%	d4-2-Chlorophenol	76.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-029
SAMPLE

Lab Sample ID: TK37H
LIMS ID: 11-18816
Matrix: Soil
Data Release Authorized: MW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 18:57
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 10.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 26.2%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	8.2	19	< 19 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.2	19	< 19 U
95-57-8	2-Chlorophenol	2.3	19	< 19 U
541-73-1	1,3-Dichlorobenzene	2.5	19	< 19 U
106-46-7	1,4-Dichlorobenzene	2.7	19	< 19 U
100-51-6	Benzyl Alcohol	5.8	19	< 19 U
95-50-1	1,2-Dichlorobenzene	2.4	19	< 19 U
95-48-7	2-Methylphenol	5.0	19	< 19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.6	19	< 19 U
106-44-5	**4-Methylphenol**	**6.3**	**38**	**13 J**
621-64-7	N-Nitroso-Di-N-Propylamine	3.2	19	< 19 U
67-72-1	Hexachloroethane	2.8	19	< 19 U
98-95-3	Nitrobenzene	3.8	19	< 19 U
78-59-1	Isophorone	2.7	19	< 19 U
88-75-5	2-Nitrophenol	37	95	< 95 U
105-67-9	2,4-Dimethylphenol	3.3	38	< 38 U
65-85-0	Benzoic Acid	96	380	< 380 U
111-91-1	bis(2-Chloroethoxy) Methane	1.9	19	< 19 U
120-83-2	2,4-Dichlorophenol	20	190	< 190 U
120-82-1	1,2,4-Trichlorobenzene	3.3	19	< 19 U
91-20-3	**Naphthalene**	**2.6**	**19**	**24**
106-47-8	4-Chloroaniline	21	260	< 260 U
87-68-3	Hexachlorobutadiene	4.3	95	< 95 U
59-50-7	4-Chloro-3-methylphenol	14	95	< 95 U
91-57-6	**2-Methylnaphthalene**	**2.9**	**19**	**48**
77-47-4	Hexachlorocyclopentadiene	63	380	< 380 U
88-06-2	2,4,6-Trichlorophenol	21	95	< 95 U
95-95-4	2,4,5-Trichlorophenol	20	95	< 95 U
91-58-7	2-Chloronaphthalene	2.5	19	< 19 U
88-74-4	2-Nitroaniline	17	95	< 95 U
131-11-3	Dimethylphthalate	2.7	19	< 19 U
208-96-8	Acenaphthylene	5.4	19	< 19 U
99-09-2	3-Nitroaniline	21	95	< 95 U
83-32-9	Acenaphthene	3.1	19	< 19 U
51-28-5	2,4-Dinitrophenol	110	810	< 810 U
100-02-7	4-Nitrophenol	33	95	< 95 U
132-64-9	**Dibenzofuran**	**3.9**	**19**	**21**
606-20-2	2,6-Dinitrotoluene	29	95	< 95 U
121-14-2	2,4-Dinitrotoluene	18	95	< 95 U
84-66-2	Diethylphthalate	35	47	< 47 U
7005-72-3	4-Chlorophenyl-phenylether	5.0	19	< 19 U
86-73-7	**Fluorene**	**4.1**	**19**	**12 J**
100-01-6	4-Nitroaniline	36	95	< 95 U
534-52-1	4,6-Dinitro-2-Methylphenol	20	190	< 190 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-029
SAMPLE

Lab Sample ID: TK37H
LIMS ID: 11-18816
Matrix: Soil
Date Analyzed: 09/08/11 18:57

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	5.1	19	< 19 U
101-55-3	4-Bromophenyl-phenylether	4.8	19	< 19 U
118-74-1	Hexachlorobenzene	4.1	19	< 19 U
87-86-5	Pentachlorophenol	46	190	< 190 U
85-01-8	**Phenanthrene**	**3.5**	**19**	**63**
86-74-8	Carbazole	2.5	19	< 19 U
120-12-7	Anthracene	4.3	19	< 19 U
84-74-2	Di-n-Butylphthalate	7.7	19	< 19 U
206-44-0	**Fluoranthene**	**2.8**	**19**	**28**
129-00-0	**Pyrene**	**1.8**	**19**	**26**
85-68-7	Butylbenzylphthalate	5.8	19	< 19 U
91-94-1	3,3'-Dichlorobenzidine	17	140	< 140 U
56-55-3	**Benzo(a)anthracene**	**3.1**	**19**	**9.5 J**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**14**	**24**	**38 ~~B~~**
218-01-9	**Chrysene**	**3.6**	**19**	**12 J**
117-84-0	Di-n-Octyl phthalate	5.5	19	< 19 U
50-32-8	Benzo(a)pyrene	5.2	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.4	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	4.1	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	4.2	19	< 19 U
90-12-0	**1-Methylnaphthalene**	**2.5**	**19**	**51**
TOTBFA	**Total Benzofluoranthenes**	**2.6**	**19**	**14 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	84.0%	2-Fluorobiphenyl	74.4%
d14-p-Terphenyl	75.4%	d4-1,2-Dichlorobenzene	70.8%
d5-Phenol	73.7%	2-Fluorophenol	73.7%
2,4,6-Tribromophenol	115%	d4-2-Chlorophenol	78.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
SAMPLE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 19:31
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 11.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 17.2%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	7.8	18	< 18 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.0	18	< 18 U
95-57-8	2-Chlorophenol	2.2	18	< 18 U
541-73-1	1,3-Dichlorobenzene	2.4	18	< 18 U
106-46-7	1,4-Dichlorobenzene	2.6	18	< 18 U
100-51-6	Benzyl Alcohol	5.5	18	< 18 U
95-50-1	1,2-Dichlorobenzene	2.3	18	< 18 U
95-48-7	2-Methylphenol	4.8	18	< 18 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.4	18	< 18 U
106-44-5	4-Methylphenol	6.0	36	< 36 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.0	18	< 18 U
67-72-1	Hexachloroethane	2.7	18	< 18 U
98-95-3	Nitrobenzene	3.7	18	< 18 U
78-59-1	Isophorone	2.6	18	< 18 U
88-75-5	2-Nitrophenol	35	91	< 91 U
105-67-9	2,4-Dimethylphenol	3.1	36	< 36 U
65-85-0	Benzoic Acid	92	360	< 360 U
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	< 18 U
120-83-2	2,4-Dichlorophenol	19	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	3.2	18	< 18 U
91-20-3	**Naphthalene**	**2.5**	**18**	**13 J**
106-47-8	4-Chloroaniline	20	240	< 240 U
87-68-3	Hexachlorobutadiene	4.1	91	< 91 U
59-50-7	4-Chloro-3-methylphenol	14	91	< 91 U
91-57-6	**2-Methylnaphthalene**	**2.8**	**18**	**22**
77-47-4	Hexachlorocyclopentadiene	60	360	< 360 U
88-06-2	2,4,6-Trichlorophenol	20	91	< 91 U
95-95-4	2,4,5-Trichlorophenol	19	91	< 91 U
91-58-7	2-Chloronaphthalene	2.4	18	< 18 U
88-74-4	2-Nitroaniline	17	91	< 91 U
131-11-3	Dimethylphthalate	2.6	18	< 18 U
208-96-8	Acenaphthylene	5.2	18	< 18 U
99-09-2	3-Nitroaniline	20	91	< 91 U
83-32-9	Acenaphthene	3.0	18	< 18 U
51-28-5	2,4-Dinitrophenol	100	770	< 770 U
100-02-7	4-Nitrophenol	31	91	< 91 U
132-64-9	Dibenzofuran	3.7	18	< 18 U
606-20-2	2,6-Dinitrotoluene	28	91	< 91 U
121-14-2	2,4-Dinitrotoluene	18	91	< 91 U
84-66-2	Diethylphthalate	33	45	< 45 U
7005-72-3	4-Chlorophenyl-phenylether	4.8	18	< 18 U
86-73-7	Fluorene	3.9	18	< 18 U
100-01-6	4-Nitroaniline	34	91	< 91 U
534-52-1	4,6-Dinitro-2-Methylphenol	19	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
SAMPLE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Date Analyzed: 09/08/11 19:31

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	4.9	18	< 18 U
101-55-3	4-Bromophenyl-phenylether	4.6	18	< 18 U
118-74-1	Hexachlorobenzene	3.9	18	< 18 U
87-86-5	Pentachlorophenol	44	180	< 180 U
85-01-8	Phenanthrene	3.3	18	< 18 U
86-74-8	Carbazole	2.4	18	< 18 U
120-12-7	Anthracene	4.1	18	< 18 U
84-74-2	Di-n-Butylphthalate	7.4	18	< 18 U
206-44-0	Fluoranthene	2.6	18	< 18 U
129-00-0	Pyrene	1.8	18	< 18 U
85-68-7	Butylbenzylphthalate	5.6	18	< 18 U
91-94-1	3,3'-Dichlorobenzidine	16	140	< 140 U
56-55-3	Benzo(a)anthracene	3.0	18	< 18 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**13**	**23**	**37 B**
218-01-9	Chrysene	3.4	18	< 18 U
117-84-0	Di-n-Octyl phthalate	5.3	18	< 18 U
50-32-8	Benzo(a)pyrene	4.9	18	< 18 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.2	18	< 18 U
53-70-3	Dibenz(a,h)anthracene	3.9	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	4.0	18	< 18 U
90-12-0	**1-Methylnaphthalene**	**2.4**	**18**	**16 J**
TOTBFA	Total Benzofluoranthenes	2.5	18	< 18 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	79.0%	2-Fluorobiphenyl	69.0%
d14-p-Terphenyl	80.6%	d4-1,2-Dichlorobenzene	70.6%
d5-Phenol	69.1%	2-Fluorophenol	68.9%
2,4,6-Tribromophenol	102%	d4-2-Chlorophenol	74.9%

CM 2/21/12

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
FRP-082911-021	93.6%	85.8%	85.0%	74.8%	83.1%	80.7%	114%	97.3%	0
FRP-082911-022	80.6%	70.0%	77.0%	78.0%	74.4%	74.4%	92.5%	80.5%	0
FRP-082911-023	81.2%	75.2%	89.2%	70.8%	72.5%	74.1%	97.3%	77.7%	0
FRP-082911-024	82.2%	72.2%	87.0%	71.6%	73.2%	71.5%	98.9%	77.1%	0
FRP-082911-025	83.0%	71.8%	86.2%	73.4%	69.7%	66.5%	89.3%	71.6%	0
FRP-082911-027	86.8%	70.8%	84.8%	74.2%	73.7%	72.8%	104%	77.3%	0
FRP-082911-028	83.8%	72.8%	79.0%	71.2%	71.6%	72.7%	103%	76.8%	0
FRP-082911-029	84.0%	74.4%	75.4%	70.8%	73.7%	73.7%	115%	78.5%	0
MB-090211	81.0%	70.8%	90.0%	74.0%	73.9%	72.9%	96.8%	77.5%	0
LCS-090211	87.6%	80.4%	93.8%	79.4%	84.7%	80.8%	113%	86.4%	0
LCSD-090211	87.0%	77.2%	95.6%	80.6%	80.8%	80.9%	102%	83.6%	0
FRP-082911-030	79.0%	69.0%	80.6%	70.6%	69.1%	68.9%	102%	74.9%	0
FRP-082911-030 MS	77.0%	69.8%	81.6%	68.2%	71.5%	66.5%	96.5%	71.5%	0
FRP-082911-030 MSD	75.2%	70.6%	84.6%	70.0%	77.2%	72.9%	99.7%	78.7%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-160)	(30-160)
(FBP) = 2-Fluorobiphenyl	(30-160)	(30-160)
(TPH) = d14-p-Terphenyl	(30-160)	(30-160)
(DCB) = d4-1,2-Dichlorobenzene	(30-160)	(30-160)
(PHL) = d5-Phenol	(30-160)	(30-160)
(2FP) = 2-Fluorophenol	(30-160)	(30-160)
(TBP) = 2,4,6-Tribromophenol	(30-160)	(30-160)
(2CP) = d4-2-Chlorophenol	(30-160)	(30-160)

Prep Method: SW3546
Log Number Range: 11-18809 to 11-18817

FORM-II SW8270

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
MS/MSD

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted MS/MSD: 09/02/11

Date Analyzed MS: 09/08/11 20:05
MSD: 09/08/11 20:39
Instrument/Analyst MS: NT10/VTS
MSD: NT10/VTS
GPC Cleanup: Yes

Sample Amount MS: 11.0 g-dry-wt
MSD: 11.1 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Percent Moisture: 17.2 %

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	< 18.1 U	270	455	59.3%	297	452	65.7%	9.5%
Bis-(2-Chloroethyl) Ether	< 18.1 U	201	455	44.2%	222	452	49.1%	9.9%
2-Chlorophenol	< 18.1 U	265	455	58.2%	277	452	61.3%	4.4%
1,3-Dichlorobenzene	< 18.1 U	225	455	49.5%	261	452	57.7%	14.8%
1,4-Dichlorobenzene	< 18.1 U	235	455	51.6%	264	452	58.4%	11.6%
Benzyl Alcohol	< 18.1 U	281	455	61.8%	336	452	74.3%	17.8%
1,2-Dichlorobenzene	< 18.1 U	246	455	54.1%	269	452	59.5%	8.9%
2-Methylphenol	< 18.1 U	293	455	64.4%	307	452	67.9%	4.7%
2,2'-Oxybis(1-Chloropropane	< 18.1 U	255	455	56.0%	280	452	61.9%	9.3%
4-Methylphenol	< 36.3 U	560	909	61.6%	614	904	67.9%	9.2%
N-Nitroso-Di-N-Propylamine	< 18.1 U	279	455	61.3%	313	452	69.2%	11.5%
Hexachloroethane	< 18.1 U	279 Q	455	61.3%	300 Q	452	66.4%	7.3%
Nitrobenzene	< 18.1 U	283	455	62.2%	312	452	69.0%	9.7%
Isophorone	< 18.1 U	320	455	70.3%	332	452	73.5%	3.7%
2-Nitrophenol	< 90.7 U	254	455	55.8%	281	452	62.2%	10.1%
2,4-Dimethylphenol	< 36.3 U	935	1360	68.8%	743	1360	54.6%	22.9%
Benzoic Acid	< 363 U	1380	2500	55.2%	1300	2490	52.2%	6.0%
bis(2-Chloroethoxy) Methane	< 18.1 U	303	455	66.6%	324	452	71.7%	6.7%
2,4-Dichlorophenol	< 181 U	844	1360	62.1%	901	1360	66.2%	6.5%
1,2,4-Trichlorobenzene	< 18.1 U	283	455	62.2%	294	452	65.0%	3.8%
Naphthalene	12.7 J	281	455	59.0%	290	452	61.3%	3.2%
4-Chloroaniline	< 245 U	516	1360	37.9%	513	1360	37.7%	0.6%
Hexachlorobutadiene	< 90.7 U	302 Q	455	66.4%	333 Q	452	73.7%	9.8%
4-Chloro-3-methylphenol	< 90.7 U	1130 Q	1360	83.1%	1150 Q	1360	84.6%	1.8%
2-Methylnaphthalene	21.8	302	455	61.6%	310	452	63.8%	2.6%
Hexachlorocyclopentadiene	< 363 U	357 J	1360	26.2%	364	1360	26.8%	1.9%
2,4,6-Trichlorophenol	< 90.7 U	979	1360	72.0%	1010	1360	74.3%	3.1%
2,4,5-Trichlorophenol	< 90.7 U	1020	1360	75.0%	1060	1360	77.9%	3.8%
2-Chloronaphthalene	< 18.1 U	269	455	59.1%	286	452	63.3%	6.1%
2-Nitroaniline	< 90.7 U	1100	1360	80.9%	1120	1360	82.4%	1.8%
Dimethylphthalate	< 18.1 U	321	455	70.5%	311	452	68.8%	3.2%
Acenaphthylene	< 18.1 U	292	455	64.2%	303	452	67.0%	3.7%
3-Nitroaniline	< 90.7 U	642	1360	47.2%	668	1360	49.1%	4.0%
Acenaphthene	< 18.1 U	299	455	65.7%	305	452	67.5%	2.0%
2,4-Dinitrophenol	< 771 U	1140	2500	45.6%	1300	2490	52.2%	13.1%
4-Nitrophenol	< 90.7 U	1150	1360	84.6%	1250	1360	91.9%	8.3%
Dibenzofuran	< 18.1 U	300	455	65.9%	317	452	70.1%	5.5%
2,6-Dinitrotoluene	< 90.7 U	834	1360	61.3%	901	1360	66.2%	7.7%
2,4-Dinitrotoluene	< 90.7 U	990	1360	72.8%	1040	1360	76.5%	4.9%
Diethylphthalate	< 45.3 U	365 Q	455	80.2%	337 Q	452	74.6%	8.0%
4-Chlorophenyl-phenylether	< 18.1 U	293	455	64.4%	266	452	58.8%	9.7%
Fluorene	< 18.1 U	309	455	67.9%	323	452	71.5%	4.4%
4-Nitroaniline	< 90.7 U	803	1360	59.0%	949	1360	69.8%	16.7%
4,6-Dinitro-2-Methylphenol	< 181 U	1430	2500	57.2%	1610	2490	64.7%	11.8%
N-Nitrosodiphenylamine	< 18.1 U	294	455	64.6%	300	452	66.4%	2.0%

TK37 : 00688

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
MS/MSD

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Date Analyzed MS: 09/08/11 20:05
MSD: 09/08/11 20:39

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
4-Bromophenyl-phenylether	< 18.1 U	325	455	71.4%	328	452	72.6%	0.9%
Hexachlorobenzene	< 18.1 U	378 Q	455	83.1%	338 Q	452	74.8%	11.2%
Pentachlorophenol	< 181 U	948	1360	69.7%	946	1360	69.6%	0.2%
Phenanthrene	< 18.1 U	342	455	75.2%	343	452	75.9%	0.3%
Carbazole	< 18.1 U	333	455	73.2%	337	452	74.6%	1.2%
Anthracene	< 18.1 U	315	455	69.2%	308	452	68.1%	2.2%
Di-n-Butylphthalate	< 18.1 U	358	455	78.7%	360	452	79.6%	0.6%
Fluoranthene	< 18.1 U	355	455	78.0%	363	452	80.3%	2.2%
Pyrene	< 18.1 U	327	455	71.9%	351	452	77.7%	7.1%
Butylbenzylphthalate	< 18.1 U	361	455	79.3%	361	452	79.9%	0.0%
3,3'-Dichlorobenzidine	< 136 U	330	1360	24.3%	335	1360	24.6%	1.5%
Benzo(a)anthracene	< 18.1 U	385 Q	455	84.6%	398 Q	452	88.1%	3.3%
bis(2-Ethylhexyl)phthalate	37.2 B	357 B	455	70.3%	354 B	452	70.1%	0.8%
Chrysene	< 18.1 U	321	455	70.5%	349	452	77.2%	8.4%
Di-n-Octyl phthalate	< 18.1 U	270	455	59.3%	289	452	63.9%	6.8%
Benzo(a)pyrene	< 18.1 U	292	455	64.2%	307	452	67.9%	5.0%
Indeno(1,2,3-cd)pyrene	< 18.1 U	346	455	76.0%	377	452	83.4%	8.6%
Dibenz(a,h)anthracene	< 18.1 U	339	455	74.5%	391	452	86.5%	14.2%
Benzo(g,h,i)perylene	< 18.1 U	332	455	73.0%	359	452	79.4%	7.8%
1-Methylnaphthalene	16.3 J	291	455	60.4%	294	452	61.4%	1.0%
Total Benzofluoranthenes	< 18.1 U	636	909	70.0%	680	904	75.2%	6.7%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
MATRIX SPIKE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 20:05
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 11.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 17.2%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	7.9	18	---
111-44-4	Bis-(2-Chloroethyl) Ether	3.0	18	---
95-57-8	2-Chlorophenol	2.2	18	---
541-73-1	1,3-Dichlorobenzene	2.4	18	---
106-46-7	1,4-Dichlorobenzene	2.6	18	---
100-51-6	Benzyl Alcohol	5.5	18	---
95-50-1	1,2-Dichlorobenzene	2.3	18	---
95-48-7	2-Methylphenol	4.8	18	---
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.4	18	---
106-44-5	4-Methylphenol	6.0	36	---
621-64-7	N-Nitroso-Di-N-Propylamine	3.1	18	---
67-72-1	Hexachloroethane	2.7	18	---
98-95-3	Nitrobenzene	3.7	18	---
78-59-1	Isophorone	2.6	18	---
88-75-5	2-Nitrophenol	35	91	---
105-67-9	2,4-Dimethylphenol	3.1	36	---
65-85-0	Benzoic Acid	92	360	---
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	---
120-83-2	2,4-Dichlorophenol	20	180	---
120-82-1	1,2,4-Trichlorobenzene	3.2	18	---
91-20-3	Naphthalene	2.5	18	---
106-47-8	4-Chloroaniline	20	240	---
87-68-3	Hexachlorobutadiene	4.2	91	---
59-50-7	4-Chloro-3-methylphenol	14	91	---
91-57-6	2-Methylnaphthalene	2.8	18	---
77-47-4	Hexachlorocyclopentadiene	60	360	---
88-06-2	2,4,6-Trichlorophenol	20	91	---
95-95-4	2,4,5-Trichlorophenol	19	91	---
91-58-7	2-Chloronaphthalene	2.4	18	---
88-74-4	2-Nitroaniline	17	91	---
131-11-3	Dimethylphthalate	2.6	18	---
208-96-8	Acenaphthylene	5.2	18	---
99-09-2	3-Nitroaniline	20	91	---
83-32-9	Acenaphthene	3.0	18	---
51-28-5	2,4-Dinitrophenol	100	770	---
100-02-7	4-Nitrophenol	32	91	---
132-64-9	Dibenzofuran	3.7	18	---
606-20-2	2,6-Dinitrotoluene	28	91	---
121-14-2	2,4-Dinitrotoluene	18	91	---
84-66-2	Diethylphthalate	33	46	---
7005-72-3	4-Chlorophenyl-phenylether	4.8	18	---
86-73-7	Fluorene	4.0	18	---
100-01-6	4-Nitroaniline	34	91	---
534-52-1	4,6-Dinitro-2-Methylphenol	19	180	---

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
MATRIX SPIKE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Date Analyzed: 09/08/11 20:05

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	4.9	18	---
101-55-3	4-Bromophenyl-phenylether	4.6	18	---
118-74-1	Hexachlorobenzene	3.9	18	---
87-86-5	Pentachlorophenol	44	180	---
85-01-8	Phenanthrene	3.3	18	---
86-74-8	Carbazole	2.4	18	---
120-12-7	Anthracene	4.1	18	---
84-74-2	Di-n-Butylphthalate	7.4	18	---
206-44-0	Fluoranthene	2.6	18	---
129-00-0	Pyrene	1.8	18	---
85-68-7	Butylbenzylphthalate	5.6	18	---
91-94-1	3,3'-Dichlorobenzidine	16	140	---
56-55-3	Benzo(a)anthracene	3.0	18	---
117-81-7	bis(2-Ethylhexyl)phthalate	13	23	---
218-01-9	Chrysene	3.4	18	---
117-84-0	Di-n-Octyl phthalate	5.3	18	---
50-32-8	Benzo(a)pyrene	5.0	18	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.3	18	---
53-70-3	Dibenz(a,h)anthracene	3.9	18	---
191-24-2	Benzo(g,h,i)perylene	4.0	18	---
90-12-0	1-Methylnaphthalene	2.4	18	---
TOTBFA	Total Benzofluoranthenes	2.5	18	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	77.0%	2-Fluorobiphenyl	69.8%
d14-p-Terphenyl	81.6%	d4-1,2-Dichlorobenzene	68.2%
d5-Phenol	71.5%	2-Fluorophenol	66.5%
2,4,6-Tribromophenol	96.5%	d4-2-Chlorophenol	71.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
MATRIX SPIKE DUPLICATE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized: MW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 20:39
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 11.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 17.2%

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	7.8	18	---
111-44-4	Bis-(2-Chloroethyl) Ether	3.0	18	---
95-57-8	2-Chlorophenol	2.2	18	---
541-73-1	1,3-Dichlorobenzene	2.4	18	---
106-46-7	1,4-Dichlorobenzene	2.6	18	---
100-51-6	Benzyl Alcohol	5.5	18	---
95-50-1	1,2-Dichlorobenzene	2.3	18	---
95-48-7	2-Methylphenol	4.7	18	---
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.4	18	---
106-44-5	4-Methylphenol	6.0	36	---
621-64-7	N-Nitroso-Di-N-Propylamine	3.0	18	---
67-72-1	Hexachloroethane	2.7	18	---
98-95-3	Nitrobenzene	3.7	18	---
78-59-1	Isophorone	2.6	18	---
88-75-5	2-Nitrophenol	35	90	---
105-67-9	2,4-Dimethylphenol	3.1	36	---
65-85-0	Benzoic Acid	91	360	---
111-91-1	bis(2-Chloroethoxy) Methane	1.8	18	---
120-83-2	2,4-Dichlorophenol	19	180	---
120-82-1	1,2,4-Trichlorobenzene	3.1	18	---
91-20-3	Naphthalene	2.5	18	---
106-47-8	4-Chloroaniline	20	240	---
87-68-3	Hexachlorobutadiene	4.1	90	---
59-50-7	4-Chloro-3-methylphenol	14	90	---
91-57-6	2-Methylnaphthalene	2.8	18	---
77-47-4	Hexachlorocyclopentadiene	60	360	---
88-06-2	2,4,6-Trichlorophenol	20	90	---
95-95-4	2,4,5-Trichlorophenol	19	90	---
91-58-7	2-Chloronaphthalene	2.4	18	---
88-74-4	2-Nitroaniline	17	90	---
131-11-3	Dimethylphthalate	2.6	18	---
208-96-8	Acenaphthylene	5.2	18	---
99-09-2	3-Nitroaniline	20	90	---
83-32-9	Acenaphthene	3.0	18	---
51-28-5	2,4-Dinitrophenol	100	770	---
100-02-7	4-Nitrophenol	31	90	---
132-64-9	Dibenzofuran	3.7	18	---
606-20-2	2,6-Dinitrotoluene	28	90	---
121-14-2	2,4-Dinitrotoluene	18	90	---
84-66-2	Diethylphthalate	33	45	---
7005-72-3	4-Chlorophenyl-phenylether	4.8	18	---
86-73-7	Fluorene	3.9	18	---
100-01-6	4-Nitroaniline	34	90	---
534-52-1	4,6-Dinitro-2-Methylphenol	19	180	---

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: FRP-082911-030
MATRIX SPIKE DUPLICATE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Date Analyzed: 09/08/11 20:39

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	4.9	18	---
101-55-3	4-Bromophenyl-phenylether	4.5	18	---
118-74-1	Hexachlorobenzene	3.9	18	---
87-86-5	Pentachlorophenol	44	180	---
85-01-8	Phenanthrene	3.3	18	---
86-74-8	Carbazole	2.4	18	---
120-12-7	Anthracene	4.1	18	---
84-74-2	Di-n-Butylphthalate	7.4	18	---
206-44-0	Fluoranthene	2.6	18	---
129-00-0	Pyrene	1.8	18	---
85-68-7	Butylbenzylphthalate	5.6	18	---
91-94-1	3,3'-Dichlorobenzidine	16	140	---
56-55-3	Benzo(a)anthracene	3.0	18	---
117-81-7	bis(2-Ethylhexyl)phthalate	13	23	---
218-01-9	Chrysene	3.4	18	---
117-84-0	Di-n-Octyl phthalate	5.3	18	---
50-32-8	Benzo(a)pyrene	4.9	18	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.2	18	---
53-70-3	Dibenz(a,h)anthracene	3.9	18	---
191-24-2	Benzo(g,h,i)perylene	4.0	18	---
90-12-0	1-Methylnaphthalene	2.4	18	---
TOTBFA	Total Benzofluoranthenes	2.5	18	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	75.2%	2-Fluorobiphenyl	70.6%
d14-p-Terphenyl	84.6%	d4-1,2-Dichlorobenzene	70.0%
d5-Phenol	77.2%	2-Fluorophenol	72.9%
2,4,6-Tribromophenol	99.7%	d4-2-Chlorophenol	78.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: LCS-090211
LCS/LCSD

Lab Sample ID: LCS-090211
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized:
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted LCS/LCSD: 09/02/11

Date Analyzed LCS: 09/08/11 13:50
LCSD: 09/08/11 14:24
Instrument/Analyst LCS: NT10/VTS
LCSD: NT10/VTS
GPC Cleanup: Yes

Sample Amount LCS: 10.0 g
LCSD: 10.0 g
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	359	500	71.8%	354	500	70.8%	1.4%
Bis-(2-Chloroethyl) Ether	251	500	50.2%	295	500	59.0%	16.1%
2-Chlorophenol	346	500	69.2%	336	500	67.2%	2.9%
1,3-Dichlorobenzene	306	500	61.2%	308	500	61.6%	0.7%
1,4-Dichlorobenzene	323	500	64.6%	329	500	65.8%	1.8%
Benzyl Alcohol	399	500	79.8%	353	500	70.6%	12.2%
1,2-Dichlorobenzene	333	500	66.6%	324	500	64.8%	2.7%
2-Methylphenol	351	500	70.2%	356	500	71.2%	1.4%
2,2'-Oxybis(1-Chloropropane)	355	500	71.0%	365	500	73.0%	2.8%
4-Methylphenol	724	1000	72.4%	732	1000	73.2%	1.1%
N-Nitroso-Di-N-Propylamine	367	500	73.4%	371	500	74.2%	1.1%
Hexachloroethane	381 Q	500	76.2%	364 Q	500	72.8%	4.6%
Nitrobenzene	378	500	75.6%	374	500	74.8%	1.1%
Isophorone	397	500	79.4%	392	500	78.4%	1.3%
2-Nitrophenol	355	500	71.0%	359	500	71.8%	1.1%
2,4-Dimethylphenol	878	1500	58.5%	889	1500	59.3%	1.2%
Benzoic Acid	1990	2750	72.4%	1920	2750	69.8%	3.6%
bis(2-Chloroethoxy) Methane	366	500	73.2%	380	500	76.0%	3.8%
2,4-Dichlorophenol	1050	1500	70.0%	1080	1500	72.0%	2.8%
1,2,4-Trichlorobenzene	368	500	73.6%	373	500	74.6%	1.3%
Naphthalene	354	500	70.8%	363	500	72.6%	2.5%
4-Chloroaniline	963	1500	64.2%	987	1500	65.8%	2.5%
Hexachlorobutadiene	400 Q	500	80.0%	409 Q	500	81.8%	2.2%
4-Chloro-3-methylphenol	1350 Q	1500	90.0%	1360 Q	1500	90.7%	0.7%
2-Methylnaphthalene	370	500	74.0%	391	500	78.2%	5.5%
Hexachlorocyclopentadiene	780	1500	52.0%	762	1500	50.8%	2.3%
2,4,6-Trichlorophenol	1180	1500	78.7%	1140	1500	76.0%	3.4%
2,4,5-Trichlorophenol	1250	1500	83.3%	1180	1500	78.7%	5.8%
2-Chloronaphthalene	339	500	67.8%	336	500	67.2%	0.9%
2-Nitroaniline	1330	1500	88.7%	1280	1500	85.3%	3.8%
Dimethylphthalate	408	500	81.6%	395	500	79.0%	3.2%
Acenaphthylene	383	500	76.6%	367	500	73.4%	4.3%
3-Nitroaniline	1020	1500	68.0%	1020	1500	68.0%	0.0%
Acenaphthene	372	500	74.4%	366	500	73.2%	1.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: LCSD-090211
LCS/LCSD

Lab Sample ID: LCS-090211
LIMS ID: 11-18817
Matrix: Soil
Date Analyzed LCS: 09/08/11 13:50
LCSD: 09/08/11 14:24

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
2,4-Dinitrophenol	1560	2750	56.7%	1480	2750	53.8%	5.3%
4-Nitrophenol	1310	1500	87.3%	1100	1500	73.3%	17.4%
Dibenzofuran	386	500	77.2%	377	500	75.4%	2.4%
2,6-Dinitrotoluene	1140	1500	76.0%	1110	1500	74.0%	2.7%
2,4-Dinitrotoluene	1290	1500	86.0%	1300	1500	86.7%	0.8%
Diethylphthalate	429 Q	500	85.8%	439 Q	500	87.8%	2.3%
4-Chlorophenyl-phenylether	318	500	63.6%	358	500	71.6%	11.8%
Fluorene	389	500	77.8%	383	500	76.6%	1.6%
4-Nitroaniline	1070	1500	71.3%	1090	1500	72.7%	1.9%
4,6-Dinitro-2-Methylphenol	1920	2750	69.8%	1960	2750	71.3%	2.1%
N-Nitrosodiphenylamine	354	500	70.8%	349	500	69.8%	1.4%
4-Bromophenyl-phenylether	381	500	76.2%	380	500	76.0%	0.3%
Hexachlorobenzene	452 Q	500	90.4%	459 Q	500	91.8%	1.5%
Pentachlorophenol	974	1500	64.9%	997	1500	66.5%	2.3%
Phenanthrene	411	500	82.2%	408	500	81.6%	0.7%
Carbazole	426	500	85.2%	423	500	84.6%	0.7%
Anthracene	389	500	77.8%	376	500	75.2%	3.4%
Di-n-Butylphthalate	424	500	84.8%	438	500	87.6%	3.2%
Fluoranthene	430	500	86.0%	422	500	84.4%	1.9%
Pyrene	410	500	82.0%	423	500	84.6%	3.1%
Butylbenzylphthalate	429	500	85.8%	438	500	87.6%	2.1%
3,3'-Dichlorobenzidine	618	1500	41.2%	688	1500	45.9%	10.7%
Benzo(a)anthracene	482 Q	500	96.4%	503 Q	500	101%	4.3%
bis(2-Ethylhexyl)phthalate	419 B	500	83.8%	431 B	500	86.2%	2.8%
Chrysene	417	500	83.4%	436	500	87.2%	4.5%
Di-n-Octyl phthalate	357	500	71.4%	358	500	71.6%	0.3%
Benzo(a)pyrene	360	500	72.0%	375	500	75.0%	4.1%
Indeno(1,2,3-cd)pyrene	438	500	87.6%	456	500	91.2%	4.0%
Dibenz(a,h)anthracene	419	500	83.8%	431	500	86.2%	2.8%
Benzo(g,h,i)perylene	424	500	84.8%	432	500	86.4%	1.9%
1-Methylnaphthalene	368	500	73.6%	363	500	72.6%	1.4%
Total Benzofluoranthenes	808	1000	80.8%	826	1000	82.6%	2.2%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	87.6%	87.0%
2-Fluorobiphenyl	80.4%	77.2%
d14-p-Terphenyl	93.8%	95.6%
d4-1,2-Dichlorobenzene	79.4%	80.6%
d5-Phenol	84.7%	80.8%
2-Fluorophenol	80.8%	80.9%
2,4,6-Tribromophenol	113%	102%
d4-2-Chlorophenol	86.4%	83.6%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

TK37MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No: TK37

Project: FRP SHORELINE INVEST

Lab File ID: TK37MB

Date Extracted: 09/02/11

Instrument ID: NT10

Date Analyzed: 09/08/11

Matrix: SOLID

Time Analyzed: 1316

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	TK37LCSS1	TK37LCSS1	TK37SB	09/08/11
02	TK37LCSDS1	TK37LCSDS1	TK37SBD	09/08/11
03	FRP-082911-022	TK37B	TK37B	09/08/11
04	FRP-082911-023	TK37C	TK37C	09/08/11
05	FRP-082911-024	TK37D	TK37D	09/08/11
06	FRP-082911-025	TK37E	TK37E	09/08/11
07	FRP-082911-027	TK37F	TK37F	09/08/11
08	FRP-082911-028	TK37G	TK37G	09/08/11
09	FRP-082911-029	TK37H	TK37H	09/08/11
10	FRP-082911-030	TK37I	TK37I	09/08/11
11	FRP-082911-030 M	TK37IMS	TK37IMS	09/08/11
12	FRP-082911-030 M	TK37IMSD	TK37IMSD	09/08/11
13	FRP-082911-021	TK37A	TK37A	09/08/11
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: MB-090211
METHOD BLANK

Lab Sample ID: MB-090211
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized: MW
Reported: 09/09/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: NA
Date Received: NA

Date Extracted: 09/02/11
Date Analyzed: 09/08/11 13:16
Instrument/Analyst: NT10/VTS
GPC Cleanup: Yes

Sample Amount: 10.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	MDL	RL	Result
108-95-2	Phenol	8.6	20	< 20 U
111-44-4	Bis-(2-Chloroethyl) Ether	3.4	20	< 20 U
95-57-8	2-Chlorophenol	2.4	20	< 20 U
541-73-1	1,3-Dichlorobenzene	2.6	20	< 20 U
106-46-7	1,4-Dichlorobenzene	2.9	20	< 20 U
100-51-6	Benzyl Alcohol	6.1	20	< 20 U
95-50-1	1,2-Dichlorobenzene	2.5	20	< 20 U
95-48-7	2-Methylphenol	5.2	20	< 20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3.8	20	< 20 U
106-44-5	4-Methylphenol	6.6	40	< 40 U
621-64-7	N-Nitroso-Di-N-Propylamine	3.4	20	< 20 U
67-72-1	Hexachloroethane	2.9	20	< 20 U
98-95-3	Nitrobenzene	4.1	20	< 20 U
78-59-1	Isophorone	2.9	20	< 20 U
88-75-5	2-Nitrophenol	39	100	< 100 U
105-67-9	2,4-Dimethylphenol	3.5	40	< 40 U
65-85-0	Benzoic Acid	100	400	< 400 U
111-91-1	bis(2-Chloroethoxy) Methane	2.0	20	< 20 U
120-83-2	2,4-Dichlorophenol	22	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	3.5	20	< 20 U
91-20-3	Naphthalene	2.8	20	< 20 U
106-47-8	4-Chloroaniline	22	270	< 270 U
87-68-3	Hexachlorobutadiene	4.6	100	< 100 U
59-50-7	4-Chloro-3-methylphenol	15	100	< 100 U
91-57-6	2-Methylnaphthalene	3.1	20	< 20 U
77-47-4	Hexachlorocyclopentadiene	66	400	< 400 U
88-06-2	2,4,6-Trichlorophenol	22	100	< 100 U
95-95-4	2,4,5-Trichlorophenol	21	100	< 100 U
91-58-7	2-Chloronaphthalene	2.6	20	< 20 U
88-74-4	2-Nitroaniline	18	100	< 100 U
131-11-3	Dimethylphthalate	2.9	20	< 20 U
208-96-8	Acenaphthylene	5.7	20	< 20 U
99-09-2	3-Nitroaniline	22	100	< 100 U
83-32-9	Acenaphthene	3.3	20	< 20 U
51-28-5	2,4-Dinitrophenol	110	850	< 850 U
100-02-7	4-Nitrophenol	35	100	< 100 U
132-64-9	Dibenzofuran	4.1	20	< 20 U
606-20-2	2,6-Dinitrotoluene	31	100	< 100 U
121-14-2	2,4-Dinitrotoluene	20	100	< 100 U
84-66-2	Diethylphthalate	37	50	< 50 U
7005-72-3	4-Chlorophenyl-phenylether	5.3	20	< 20 U
86-73-7	Fluorene	4.4	20	< 20 U
100-01-6	4-Nitroaniline	38	100	< 100 U
534-52-1	4,6-Dinitro-2-Methylphenol	21	200	< 200 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: MB-090211
METHOD BLANK

Lab Sample ID: MB-090211
LIMS ID: 11-18817
Matrix: Soil
Date Analyzed: 09/08/11 13:16

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

CAS Number	Analyte	MDL	RL	Result
86-30-6	N-Nitrosodiphenylamine	5.4	20	< 20 U
101-55-3	4-Bromophenyl-phenylether	5.0	20	< 20 U
118-74-1	Hexachlorobenzene	4.3	20	< 20 U
87-86-5	Pentachlorophenol	48	200	< 200 U
85-01-8	Phenanthrene	3.6	20	< 20 U
86-74-8	Carbazole	2.7	20	< 20 U
120-12-7	Anthracene	4.5	20	< 20 U
84-74-2	Di-n-Butylphthalate	8.2	20	< 20 U
206-44-0	Fluoranthene	2.9	20	< 20 U
129-00-0	Pyrene	1.9	20	< 20 U
85-68-7	Butylbenzylphthalate	6.1	20	< 20 U
91-94-1	3,3'-Dichlorobenzidine	18	150	< 150 U
56-55-3	Benzo(a)anthracene	3.3	20	< 20 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**15**	**25**	**33**
218-01-9	Chrysene	3.8	20	< 20 U
117-84-0	Di-n-Octyl phthalate	5.8	20	< 20 U
50-32-8	Benzo(a)pyrene	5.4	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	4.3	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	4.4	20	< 20 U
90-12-0	1-Methylnaphthalene	2.7	20	< 20 U
TOTBFA	Total Benzofluoranthenes	2.8	20	< 20 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	81.0%	2-Fluorobiphenyl	70.8%
d14-p-Terphenyl	90.0%	d4-1,2-Dichlorobenzene	74.0%
d5-Phenol	73.9%	2-Fluorophenol	72.9%
2,4,6-Tribromophenol	96.8%	d4-2-Chlorophenol	77.5%

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

Instrument ID: NT10 Project: FRP SHORELINE

DFTPP Injection Date: 08/05/11 DFTPP Injection Time: 1329

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	22.0
68	Less than 2.0% of mass 69	0.4 (1.0)1
69	Mass 69 relative abundance	36.1
70	Less than 2.0% of mass 69	0.4 (1.1)1
127	10.0 - 80.0% of mass 198	47.2
197	Less than 2.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 60.0% of mass 198	27.2
365	Greater than 1.0% of mass 198	5.38
441	0.0 - 24.0% of mass 442	17.8 (16.0)2
442	50.0 - 200.0% of mass 198	111.2
443	15.0 - 24.0% of mass 442	21.8 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		IC0805A	IC0805A	08/05/11	1329
02		IC0805B	IC0805B	08/05/11	1403
03		IC0805C	IC0805C	08/05/11	1437
04		IC0805D	IC0805D	08/05/11	1511
05		IC0805E	IC0805E	08/05/11	1545
06		IC0805F	IC0805F	08/05/11	1619
07		IC0805G	IC0805G	08/05/11	1653
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V SV

TK37:00099

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

Instrument ID: NT10 Project: FRP SHORELINE

DFTPP Injection Date: 09/08/11 DFTPP Injection Time: 1152

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.2
68	Less than 2.0% of mass 69	0.4 (1.0)1
69	Mass 69 relative abundance	38.9
70	Less than 2.0% of mass 69	0.4 (1.1)1
127	10.0 - 80.0% of mass 198	44.1
197	Less than 2.0% of mass 198	1.5
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	28.7
365	Greater than 1.0% of mass 198	6.78
441	0.0 - 24.0% of mass 442	23.2 (15.9)2
442	50.0 - 200.0% of mass 198	145.8
443	15.0 - 24.0% of mass 442	28.0 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC0908	CC0908	09/08/11	1152
02	TK37MBS1	TK37MBS1	TK37MB	09/08/11	1316
03	TK37LCSS1	TK37LCSS1	TK37SB	09/08/11	1350
04	TK37LCSDS1	TK37LCSDS1	TK37SBD	09/08/11	1424
05	FRP-082911-022	TK37B	TK37B	09/08/11	1532
06	FRP-082911-023	TK37C	TK37C	09/08/11	1606
07	FRP-082911-024	TK37D	TK37D	09/08/11	1641
08	FRP-082911-025	TK37E	TK37E	09/08/11	1715
09	FRP-082911-027	TK37F	TK37F	09/08/11	1749
10	FRP-082911-028	TK37G	TK37G	09/08/11	1823
11	FRP-082911-029	TK37H	TK37H	09/08/11	1857
12	FRP-082911-030	TK37I	TK37I	09/08/11	1931
13	FRP-082911-030 M	TK37IMS	TK37IMS	09/08/11	2005
14	FRP-082911-030 M	TK37IMSD	TK37IMSD	09/08/11	2039
15	FRP-082911-021	TK37A	TK37A	09/08/11	2113
16					
17					
18					
19					
20					
21					
22					

FORM V SV

TK37:00100

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Instrument ID: NT10 — Calibration Date: 08/05/11

LAB FILE ID: RRF0.2=IC0805C RRF0.5=IC0805E RRF1 =IC0805G
RRF2.5=IC0805F RRF5 =IC0805A RRF10 =IC0805D
RRF20 =IC0805B

COMPOUND	RRF 0.2	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF 20	___ RRF	%RSD /R^2
Phenol	1.770	1.558	1.513	1.869	1.752	1.843	1.393	1.671	10.9
Bis(2-Chloroethyl)ether	1.545	1.204	1.302	1.459	1.552	1.590	1.426	1.440	9.9
2-Chlorophenol	1.378	1.179	1.260	1.487	1.498	1.548	1.408	1.394	9.6
1,3-Dichlorobenzene	1.903	1.564	1.615	1.821	1.767	1.896	1.664	1.747	7.7
1,4-Dichlorobenzene	1.749	1.442	1.497	1.742	1.792	1.879	1.639	1.677	9.5
1,2-Dichlorobenzene	1.581	1.511	1.547	1.711	1.703	1.783	1.557	1.628	6.3
Benzyl alcohol	0.646	0.583	0.614	0.796	0.922	0.926	0.896	0.769	19.7
2,2'-oxybis(1-Chloropropane)	0.489	0.417	0.396	0.487	0.488	0.505	0.455	0.462	9.0
2-Methylphenol	1.158	0.995	1.018	1.218	1.245	1.325	1.265	1.175	10.7
Hexachloroethane	0.689	0.603	0.663	0.737	0.739	0.784	0.663	0.697	8.7
N-Nitroso-di-n-propylamine	1.068	0.918	0.898	1.130	1.094	1.144	0.967	1.031	9.9
4-Methylphenol	1.024	1.101	1.048	1.339	1.360	1.427	1.212	1.216	13.4
Nitrobenzene	0.412	0.359	0.336	0.427	0.419	0.424	0.390	0.395	9.0
Isophorone	0.601	0.605	0.570	0.717	0.689	0.718	0.662	0.652	9.2
2-Nitrophenol	0.174	0.158	0.166	0.237	0.218	0.247	0.206	0.201	17.6
2,4-Dimethylphenol	0.309	0.285	0.307	0.368	0.411	0.378	0.373	0.347	13.4
Bis(2-Chloroethoxy)methane	0.420	0.393	0.407	0.490	0.490	0.489	0.450	0.448	9.4
2,4-Dichlorophenol		0.287	0.285	0.365	0.363	0.360	0.340	0.333	11.4
1,2,4-Trichlorobenzene	0.384	0.333	0.345	0.408	0.387	0.396	0.362	0.374	7.4
Naphthalene	0.991	0.903	0.890	1.099	1.064	1.107	1.015	1.010	8.7
Benzoic acid		0.136	0.135	0.218	0.262	0.273	0.259	0.214	0.998
4-Chloroaniline		0.320	0.320	0.405	0.412	0.427	0.394	0.380	12.5
Hexachlorobutadiene	0.261	0.230	0.223	0.264	0.260	0.260	0.238	0.248	6.8
4-Chloro-3-methylphenol		0.230	0.254	0.323	0.329	0.329	0.310	0.296	14.5
2-Methylnaphthalene	0.642	0.591	0.611	0.747	0.743	0.752	0.701	0.684	10.0
Hexachlorocyclopentadiene		0.122	0.202	0.325	0.395	0.438	0.422	0.317	0.998
2,4,6-Trichlorophenol		0.307	0.322	0.418	0.446	0.441	0.410	0.391	15.6
2,4,5-Trichlorophenol		0.351	0.352	0.417	0.468	0.452	0.428	0.411	12.1
2-Chloronaphthalene	1.178	1.130	1.116	1.308	1.335	1.322	1.178	1.224	7.7
2-Nitroaniline		0.213	0.251	0.302	0.322	0.321	0.284	0.282	15.2
Acenaphthylene	1.726	1.593	1.541	1.820	1.862	1.834	1.623	1.714	7.6
Dimethylphthalate	1.389	1.314	1.270	1.423	1.454	1.434	1.252	1.362	6.1
2,6-Dinitrotoluene		0.282	0.286	0.326	0.349	0.336	0.309	0.315	8.5
Acenaphthene	1.103	1.068	1.092	1.230	1.226	1.234	1.113	1.152	6.4
3-Nitroaniline		0.248	0.247	0.305	0.294	0.304	0.275	0.279	9.5
2,4-Dinitrophenol		0.039	0.081	0.174	0.223	0.253	0.254	0.171	0.998
Dibenzofuran	1.549	1.539	1.483	1.680	1.750	1.736	1.552	1.613	6.6

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-1

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Instrument ID: NT10 — Calibration Date: 08/05/11

LAB FILE ID: RRF0.2=IC0805C RRF0.5=IC0805E RRF1 =IC0805G
RRF2.5=IC0805F RRF5 =IC0805A RRF10 =IC0805D
RRF20 =IC0805B

COMPOUND	RRF 0.2	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF 20	___ RRF	%RSD /R^2
4-Nitrophenol		0.145	0.071	0.164	0.183	0.184	0.180	0.154	0.999
2,4-Dinitrotoluene	0.290	0.342	0.361	0.432	0.454	0.442	0.402	0.389	15.5
Fluorene	1.266	1.299	1.204	1.385	1.395	1.339	1.387	1.325	5.5
4-Chlorophenyl-phenylether	0.879	0.844	0.766	0.867	0.863	0.826	0.722	0.824	7.1
Diethylphthalate	1.310	1.383	1.232	1.383	1.411	1.561	1.358	1.377	7.3
4-Nitroaniline		0.260	0.238	0.281	0.309	0.289	0.279	0.276	8.8
4,6-Dinitro-2-methylphenol		0.096	0.111	0.161	0.166	0.177	0.155	0.144	0.998
N-Nitrosodiphenylamine (1)	0.501	0.550	0.506	0.598	0.578	0.589	0.514	0.548	7.6
4-Bromophenyl-phenylether	0.267	0.268	0.237	0.293	0.285	0.292	0.257	0.271	7.5
Hexachlorobenzene	0.295	0.318	0.285	0.346	0.319	0.319	0.287	0.310	7.1
Pentachlorophenol	0.065	0.090	0.094	0.144	0.169	0.170	0.162	0.128	0.999
Phenanthrene	1.064	1.095	0.950	1.170	1.103	1.147	0.993	1.074	7.4
Anthracene	1.017	1.104	0.986	1.240	1.212	1.198	1.095	1.122	8.8
Carbazole	0.935	1.032	0.907	1.057	0.957	0.845	0.840	0.939	9.0
Di-n-butylphthalate	1.165	1.285	1.136	1.440	1.450	1.452	1.316	1.320	10.2
Fluoranthene	1.179	1.299	1.077	1.355	1.334	1.348	1.208	1.257	8.4
Pyrene	1.174	1.183	1.056	1.297	1.322	1.326	1.131	1.213	8.6
Butylbenzylphthalate	0.488	0.462	0.429	0.525	0.541	0.546	0.488	0.497	8.7
Benzo(a)anthracene	1.072	1.058	0.963	1.109	1.174	1.178	1.018	1.082	7.3
3,3'-Dichlorobenzidine		0.568	0.536	0.605	0.552	0.524	0.546	0.555	5.1
Chrysene	1.011	1.021	0.918	1.074	1.065	1.066	0.974	1.018	5.6
bis(2-Ethylhexyl)phthalate	0.560	0.595	0.540	0.641	0.624	0.648	0.585	0.599	6.8
Di-n-octylphthalate	1.062	1.009	0.936	1.122	1.093	1.116	0.980	1.045	6.9
Benzo(b)fluoranthene	1.160	1.340	1.042	1.168	1.330	1.337	1.055	1.204	10.9
Benzo(k)fluoranthene	1.142	1.102	1.238	1.418	1.315	1.323	1.288	1.261	8.7
Benzo(a)pyrene	1.034	1.114	0.999	1.146	1.164	1.168	1.053	1.097	6.2
Indeno(1,2,3-cd)pyrene	1.250	1.279	1.194	1.397	1.404	1.451	1.312	1.327	7.0
Dibenzo(a,h)anthracene	1.031	1.074	0.990	1.126	1.133	1.161	1.049	1.080	5.7
Benzo(g,h,i)perylene	1.111	1.124	1.061	1.200	1.195	1.240	1.116	1.150	5.5
N-Nitrosodimethylamine		0.856	0.822	0.935	0.952	1.004	0.850	0.903	7.9
Aniline	2.002	1.766	1.894	2.187	2.224	2.342	2.063	2.068	9.7
Benzidine	0.459	0.444	0.418	0.382	0.202	0.283	0.284	0.353	0.990
Perylene		1.061	0.954	0.998	1.016	1.001	0.895	0.988	5.8
Pyridine		1.377	1.420	1.635	1.655	1.740	1.511	1.556	9.2
1-methylnaphthalene	0.686	0.620	0.605	0.741	0.746	0.753	0.692	0.692	8.7
Azobenzene (1,2-DP-Hydrazine	1.184	1.232	1.224	1.423	1.449	1.416	1.260	1.312	8.5
Total Benzofluoranthenes	1.088	1.144	1.053	1.194	1.226	1.226	1.077	1.144	6.4

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-2

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Instrument ID: NT10 — Calibration Date: 08/05/11

LAB FILE ID: RRF0.2=IC0805C RRF0.5=IC0805E RRF1 =IC0805G
RRF2.5=IC0805F RRF5 =IC0805A RRF10 =IC0805D
RRF20 =IC0805B

COMPOUND	RRF 0.2	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF 20	___ RRF	%RSD /R^2
2-Fluorophenol	1.126	1.052	0.930	1.078	1.124	1.162	1.046	1.074	7.1
Phenol-d5	1.279	1.364	1.288	1.504	1.559	1.586	1.436	1.431	8.8
2-Chlorophenol-d4	1.113	1.020	1.053	1.197	1.234	1.268	1.172	1.151	8.0
1,2-Dichlorobenzene-d4	0.940	0.832	0.803	0.877	0.926	0.925	0.812	0.874	6.6
Nitrobenzene-d5	0.310	0.308	0.309	0.362	0.369	0.368	0.343	0.338	8.5
2-Fluorobiphenyl	1.280	1.167	1.141	1.273	1.324	1.284	1.148	1.231	6.2
2,4,6-Tribromophenol	0.218	0.233	0.209	0.236	0.259	0.242	0.222	0.231	7.3
Terphenyl-d14	0.782	0.758	0.649	0.709	0.712	0.680	0.603	0.699	8.8

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Instrument ID: NT10 — Cont. Calib. Date: 09/08/11

Init. Calib. Date: 08/05/11 — Cont. Calib. Time: 1152

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.671	1.707	0.800	AVRG	2.2	
Bis(2-Chloroethyl)ether	1.697	1.454	0.700	AVRG	-14.3	
2-Chlorophenol	1.394	1.440	0.800	AVRG	3.3	
1,3-Dichlorobenzene	1.747	1.872	0.010	AVRG	7.2	
1,4-Dichlorobenzene	1.677	1.784	0.010	AVRG	6.4	
1,2-Dichlorobenzene	1.628	1.753	0.010	AVRG	7.7	
Benzyl alcohol	0.769	0.776	0.010	AVRG	0.9	
2,2'-oxybis(1-Chloropropane)	0.462	0.496	0.010	AVRG	7.4	
2-Methylphenol	1.175	1.266	0.700	AVRG	7.7	
Hexachloroethane	0.697	0.865	0.300	AVRG	24.1	<-
N-Nitroso-di-n-propylamine	1.031	1.233	0.500	AVRG	19.6	
4-Methylphenol	1.216	1.304	0.600	AVRG	7.2	
Nitrobenzene	0.395	0.435	0.200	AVRG	10.1	
Isophorone	0.652	0.723	0.400	AVRG	10.9	
2-Nitrophenol	0.201	0.207	0.100	AVRG	3.0	
2,4-Dimethylphenol	0.347	0.369	0.200	AVRG	6.3	
Bis(2-Chloroethoxy)methane	0.448	0.511	0.300	AVRG	14.1	
2,4-Dichlorophenol	0.333	0.332	0.200	AVRG	-0.3	
1,2,4-Trichlorobenzene	0.374	0.411	0.010	AVRG	9.9	
Naphthalene	1.010	1.042	0.700	AVRG	3.2	
Benzoic acid	20.00	20.11	0.010	2ORDR	0.6	
4-Chloroaniline	0.380	0.407	0.010	AVRG	7.1	
Hexachlorobutadiene	0.248	0.302	0.010	AVRG	21.8	<-
4-Chloro-3-methylphenol	0.296	0.355	0.200	AVRG	19.9	
2-Methylnaphthalene	0.684	0.738	0.400	AVRG	7.9	
Hexachlorocyclopentadiene	10.00	8.334	0.050	2ORDR	-16.7	
2,4,6-Trichlorophenol	0.391	0.415	0.200	AVRG	6.1	
2,4,5-Trichlorophenol	0.411	0.439	0.200	AVRG	6.8	
2-Chloronaphthalene	1.224	1.238	0.800	AVRG	1.1	
2-Nitroaniline	0.282	0.313	0.010	AVRG	11.0	
Acenaphthylene	1.714	1.757	0.900	AVRG	2.5	
Dimethylphthalate	1.362	1.468	0.010	AVRG	7.8	
2,6-Dinitrotoluene	0.315	0.325	0.200	AVRG	3.2	
Acenaphthene	1.152	1.213	0.900	AVRG	5.3	
3-Nitroaniline	0.279	0.289	0.010	AVRG	3.6	
2,4-Dinitrophenol	20.00	20.31	0.010	2ORDR	1.6	
Dibenzofuran	1.613	1.719	0.800	AVRG	6.6	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Instrument ID: NT10 — Cont. Calib. Date: 09/08/11

Init. Calib. Date: 08/05/11 — Cont. Calib. Time: 1152

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	10.00	10.12	0.010	2ORDR	1.2	
2,4-Dinitrotoluene	0.389	0.453	0.200	AVRG	16.4	
Fluorene	1.325	1.395	0.900	AVRG	5.3	
4-Chlorophenyl-phenylether	0.824	0.847	0.400	AVRG	2.8	
Diethylphthalate	1.377	1.695	0.010	AVRG	23.1	<-
4-Nitroaniline	0.276	0.270	0.010	AVRG	-2.2	
4,6-Dinitro-2-methylphenol	20.00	18.12	0.010	2ORDR	-9.4	
N-Nitrosodiphenylamine(1)	0.548	0.586	0.010	AVRG	6.9	
4-Bromophenyl-phenylether	0.271	0.302	0.100	AVRG	11.4	
Hexachlorobenzene	0.310	0.398	0.100	AVRG	28.4	<-
Pentachlorophenol	10.00	8.462	0.050	2ORDR	-15.4	
Phenanthrene	1.074	1.079	0.700	AVRG	0.5	
Anthracene	1.122	1.168	0.700	AVRG	4.1	
Carbazole	0.939	0.954	0.010	AVRG	1.6	
Di-n-butylphthalate	1.320	1.438	0.010	AVRG	8.9	
Fluoranthene	1.257	1.384	0.600	AVRG	10.1	
Pyrene	1.213	1.202	0.600	AVRG	-0.9	
Butylbenzylphthalate	0.497	0.538	0.010	AVRG	8.2	
Benzo(a)anthracene	1.082	1.317	0.800	AVRG	21.7	<-
3,3'-Dichlorobenzidine	0.555	0.549	0.010	AVRG	-1.1	
Chrysene	1.018	1.061	0.700	AVRG	4.2	
bis(2-Ethylhexyl)phthalate	0.599	0.607	0.010	AVRG	1.3	
Di-n-octylphthalate	1.045	1.063	0.010	AVRG	1.7	
Benzo(b)fluoranthene	1.204	1.178	0.700	AVRG	-2.2	
Benzo(k)fluoranthene	1.261	1.422	0.700	AVRG	12.8	
Benzo(a)pyrene	1.097	1.163	0.700	AVRG	6.0	
Indeno(1,2,3-cd)pyrene	1.327	1.467	0.500	AVRG	10.6	
Dibenzo(a,h)anthracene	1.080	1.149	0.400	AVRG	6.4	
Benzo(g,h,i)perylene	1.150	1.207	0.500	AVRG	5.0	
N-Nitrosodimethylamine	0.903	0.955	0.010	AVRG	5.8	
Aniline	2.068	2.055	0.010	AVRG	-0.6	
Benzidine	10.00	9.576	0.010	2ORDR	-4.2	
Perylene	0.988	0.968	0.010	AVRG	-2.0	
Pyridine	1.556	1.587	0.010	AVRG	2.0	
1-methylnaphthalene	0.692	0.756	0.010	AVRG	9.2	
Azobenzene (1,2-DP-Hydrazine	1.312	1.666	0.010	AVRG	27.0	<-

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Instrument ID: NT10 — Cont. Calib. Date: 09/08/11

Init. Calib. Date: 08/05/11 — Cont. Calib. Time: 1152

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Total Benzofluoranthenes	1.144	1.189	0.010	AVRG	3.9	
2-Fluorophenol	1.074	1.061	0.010	AVRG	-1.2	
Phenol-d5	1.431	1.509	0.010	AVRG	5.4	
2-Chlorophenol-d4	1.148	1.224	0.010	AVRG	6.6	
1,2-Dichlorobenzene-d4	0.874	0.951	0.010	AVRG	8.8	
Nitrobenzene-d5	0.338	0.388	0.010	AVRG	14.8	
2-Fluorobiphenyl	1.231	1.261	0.010	AVRG	2.4	
2,4,6-Tribromophenol	0.231	0.290	0.010	AVRG	25.5	<-
Terphenyl-d14	0.699	0.691	0.010	AVRG	-1.1	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-3

TK37:00106

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Ical Midpoint ID: IC0805A — Ical Date: 08/05/11

Instrument ID: NT10 — Cont. Cal Date: 09/08/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	275538	7.24	1032135	9.63	604541	13.14
	UPPER LIMIT	551076		2064270		1209082	
	LOWER LIMIT	137769		516068		302270	
	CCAL	185651	6.51	755429	8.87	488113	12.31
	UPPER LIMIT		7.01		9.37		12.81
	LOWER LIMIT		6.01		8.37		11.81
01	TK37MBS1	174799	6.51	647357	8.86	412045	12.31
02	TK37LCSS1	174996	6.51	674524	8.87	431278	12.31
03	TK37LCSDS1	173950	6.51	654147	8.87	429427	12.31
04	FRP-082911-0	168656	6.51	647160	8.87	405406	12.31
05	FRP-082911-0	177756	6.51	678168	8.87	401933	12.31
06	FRP-082911-0	174569	6.51	645104	8.86	400686	12.31
07	FRP-082911-0	177996	6.51	646836	8.86	395052	12.31
08	FRP-082911-0	176004	6.51	634101	8.86	407937	12.31
09	FRP-082911-0	176698	6.51	645071	8.87	387206	12.32
10	FRP-082911-0	174191	6.51	648133	8.87	398774	12.31
11	FRP-082911-0	175552	6.51	639492	8.87	399505	12.31
12	FRP-082911-0	169621	6.51	626600	8.87	395325	12.31
13	FRP-082911-0	164363	6.51	630599	8.87	392847	12.31
14	FRP-082911-0	163019	6.51	605236	8.87	376662	12.31
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Ical Midpoint ID: IC0805A — Ical Date: 08/05/11

Instrument ID: NT10 — Cont. Cal Date: 09/08/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1059570	16.07	1122672	21.01	1040136	23.23
	UPPER LIMIT	2119140		2245344		2080272	
	LOWER LIMIT	529785		561336		520068	
	CCAL	871395	15.20	1007650	20.19	980202	22.41
	UPPER LIMIT		15.70		20.69		22.91
	LOWER LIMIT		14.70		19.69		21.91
01	TK37MBS1	727431	15.20	801944	20.19	840803	22.41
02	TK37LCSS1	775599	15.20	860739	20.19	859936	22.41
03	TK37LCSDS1	737043	15.20	793056	20.19	847606	22.41
04	FRP-082911-0	738289	15.20	807579	20.19	774601	22.41
05	FRP-082911-0	724139	15.20	792296	20.19	837004	22.41
06	FRP-082911-0	725940	15.20	838100	20.19	832316	22.41
07	FRP-082911-0	692875	15.20	779733	20.19	801316	22.41
08	FRP-082911-0	697633	15.20	782360	20.19	761067	22.41
09	FRP-082911-0	654616	15.21	793128	20.19	789761	22.42
10	FRP-082911-0	757417	15.20	906842	20.19	820016	22.42
11	FRP-082911-0	709785	15.20	765431	20.19	776802	22.41
12	FRP-082911-0	684164	15.21	778997	20.19	792975	22.41
13	FRP-082911-0	690307	15.20	753061	20.19	773429	22.41
14	FRP-082911-0	656917	15.20	798566	20.19	841887	22.45
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No: TK37 — Project: FRP SHORELINE

Ical Midpoint ID: IC0805A — Ical Date: 08/05/11

Instrument ID: NT10 — Cont. Cal Date: 09/08/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1419293	22.23				
	UPPER LIMIT	2838586					
	LOWER LIMIT	709646					
	CCAL	1263675	21.49				
	UPPER LIMIT		21.99				
	LOWER LIMIT		20.99				
01	TK37MBS1	1009126	21.49				
02	TK37LCSS1	1090905	21.49				
03	TK37LCSDS1	1019313	21.49				
04	FRP-082911-0	1020259	21.49				
05	FRP-082911-0	1042866	21.49				
06	FRP-082911-0	1072420	21.49				
07	FRP-082911-0	985487	21.49				
08	FRP-082911-0	1009548	21.49				
09	FRP-082911-0	986172	21.49				
10	FRP-082911-0	1060751	21.49				
11	FRP-082911-0	978649	21.49				
12	FRP-082911-0	1003377	21.49				
13	FRP-082911-0	1012049	21.49				
14	FRP-082911-0	1027130	21.51				
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS7 = Di-n-octylphthalate-d4

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

PCB Analysis
Report and Summary QC Forms

ARI Job ID: TK37

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-021
SAMPLE

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 00:30
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.1 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 8.6%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.98	3.8	< 3.8 U
53469-21-9	Aroclor 1242	1.3	3.8	< 3.8 U
12672-29-6	Aroclor 1248	1.3	3.8	< 3.8 U
11097-69-1	**Aroclor 1254**	**1.3**	**3.8**	**11**
11096-82-5	**Aroclor 1260**	**1.3**	**3.8**	**20**
11104-28-2	Aroclor 1221	1.3	3.8	< 3.8 U
11141-16-5	Aroclor 1232	1.3	3.8	< 3.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	137%
Tetrachlorometaxylene	76.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-022
SAMPLE

Lab Sample ID: TK37B
LIMS ID: 11-18810
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 01:39
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 12.7 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 25.3%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	1.0	3.9	< 3.9 U
53469-21-9	Aroclor 1242	1.3	3.9	< 3.9 U
12672-29-6	Aroclor 1248	1.3	3.9	< 3.9 U
11097-69-1	Aroclor 1254	1.3	3.9	< 3.9 U
11096-82-5	Aroclor 1260	1.3	3.9	< 3.9 U
11104-28-2	Aroclor 1221	1.3	3.9	< 3.9 U
11141-16-5	Aroclor 1232	1.3	3.9	< 3.9 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	54.8%
Tetrachlorometaxylene	55.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-023
SAMPLE

Lab Sample ID: TK37C
LIMS ID: 11-18811
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 02:02
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 12.9 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 24.4%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.99	3.9	< 3.9 U
53469-21-9	Aroclor 1242	1.3	3.9	< 3.9 U
12672-29-6	Aroclor 1248	1.3	3.9	< 3.9 U
11097-69-1	Aroclor 1254	1.3	3.9	< 3.9 U
11096-82-5	Aroclor 1260	1.3	3.9	< 3.9 U
11104-28-2	Aroclor 1221	1.3	3.9	< 3.9 U
11141-16-5	Aroclor 1232	1.3	3.9	< 3.9 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	62.0%
Tetrachlorometaxylene	62.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-024
SAMPLE

Lab Sample ID: TK37D
LIMS ID: 11-18812
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 02:25
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.0 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 23.8%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.98	3.8	< 3.8 U
53469-21-9	Aroclor 1242	1.3	3.8	< 3.8 U
12672-29-6	Aroclor 1248	1.3	3.8	< 3.8 U
11097-69-1	Aroclor 1254	1.3	3.8	< 3.8 U
11096-82-5	Aroclor 1260	1.3	3.8	< 3.8 U
11104-28-2	Aroclor 1221	1.3	3.8	< 3.8 U
11141-16-5	Aroclor 1232	1.3	3.8	< 3.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	52.8%
Tetrachlorometaxylene	55.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-025
SAMPLE

Lab Sample ID: TK37E
LIMS ID: 11-18813
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 02:47
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.2 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 23.5%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.97	3.8	< 3.8 U
53469-21-9	Aroclor 1242	1.3	3.8	< 3.8 U
12672-29-6	Aroclor 1248	1.3	3.8	< 3.8 U
11097-69-1	Aroclor 1254	1.3	3.8	< 3.8 U
11096-82-5	Aroclor 1260	1.3	3.8	< 3.8 U
11104-28-2	Aroclor 1221	1.3	3.8	< 3.8 U
11141-16-5	Aroclor 1232	1.3	3.8	< 3.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.2%
Tetrachlorometaxylene	64.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-027
SAMPLE

Lab Sample ID: TK37F
LIMS ID: 11-18814
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 03:10
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.3 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 12.0%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.96	3.8	< 3.8 U
53469-21-9	Aroclor 1242	1.3	3.8	< 3.8 U
12672-29-6	Aroclor 1248	1.3	6.6	< 6.6 U
11097-69-1	**Aroclor 1254**	**1.3**	**3.8**	**50**
11096-82-5	**Aroclor 1260**	**1.3**	**3.8**	**53**
11104-28-2	Aroclor 1221	1.3	3.8	< 3.8 U
11141-16-5	Aroclor 1232	1.3	3.8	< 3.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	72.0%
Tetrachlorometaxylene	64.5%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-028
SAMPLE

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 03:33
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.5 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 11.4%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.94	3.7	< 3.7 U
53469-21-9	Aroclor 1242	1.3	3.7	< 3.7 U
12672-29-6	Aroclor 1248	1.3	3.7	< 3.7 U
11097-69-1	Aroclor 1254	1.3	3.7	< 3.7 U
11096-82-5	Aroclor 1260	1.3	3.7	< 3.7 U
11104-28-2	Aroclor 1221	1.3	3.7	< 3.7 U
11141-16-5	Aroclor 1232	1.3	3.7	< 3.7 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	63.0%
Tetrachlorometaxylene	58.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-029
SAMPLE

Lab Sample ID: TK37H
LIMS ID: 11-18816
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 04:41
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 12.7 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 26.2%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	1.0	3.9	< 3.9 U
53469-21-9	Aroclor 1242	1.3	3.9	< 3.9 U
12672-29-6	Aroclor 1248	1.3	3.9	< 3.9 U
11097-69-1	Aroclor 1254	1.3	3.9	< 3.9 U
11096-82-5	Aroclor 1260	1.3	3.9	< 3.9 U
11104-28-2	Aroclor 1221	1.3	3.9	< 3.9 U
11141-16-5	Aroclor 1232	1.3	3.9	< 3.9 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.5%
Tetrachlorometaxylene	62.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-030
SAMPLE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 05:04
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.3 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 17.2%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.96	3.8	< 3.8 U
53469-21-9	Aroclor 1242	1.3	3.8	< 3.8 U
12672-29-6	Aroclor 1248	1.3	3.8	< 3.8 U
11097-69-1	Aroclor 1254	1.3	9.4	< 9.4 U
11096-82-5	**Aroclor 1260**	**1.3**	**3.8**	**7.6**
11104-28-2	Aroclor 1221	1.3	3.8	< 3.8 U
11141-16-5	Aroclor 1232	1.3	3.8	< 3.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.2%
Tetrachlorometaxylene	60.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
FRP-082911-021	137%	34-141	76.8%	38-102	0
FRP-082911-022	54.8%	34-141	55.2%	38-102	0
FRP-082911-023	62.0%	34-141	62.2%	38-102	0
FRP-082911-024	52.8%	34-141	55.8%	38-102	0
FRP-082911-025	71.2%	34-141	64.8%	38-102	0
FRP-082911-027	72.0%	34-141	64.5%	38-102	0
MB-090511	85.0%	40-109	66.5%	35-100	0
LCS-090511	77.2%	40-109	64.5%	35-100	0
LCSD-090511	85.8%	40-109	69.0%	35-100	0
FRP-082911-028	63.0%	34-141	58.2%	38-102	0
FRP-082911-028 MS	61.0%	34-141	54.2%	38-102	0
FRP-082911-028 MSD	78.0%	34-141	61.2%	38-102	0
FRP-082911-029	74.5%	34-141	62.2%	38-102	0
FRP-082911-030	79.2%	34-141	60.8%	38-102	0

Microwave (MARS) Control Limits PCBSMM
Prep Method: SW3546
Log Number Range: 11-18809 to 11-18817

FORM-II SW8082

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-028
MS/MSD

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted MS/MSD: 09/05/11

Date Analyzed MS: 09/09/11 03:56
MSD: 09/09/11 04:19
Instrument/Analyst MS: ECD7/JGR
MSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount MS: 13.3 g-dry-wt
MSD: 13.4 g-dry-wt
Final Extract Volume MS: 2.5 mL
MSD: 2.5 mL
Dilution Factor MS: 1.00
MSD: 1.00
Silica Gel: Yes

Percent Moisture: 11.4%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 3.7 U	51.9	94.5	54.9%	64.4	94.0	68.5%	21.5%
Aroclor 1260	< 3.7 U	56.9	94.5	60.2%	74.2	94.0	78.9%	26.4%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

FORM III

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-028
MATRIX SPIKE

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 03:56
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.3 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 11.4%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.96	3.8	---
53469-21-9	Aroclor 1242	1.3	3.8	< 3.8 U
12672-29-6	Aroclor 1248	1.3	3.8	< 3.8 U
11097-69-1	Aroclor 1254	1.3	3.8	< 3.8 U
11096-82-5	Aroclor 1260	1.3	3.8	---
11104-28-2	Aroclor 1221	1.3	3.8	< 3.8 U
11141-16-5	Aroclor 1232	1.3	3.8	< 3.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	61.0%
Tetrachlorometaxylene	54.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: FRP-082911-028
MATRIX SPIKE DUP

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted: 09/05/11
Date Analyzed: 09/09/11 04:19
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 13.4 g-dry-wt
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 11.4%

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	0.95	3.7	---
53469-21-9	Aroclor 1242	1.3	3.7	< 3.7 U
12672-29-6	Aroclor 1248	1.3	3.7	< 3.7 U
11097-69-1	Aroclor 1254	1.3	3.7	< 3.7 U
11096-82-5	Aroclor 1260	1.3	3.7	---
11104-28-2	Aroclor 1221	1.3	3.7	< 3.7 U
11141-16-5	Aroclor 1232	1.3	3.7	< 3.7 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	78.0%
Tetrachlorometaxylene	61.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: LCS-090511
LCS/LCSD

Lab Sample ID: LCS-090511
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 09/05/11

Date Analyzed LCS: 09/08/11 23:22
LCSD: 09/08/11 23:45
Instrument/Analyst LCS: ECD7/JGR
LCSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount LCS: 12.5 g-dry-wt
LCSD: 12.5 g-dry-wt
Final Extract Volume LCS: 2.50 mL
LCSD: 2.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	68.1	101	67.4%	72.6	101	71.9%	6.4%
Aroclor 1260	83.4	101	82.6%	93.1	101	92.2%	11.0%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	77.2%	85.8%
Tetrachlorometaxylene	64.5%	69.0%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

PCB METHOD BLANK SUMMARY

BLANK NO.

TK37MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No.: TK37

Project: FRP SHORELINE INVEST

Lab Sample ID: TK37MBS1

Lab File ID: 0908A034

Date Extracted: 09/05/11

Matrix: SOLID

Date Analyzed: 09/08/11

Instrument ID: ECD7

Time Analyzed: 2259

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	TK37LCSS1	TK37LCSS1	09/08/11
02	TK37LCSDS1	TK37LCSDS1	09/08/11
03	FRP-082911-021	TK37A	09/09/11
04	FRP-082911-022	TK37B	09/09/11
05	FRP-082911-023	TK37C	09/09/11
06	FRP-082911-024	TK37D	09/09/11
07	FRP-082911-025	TK37E	09/09/11
08	FRP-082911-027	TK37F	09/09/11
09	FRP-082911-028	TK37G	09/09/11
10	FRP-082911-028 MS	TK37GMS	09/09/11
11	FRP-082911-028 MSD	TK37GMSD	09/09/11
12	FRP-082911-029	TK37H	09/09/11
13	FRP-082911-030	TK37I	09/09/11

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

TK37:00125

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD

Sample ID: MB-090511
METHOD BLANK

Lab Sample ID: MB-090511
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: NA
Date Received: NA

Date Extracted: 09/05/11
Date Analyzed: 09/08/11 22:59
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 12.5 g
Final Extract Volume: 2.5 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	MDL	RL	Result
12674-11-2	Aroclor 1016	1.0	4.0	< 4.0 U
53469-21-9	Aroclor 1242	1.4	4.0	< 4.0 U
12672-29-6	Aroclor 1248	1.4	4.0	< 4.0 U
11097-69-1	Aroclor 1254	1.4	4.0	< 4.0 U
11096-82-5	Aroclor 1260	1.4	4.0	< 4.0 U
11104-28-2	Aroclor 1221	1.4	4.0	< 4.0 U
11141-16-5	Aroclor 1232	1.4	4.0	< 4.0 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	85.0%
Tetrachlorometaxylene	66.5%

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No.: TK37

Project: FRP SHORELINE

GC Column: ZB5

Instrument ID: ECD7

Calibration Date: 08/24/11

SURROGATES

RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX 6.19- 6.39	1.0452	1.0550	1.0899	1.0981	1.1101	1.1018	1.0833	2.5
DCB 14.78-14.98	1.0145	1.0347	1.0720	1.0497	1.0484	0.9901	1.0349	2.8

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	8.20- 8.40	0.0292	0.0271	0.0267	0.0252	0.0251	0.0241	0.0262	6.9
2	8.69- 8.89	0.0967	0.0933	0.0918	0.0866	0.0865	0.0833	0.0897	5.6
3	8.86- 9.06	0.0385	0.0365	0.0356	0.0333	0.0330	0.0316	0.0347	7.4
4	8.99- 9.19	0.0268	0.0251	0.0244	0.0230	0.0229	0.0221	0.0240	7.3

AROCLOR AVERAGE %RSD = 6.8

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.75-11.95	0.0814	0.0751	0.0725	0.0686	0.0680	0.0636	0.0715	8.7
2	12.36-12.56	0.0504	0.0482	0.0471	0.0446	0.0444	0.0414	0.0460	7.0
3	12.67-12.87	0.0506	0.0485	0.0477	0.0456	0.0455	0.0427	0.0468	5.9
4	13.40-13.60	0.0626	0.0616	0.0610	0.0584	0.0590	0.0551	0.0596	4.5
5	13.51-13.71	0.0258	0.0248	0.0240	0.0225	0.0224	0.0206	0.0234	8.0

AROCLOR AVERAGE %RSD = 6.8

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No.: TK37

Project: FRP SHORELINE

GC Column: ZB35

Instrument ID: ECD7

Calibration Date: 08/24/11

SURROGATES

RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX 6.33- 6.53	1.2159	1.1448	1.1451	1.1065	1.1123	1.0836	1.1347	4.1
DCB 15.13-15.33	1.2209	1.0778	1.0560	0.9837	0.9792	0.9360	1.0423	9.8

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	8.47- 8.67	0.0549	0.0500	0.0464	0.0410	0.0400	0.0375	0.0450	14.8
2	9.20- 9.40	0.1086	0.0972	0.0932	0.0840	0.0847	0.0809	0.0914	11.4
3	9.63- 9.83	0.0315	0.0268	0.0247	0.0215	0.0213	0.0200	0.0243	17.8
4	9.73- 9.93	0.0336	0.0300	0.0280	0.0237	0.0234	0.0217	0.0267	17.2

AROCLOR AVERAGE %RSD = 15.3

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	13.20-13.40	0.0662	0.0604	0.0576	0.0505	0.0507	0.0477	0.0555	0.9980
2	13.44-13.64	0.1286	0.1175	0.1140	0.1038	0.1061	0.1024	0.1121	0.9994
3	13.93-14.13	0.1046	0.0858	0.0795	0.0704	0.0700	0.0663	0.0794	0.9980
4	14.49-14.69	0.0429	0.0327	0.0306	0.0265	0.0255	0.0245	0.0304	0.9977

AROCLOR AVERAGE R^2 = 0.9983

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 08/25/11

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.736	6.64- 6.84	0.01083
2	6.948	6.85- 7.05	0.00810
3	7.072	6.97- 7.17	0.02658

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	8.297	8.20- 8.40	0.01094
2	8.783	8.68- 8.88	0.03717
3	8.958	8.86- 9.06	0.01462
4	10.272	10.17-10.37	0.01317

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	8.303	8.20- 8.40	0.02085
2	8.789	8.69- 8.89	0.07132
3	8.963	8.86- 9.06	0.02751
4	10.583	10.48-10.68	0.02573

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	9.361	9.26- 9.46	0.02708
2	9.693	9.59- 9.79	0.03254
3	10.277	10.18-10.38	0.03911
4	10.583	10.48-10.68	0.03697

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No.: TK37 — Project: FRP SHORELINE

GC Column: ZB5 — Instrument ID: ECD7

Calibration Date: 08/25/11

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.345	10.24-10.44	0.04350
2	10.667	10.57-10.77	0.06046
3	11.052	10.95-11.15	0.03802
4	11.191	11.09-11.29	0.07199
5	11.909	11.81-12.01	0.04843

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.451	12.35-12.55	0.07959
2	12.767	12.67-12.87	0.06441
3	13.130	13.03-13.23	0.15006
4	13.601	13.50-13.70	0.05961
5	13.665	13.56-13.76	0.06042

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.601	13.50-13.70	0.16932
2	13.663	13.56-13.76	0.15253
3	13.986	13.89-14.09	0.13022
4	14.588	14.49-14.69	0.39235

TK37:00130

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC — Client: AMEC GEOMATRIX

ARI Job No.: TK37 — Project: FRP SHORELINE

GC Column: ZB35 — Instrument ID: ECD7

Calibration Date: 08/25/11

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	7.255	7.15- 7.35	0.01302
2	7.557	7.46- 7.66	0.00788
3	7.697	7.60- 7.80	0.02386
4	7.784	7.68- 7.88	0.00396

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	8.566	8.47- 8.67	0.02088
2	9.294	9.19- 9.39	0.03916
3	9.723	9.62- 9.82	0.01069
4	11.189	11.09-11.29	0.01779

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	8.567	8.47- 8.67	0.03454
2	9.298	9.20- 9.40	0.07104
3	9.725	9.62- 9.82	0.01873
4	11.190	11.09-11.29	0.02957

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	9.834	9.73- 9.93	0.03184
2	10.281	10.18-10.38	0.03614
3	10.829	10.73-10.93	0.03495
4	11.191	11.09-11.29	0.04400

TK37:00131

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 08/25/11

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.898	10.80-11.00	0.03528
2	11.068	10.97-11.17	0.04597
3	11.606	11.51-11.71	0.03633
4	11.758	11.66-11.86	0.07690
5	12.543	12.44-12.64	0.04678

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.859	12.76-12.96	0.07350
2	13.303	13.20-13.40	0.06955
3	13.539	13.44-13.64	0.13788
4	13.983	13.88-14.08	0.06248
5	14.035	13.93-14.13	0.09176

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.982	13.88-14.08	0.15335
2	14.037	13.94-14.14	0.14423
3	14.350	14.25-14.45	0.11829
4	14.938	14.84-15.04	0.36923

TK37:00132

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/08/11

Lab Standard ID: AR1248 Time Analyzed :2020

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	9.36	9.26	9.46	241.0	250.0	-3.6
Aroclor-1248-2	9.69	9.59	9.79	242.6	250.0	-3.0
Aroclor-1248-3	10.28	10.18	10.38	241.7	250.0	-3.3
Aroclor-1248-4	10.58	10.48	10.68	236.0	250.0	-5.6

AVERAGE %D = 3.9

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No.: TK37

Project: FRP SHORELINE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/08/11

Lab Standard ID: AR1248

Time Analyzed :2020

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	9.83	9.73	9.93	244.6	250.0	-2.2
Aroclor-1248-2	10.28	10.18	10.38	236.3	250.0	-5.5
Aroclor-1248-3	10.83	10.73	10.93	242.2	250.0	-3.1
Aroclor-1248-4	11.19	11.09	11.29	244.7	250.0	-2.1

AVERAGE %D = 3.2

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: AMEC GEOMATRIX

ARI Job No.: TK37
Project: FRP SHORELINE

GC Column: ZB5
Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/08/11

Lab Standard ID: AR1660
Time Analyzed :2042

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.30	8.20	8.40	242.5	250.0	-3.0
Aroclor-1016-2	8.79	8.69	8.89	244.6	250.0	-2.1
Aroclor-1016-3	8.96	8.86	9.06	243.9	250.0	-2.4
Aroclor-1016-4	9.09	8.99	9.19	239.5	250.0	-4.2

AVERAGE %D = 2.9

Date Analyzed :09/08/11

Lab Standard ID: AR1660
Time Analyzed :2042

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.85	11.75	11.95	250.4	250.0	0.2
Aroclor-1260-2	12.46	12.36	12.56	256.5	250.0	2.6
Aroclor-1260-3	12.77	12.67	12.87	255.5	250.0	2.2
Aroclor-1260-4	13.51	13.40	13.60	262.9	250.0	5.2
Aroclor-1260-5	13.61	13.51	13.71	259.2	250.0	3.7

AVERAGE %D = 2.8

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/08/11

Lab Standard ID: AR1660 Time Analyzed :2042

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.57	8.47	8.67	238.1	250.0	-4.8
Aroclor-1016-2	9.30	9.20	9.40	241.9	250.0	-3.2
Aroclor-1016-3	9.73	9.63	9.83	228.2	250.0	-8.7
Aroclor-1016-4	9.83	9.73	9.93	238.5	250.0	-4.6

AVERAGE %D = 5.3

Date Analyzed :09/08/11

Lab Standard ID: AR1660 Time Analyzed :2042

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	13.30	13.20	13.40	287.0	250.0	14.8
Aroclor-1260-2	13.54	13.44	13.64	275.7	250.0	10.3
Aroclor-1260-3	14.04	13.93	14.13	271.9	250.0	8.8
Aroclor-1260-4	14.59	14.49	14.69	258.7	250.0	3.5

AVERAGE %D = 9.4

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1254 Time Analyzed :0053

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.34	10.24	10.44	209.0	250.0	-16.4
Aroclor-1254-2	10.67	10.57	10.77	200.2	250.0	-19.9
Aroclor-1254-3	11.05	10.95	11.15	201.4	250.0	-19.4
Aroclor-1254-4	11.19	11.09	11.29	209.8	250.0	-16.1
Aroclor-1254-5	11.91	11.81	12.01	247.0	250.0	-1.2

AVERAGE %D = 14.6

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: AMEC GEOMATRIX

ARI Job No.: TK37
Project: FRP SHORELINE

GC Column: ZB35
Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1254
Time Analyzed :0053

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.90	10.80	11.00	196.8	250.0	-21.3
Aroclor-1254-2	11.07	10.97	11.17	188.3	250.0	-24.7
Aroclor-1254-3	11.61	11.51	11.71	192.7	250.0	-22.9
Aroclor-1254-4	11.76	11.66	11.86	200.7	250.0	-19.7
Aroclor-1254-5	12.54	12.44	12.64	195.8	250.0	-21.7

AVERAGE %D = 22.1

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX

ARI Job No.: TK37

Project: FRP SHORELINE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1660

Time Analyzed :0116

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.30	8.20	8.40	242.1	250.0	-3.2
Aroclor-1016-2	8.79	8.69	8.89	241.9	250.0	-3.2
Aroclor-1016-3	8.96	8.86	9.06	241.4	250.0	-3.4
Aroclor-1016-4	9.09	8.99	9.19	240.2	250.0	-3.9

AVERAGE %D = 3.4

Date Analyzed :09/09/11

Lab Standard ID: AR1660

Time Analyzed :0116

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.85	11.75	11.95	264.6	250.0	5.8
Aroclor-1260-2	12.46	12.36	12.56	266.8	250.0	6.7
Aroclor-1260-3	12.77	12.67	12.87	263.5	250.0	5.4
Aroclor-1260-4	13.51	13.40	13.60	255.3	250.0	2.1
Aroclor-1260-5	13.61	13.51	13.71	258.2	250.0	3.3

AVERAGE %D = 4.7

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: AMEC GEOMATRIX

ARI Job No.: TK37
Project: FRP SHORELINE

GC Column: ZB35
Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1660
Time Analyzed :0116

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.57	8.47	8.67	231.3	250.0	-7.5
Aroclor-1016-2	9.30	9.20	9.40	233.4	250.0	-6.6
Aroclor-1016-3	9.73	9.63	9.83	223.4	250.0	-10.6
Aroclor-1016-4	9.83	9.73	9.93	229.7	250.0	-8.1

AVERAGE %D = 8.2

Date Analyzed :09/09/11

Lab Standard ID: AR1660
Time Analyzed :0116

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	13.30	13.20	13.40	272.1	250.0	8.8
Aroclor-1260-2	13.54	13.44	13.64	255.9	250.0	2.4
Aroclor-1260-3	14.04	13.93	14.13	273.9	250.0	9.5
Aroclor-1260-4	14.59	14.49	14.69	258.8	250.0	3.5

AVERAGE %D = 6.1

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1248 Time Analyzed :0527

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	9.36	9.26	9.46	242.2	250.0	-3.1
Aroclor-1248-2	9.69	9.59	9.79	243.6	250.0	-2.6
Aroclor-1248-3	10.28	10.18	10.38	241.2	250.0	-3.5
Aroclor-1248-4	10.58	10.48	10.68	238.0	250.0	-4.8

AVERAGE %D = 3.5

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1248 Time Analyzed :0527

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	9.83	9.73	9.93	248.0	250.0	-0.8
Aroclor-1248-2	10.28	10.18	10.38	240.2	250.0	-3.9
Aroclor-1248-3	10.83	10.73	10.93	246.0	250.0	-1.6
Aroclor-1248-4	11.19	11.09	11.29	248.8	250.0	-0.5

AVERAGE %D = 1.7

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: AMEC GEOMATRIX

ARI Job No.: TK37
Project: FRP SHORELINE

GC Column: ZB5
Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1660
Time Analyzed :0550

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.30	8.20	8.40	245.8	250.0	-1.7
Aroclor-1016-2	8.79	8.69	8.89	247.8	250.0	-0.9
Aroclor-1016-3	8.96	8.86	9.06	247.6	250.0	-1.0
Aroclor-1016-4	9.09	8.99	9.19	246.4	250.0	-1.4

AVERAGE %D = 1.2

Date Analyzed :09/09/11

Lab Standard ID: AR1660
Time Analyzed :0550

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.85	11.75	11.95	255.1	250.0	2.0
Aroclor-1260-2	12.46	12.36	12.56	258.9	250.0	3.6
Aroclor-1260-3	12.77	12.67	12.87	259.4	250.0	3.8
Aroclor-1260-4	13.50	13.40	13.60	263.9	250.0	5.6
Aroclor-1260-5	13.61	13.51	13.71	260.1	250.0	4.0

AVERAGE %D = 3.8

FORM VII PCB

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC
Client: AMEC GEOMATRIX

ARI Job No.: TK37
Project: FRP SHORELINE

GC Column: ZB35
Intrument: ECD7

Init. Calib. Date: 08/24/11

Date Analyzed :09/09/11

Lab Standard ID: AR1660
Time Analyzed :0550

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.57	8.47	8.67	238.3	250.0	-4.7
Aroclor-1016-2	9.30	9.20	9.40	245.4	250.0	-1.8
Aroclor-1016-3	9.73	9.63	9.83	237.9	250.0	-4.8
Aroclor-1016-4	9.83	9.73	9.93	244.6	250.0	-2.1

AVERAGE %D = 3.4

Date Analyzed :09/09/11

Lab Standard ID: AR1660
Time Analyzed :0550

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	13.30	13.20	13.40	294.8	250.0	17.9
Aroclor-1260-2	13.54	13.44	13.64	278.5	250.0	11.4
Aroclor-1260-3	14.03	13.93	14.13	286.5	250.0	14.6
Aroclor-1260-4	14.59	14.49	14.69	299.9	250.0	19.9

AVERAGE %D = 15.9

FORM VII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 08/24/11

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	IS1 AREA	RT	IS2 AREA	RT
ICAL MIDPT	6999182	3.302	6201786	15.135
UPPER LIMIT	13998364	3.402	12403572	15.235
LOWER LIMIT	3499591	3.202	3100893	15.035

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	08/24/11	2126	6370680	3.302	5776154	15.133
02		0.25 PPM AR1	08/24/11	2149	6999182	3.302	6201786	15.135
03		0.02 PPM AR1	08/24/11	2212	6743940	3.302	5938219	15.134
04		0.05 PPM AR1	08/24/11	2234	6714372	3.301	5991859	15.134
05		1 PPM AR1660	08/24/11	2257	7017523	3.304	6490078	15.134
06		0.1 PPM AR16	08/24/11	2320	6927904	3.302	6211945	15.134
07		0.5 PPM AR16	08/24/11	2343	6956794	3.300	6245762	15.135
08		AR1242	08/25/11	0006	6922055	3.301	6140500	15.134
09		AR1248	08/25/11	0029	4888507	3.304	4437388	15.134
10		AR1254	08/25/11	0051	4814982	3.303	4383330	15.134
11		AR2162	08/25/11	0114	6940165	3.304	6190231	15.134
12		AR3268	08/25/11	0137	4800678	3.304	4364333	15.135
13	ZZZZZ	ZZZZZ	08/25/11	0200	4846715	3.302	4474421	15.134
14	ZZZZZ	ZZZZZ	08/25/11	0223	4947162	3.306	4549464	15.135
15	ZZZZZ	ZZZZZ	08/25/11	0246	4715805	3.306	4355331	15.135
16	ZZZZZ	ZZZZZ	08/25/11	0308	4847196	3.305	4504071	15.135
17	ZZZZZ	ZZZZZ	08/25/11	0331	4836275	3.306	4497278	15.135
18	ZZZZZ	ZZZZZ	08/25/11	0354	4780999	3.305	4442349	15.135
19		AR1248	09/08/11	2020	5724014	3.312	5063171	15.138
20		AR1660	09/08/11	2042	5510215	3.309	4972256	15.138
21	TK37MBS1	TK37MBS1	09/08/11	2259	5670925	3.310	5243212	15.137
22	TK37LCSS1	TK37LCSS1	09/08/11	2322	5576416	3.311	5245990	15.138
23	TK37LCSDS1	TK37LCSDS1	09/08/11	2345	5383843	3.309	5024569	15.138
24	ZZZZZ	ZZZZZ	09/09/11	0008	5565913	3.310	5280474	15.138
25	FRP-082911-0	TK37A	09/09/11	0030	5325500	3.309	4764961	15.139
26		AR1254	09/09/11	0053	5787160	3.310	4830074	15.138
27		AR1660	09/09/11	0116	5433491	3.311	4135049	15.139
28	FRP-082911-0	TK37B	09/09/11	0139	5864718	3.310	4835057	15.137
29	FRP-082911-0	TK37C	09/09/11	0202	5612497	3.310	4837277	15.137
30	FRP-082911-0	TK37D	09/09/11	0225	5286396	3.312	4642280	15.137
31	FRP-082911-0	TK37E	09/09/11	0247	5497544	3.310	4795804	15.137
32	FRP-082911-0	TK37F	09/09/11	0310	5683452	3.309	5105009	15.137

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 08/24/11

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	IS1 AREA	RT	IS2 AREA	RT
ICAL MIDPT	6999182	3.302	6201786	15.135
UPPER LIMIT	13998364	3.402	12403572	15.235
LOWER LIMIT	3499591	3.202	3100893	15.035

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
33	FRP-082911-0	TK37G	09/09/11	0333	5543512	3.311	5256426	15.138
34	FRP-082911-0	TK37GMS	09/09/11	0356	5496777	3.311	4906921	15.137
35	FRP-082911-0	TK37GMSD	09/09/11	0419	5278345	3.310	4712996	15.138
36	FRP-082911-0	TK37H	09/09/11	0441	5527357	3.308	4259780	15.137
37	FRP-082911-0	TK37I	09/09/11	0504	5891038	3.308	5060870	15.138
38		AR1248	09/09/11	0527	6038064	3.310	5286552	15.139
39		AR1660	09/09/11	0550	5585744	3.310	5017842	15.138

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 08/24/11

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	IS1 AREA	RT	IS2 AREA	RT
ICAL MIDPT	10528498	4.169	8878287	15.809
UPPER LIMIT	21056996	4.269	17756574	15.909
LOWER LIMIT	5264249	4.069	4439144	15.709

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	08/24/11	2126	9923751	4.170	8517683	15.808
02		0.25 PPM AR1	08/24/11	2149	10528498	4.169	8878287	15.809
03		0.02 PPM AR1	08/24/11	2212	10209316	4.170	8509957	15.810
04		0.05 PPM AR1	08/24/11	2234	10206583	4.168	8485148	15.809
05		1 PPM AR1660	08/24/11	2257	10632599	4.171	9146678	15.809
06		0.1 PPM AR16	08/24/11	2320	10462782	4.169	8732994	15.809
07		0.5 PPM AR16	08/24/11	2343	10430908	4.169	8809442	15.809
08		AR1242	08/25/11	0006	10304853	4.168	8743921	15.809
09		AR1248	08/25/11	0029	7380800	4.170	6266898	15.809
10		AR1254	08/25/11	0051	7265381	4.171	6174204	15.809
11		AR2162	08/25/11	0114	10334293	4.170	8793015	15.809
12		AR3268	08/25/11	0137	7176174	4.170	6167962	15.809
13	ZZZZZ	ZZZZZ	08/25/11	0200	7325326	4.170	6278126	15.809
14	ZZZZZ	ZZZZZ	08/25/11	0223	7478110	4.171	6372925	15.810
15	ZZZZZ	ZZZZZ	08/25/11	0246	7100471	4.172	6111559	15.810
16	ZZZZZ	ZZZZZ	08/25/11	0308	7361017	4.172	6278878	15.809
17	ZZZZZ	ZZZZZ	08/25/11	0331	7285743	4.171	6285010	15.809
18	ZZZZZ	ZZZZZ	08/25/11	0354	7199969	4.172	6172296	15.809
19		AR1248	09/08/11	2020	8611169	4.175	7421448	15.810
20		AR1660	09/08/11	2042	8250947	4.174	6926155	15.810
21	TK37MBS1	TK37MBS1	09/08/11	2259	8472578	4.174	7413998	15.809
22	TK37LCSS1	TK37LCSS1	09/08/11	2322	8538493	4.174	7185659	15.809
23	TK37LCSDS1	TK37LCSDS1	09/08/11	2345	8232047	4.173	6875922	15.809
24	ZZZZZ	ZZZZZ	09/09/11	0008	8573358	4.174	7251526	15.809
25	FRP-082911-0	TK37A	09/09/11	0030	8098118	4.174	7837565	15.809
26		AR1254	09/09/11	0053	8798991	4.175	9537503	15.810
27		AR1660	09/09/11	0116	8273501	4.174	6288854	15.811
28	FRP-082911-0	TK37B	09/09/11	0139	8959204	4.174	7279380	15.809
29	FRP-082911-0	TK37C	09/09/11	0202	8600483	4.174	6932153	15.808
30	FRP-082911-0	TK37D	09/09/11	0225	8069277	4.175	6561570	15.809
31	FRP-082911-0	TK37E	09/09/11	0247	8420854	4.175	6830580	15.808
32	FRP-082911-0	TK37F	09/09/11	0310	8718289	4.174	20586493*	15.888

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

ARI Job No.: TK37 Project: FRP SHORELINE

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 08/24/11

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	IS1 AREA	RT	IS2 AREA	RT
ICAL MIDPT	10528498	4.169	8878287	15.809
UPPER LIMIT	21056996	4.269	17756574	15.909
LOWER LIMIT	5264249	4.069	4439144	15.709

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
33	FRP-082911-0	TK37G	09/09/11	0333	8192946	4.175	9956522	15.809
34	FRP-082911-0	TK37GMS	09/09/11	0356	8070503	4.175	7448076	15.809
35	FRP-082911-0	TK37GMSD	09/09/11	0419	7890817	4.175	6997373	15.809
36	FRP-082911-0	TK37H	09/09/11	0441	8201580	4.173	7181758	15.808
37	FRP-082911-0	TK37I	09/09/11	0504	8905786	4.173	7620281	15.809
38		AR1248	09/09/11	0527	9115931	4.174	7593268	15.809
39		AR1660	09/09/11	0550	8466454	4.174	6957551	15.809

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

TPHD Analysis
Report and Summary QC Forms

ARI Job ID: TK37

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1
Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 201 8769

Data Release Authorized:
Reported: 09/12/11

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	MDL	RL	Result
MB-090211	Method Blank	09/02/11	09/05/11	1.00	Diesel	1.3	5.0	< 5.0 U
11-18809	HC ID: ---		FID4A	1.0	Motor Oil	1.6	10	< 10 U
					o-Terphenyl			91.2%
TK37A	FRP-082911-021	09/02/11	09/06/11	1.00	**Diesel**	**2.8**	**11**	**27** J
11-18809	HC ID: **DRO/MOTOR OIL**		FID4A	2.0	**Motor Oil**	**3.4**	**22**	**420** J
					o-Terphenyl			80.4%
TK37B	FRP-082911-022	09/02/11	09/05/11	1.00	Diesel	1.7	6.7	< 6.7 U
11-18810	HC ID: ---		FID4A	1.0	Motor Oil	2.1	13	< 13 U
					o-Terphenyl			77.8%
TK37C	FRP-082911-023	09/02/11	09/05/11	1.00	Diesel	1.7	6.6	< 6.6 U
11-18811	HC ID: ---		FID4A	1.0	Motor Oil	2.1	13	< 13 U
					o-Terphenyl			79.4%
TK37D	FRP-082911-024	09/02/11	09/05/11	1.00	Diesel	1.7	6.5	< 6.5 U
11-18812	HC ID: ---		FID4A	1.0	Motor Oil	2.1	13	< 13 U
					o-Terphenyl			77.1%
TK37E	FRP-082911-025	09/02/11	09/05/11	1.00	Diesel	1.7	6.5	< 6.5 U
11-18813	HC ID: ---		FID4A	1.0	Motor Oil	2.0	13	< 13 U
					o-Terphenyl			87.0%
TK37F	FRP-082911-027	09/02/11	09/05/11	1.00	**Diesel**	**1.4**	**5.7**	**6.4**
11-18814	HC ID: **DRO/MOTOR OIL**		FID4A	1.0	**Motor Oil**	**1.8**	**11**	**15**
					o-Terphenyl			68.4%
TK37G	FRP-082911-028	09/02/11	09/06/11	1.00	**Diesel**	**1.4**	**5.6**	**69**
11-18815	HC ID: **DIESEL**		FID4A	1.0	Motor Oil	1.8	11	< 11 U
					o-Terphenyl			70.6%
TK37H	FRP-082911-029	09/02/11	09/06/11	1.00	**Diesel**	**1.7**	**6.8**	**17**
11-18816	HC ID: **DRO/MOTOR OIL**		FID4A	1.0	**Motor Oil**	**2.1**	**14**	**23**
					o-Terphenyl			71.0%
TK37I	FRP-082911-030	09/02/11	09/06/11	1.00	Diesel	1.5	6.0	< 6.0 U
11-18817	HC ID: ---		FID4A	1.0	Motor Oil	1.9	12	< 12 U
					o-Terphenyl			81.2%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

FORM I

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Client ID	OTER	TOT OUT
MB-090211	91.2%	0
LCS-090211	83.3%	0
LCSD-090211	84.4%	0
FRP-082911-021	80.4%	0
FRP-082911-021 MS	47.3%*	1
FRP-082911-021 MSD	52.4%	0
FRP-082911-022	77.8%	0
FRP-082911-023	79.4%	0
FRP-082911-024	77.1%	0
FRP-082911-025	87.0%	0
FRP-082911-027	68.4%	0
FRP-082911-028	70.6%	0
FRP-082911-029	71.0%	0
FRP-082911-030	81.2%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 11-18809 to 11-18817

FORM-II TPHD

TK37:00151

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1

Sample ID: FRP-082911-021
MS/MSD

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted MS/MSD: 09/02/11

Date Analyzed MS: 09/05/11 20:36
MSD: 09/05/11 20:59
Instrument/Analyst MS: FID/MS
MSD: FID/MS

Sample Amount MS: 9.16 g-dry-wt
MSD: 9.18 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 10.0
MSD: 10.0
Percent Moisture: 8.6%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	26.7	86.6	164	36.5%	112	163	52.3%	25.6%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	47.3%	52.4%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

FORM III

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-090211**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-090211
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Extracted LCS/LCSD: 09/02/11

Date Analyzed LCS: 09/05/11 19:03
LCSD: 09/05/11 19:26
Instrument/Analyst LCS: FID/MS
LCSD: FID/MS

Sample Amount LCS: 10.0 g
LCSD: 10.0 g
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.0
LCSD: 1.0

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	131	150	87.3%	139	150	92.7%	5.9%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	83.3%	84.4%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: TK37
Matrix: Soil
Project: FRP Shoreline Investigation 2011
Date Received: 08/29/11
8769

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
11-18809-090211MB1	Method Blank	10.0 g	1.00 mL	-	09/02/11
11-18809-090211LCS1	Lab Control	10.0 g	1.00 mL	-	09/02/11
11-18809-090211LCSD1	Lab Control Dup	10.0 g	1.00 mL	-	09/02/11
11-18809-TK37A	FRP-082911-021	9.14 g	1.00 mL	D	09/02/11
11-18809-TK37AMS	FRP-082911-021	9.16 g	1.00 mL	D	09/02/11
11-18809-TK37AMSD	FRP-082911-021	9.18 g	1.00 mL	D	09/02/11
11-18810-TK37B	FRP-082911-022	7.47 g	1.00 mL	D	09/02/11
11-18811-TK37C	FRP-082911-023	7.59 g	1.00 mL	D	09/02/11
11-18812-TK37D	FRP-082911-024	7.64 g	1.00 mL	D	09/02/11
11-18813-TK37E	FRP-082911-025	7.67 g	1.00 mL	D	09/02/11
11-18814-TK37F	FRP-082911-027	8.84 g	1.00 mL	D	09/02/11
11-18815-TK37G	FRP-082911-028	8.86 g	1.00 mL	D	09/02/11
11-18816-TK37H	FRP-082911-029	7.40 g	1.00 mL	D	09/02/11
11-18817-TK37I	FRP-082911-030	8.30 g	1.00 mL	D	09/02/11

Basis: D=Dry Weight W=As Received

TPH METHOD BLANK SUMMARY

BLANK NO.

TK37MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: AMEC GEOMATRIX INC.

SDG No.: TK37

Project No.: FRP SHORELINE

Date Extracted: 09/02/11

Matrix: SOLID

Date Analyzed : 09/05/11

Instrument ID : FID4A

Time Analyzed : 1840

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	TK37LCSS1	TK37LCSS1	09/05/11
02	TK37LCSDS1	TK37LCSDS1	09/05/11
03	FRP-082911-0	TK37AMS	09/05/11
04	FRP-082911-0	TK37AMSD	09/05/11
05	FRP-082911-0	TK37B	09/05/11
06	FRP-082911-0	TK37C	09/05/11
07	FRP-082911-0	TK37D	09/05/11
08	FRP-082911-0	TK37E	09/05/11
09	FRP-082911-0	TK37F	09/05/11
10	FRP-082911-0	TK37G	09/06/11
11	FRP-082911-0	TK37H	09/06/11
12	FRP-082911-0	TK37I	09/06/11
13	BE29779	TK63A	09/06/11
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

FORM IV TPH

6a
DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: AMEC GEOMATRIX

Instrument: FID4A.I
Project: FRP SHORELINE

Calibration Date: 31-AUG-2011
SDG No.: TK37

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	12641	12072	11648	12571	12324	12770	12338	3.4
AK Diesel	15257	14389	13827	14863	14553	15017	14651	3.5
OR Diesel	16937	14676	14128	14966	14646	15094	15074	6.4
Cal Diesel	14964	14315	13748	14816	14505	14977	14554	3.3
o-Terph	15864	15779	15304	17641	17146	17344	16513	5.9

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (4.450-8.217)
AK Diesel C10-C25 (3.454-8.471)
OR Diesel C10-C28 (3.454-9.219)
Cal Diesel C10-C24 (3.454-8.217)

Calibration Files	Analysis Time
0831a014.d	31-AUG-2011 18:22
0831a015.d	31-AUG-2011 18:46
0831a016.d	31-AUG-2011 19:09
0831a017.d	31-AUG-2011 19:32
0831a018.d	31-AUG-2011 19:56
0831a019.d	31-AUG-2011 20:19

6a

NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Instrument: FID4A.I

Calibration Date: 05-AUG-2011

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	12204	11236	11461	11349	11170	9799	11203	7.0
Triac Surr	16464	15921	16623	16093	16929	----*	16406	2.4

<- Indicates %RSD outside limits
Surrogate areas are not included in Motor Oil RF calculation.

*The n-Triacontane high point (450ppm) is dropped because it shifts out of RT control limits of +/-.05min.

Calibration Files	Analysis Time
0805a011.d	05-AUG-2011 16:42
0805a012.d	05-AUG-2011 17:05
0805a013.d	05-AUG-2011 17:28
0805a014.d	05-AUG-2011 17:51
0805a015.d	05-AUG-2011 18:14
0805a016.d	05-AUG-2011 18:38

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 31-AUG-2011

CCal Date: 05-SEP-2011

Analysis Time: 16:43

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: DIESEL#1

Lab File Name: 0905a007.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	2691135	218.1	250	-12.8
AK102 (C10-C25)	3196511	218.2	250	-12.7
Terphenyl	651418	39.4	45	-12.3

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 05-AUG-2011

CCal Date: 05-SEP-2011

Analysis Time: 17:07

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: MOIL#1

Lab File Name: 0905a008.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	5563252	496.6	500	-0.7	
AK103 (C25-C36)	4744289	687.4	500	37.5	<-
CRUDE(Tol-C40)	6561300	868.7	500	73.7	
n-Triacontane	710639	43.3	45	-3.7	

* Surrogate areas are subtracted from range areas

<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 31-AUG-2011

CCal Date: 05-SEP-2011

Analysis Time: 21:23

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: DIESEL#2

Lab File Name: 0905a019.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	2769048	224.4	250	-10.2
AK102 (C10-C25)	3279336	223.8	250	-10.5
Terphenyl	665643	40.3	45	-10.4

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 05-AUG-2011

CCal Date: 05-SEP-2011

Analysis Time: 21:46

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: MOIL#2

Lab File Name: 0905a020.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	5809019	518.5	500	3.7	
AK103 (C25-C36)	4942334	716.1	500	43.2	<-
CRUDE(Tol-C40)	6857802	908.0	500	81.6	
n-Triacontane	762967	46.5	45	3.3	

* Surrogate areas are subtracted from range areas

<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 31-AUG-2011

CCal Date: 06-SEP-2011

Analysis Time: 01:38

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: DIESEL#3

Lab File Name: 0905a030.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	2802764	227.2	250	-9.1
AK102 (C10-C25)	3317293	226.4	250	-9.4
Terphenyl	680661	41.2	45	-8.4

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 05-AUG-2011

CCal Date: 06-SEP-2011

Analysis Time: 02:01

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: MOIL#3

Lab File Name: 0905a031.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	5772311	515.2	500	3.0	
AK103 (C25-C36)	4991980	723.3	500	44.7	<-
CRUDE(Tol-C40)	6754259	894.3	500	78.9	
n-Triacontane	782457	47.7	45	6.0	

* Surrogate areas are subtracted from range areas

<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 31-AUG-2011

CCal Date: 06-SEP-2011

Analysis Time: 14:14

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: DIESEL#2

Lab File Name: 0906a007.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	2981671	241.7	250	-3.3
AK102 (C10-C25)	3511840	239.7	250	-4.1
Terphenyl	726791	44.0	45	-2.2

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 05-AUG-2011

CCal Date: 06-SEP-2011

Analysis Time: 15:48

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: MOIL#1

Lab File Name: 0906a010.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	5665812	505.7	500	1.1	
AK103 (C25-C36)	4962291	719.0	500	43.8	<-
CRUDE(Tol-C40)	6532768	865.0	500	73.0	
n-Triacontane	765940	46.7	45	3.7	

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 31-AUG-2011

CCal Date: 06-SEP-2011

Analysis Time: 16:57

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: DIESEL#3

Lab File Name: 0906a013.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3128709	253.6	250	1.4
AK102 (C10-C25)	3671995	250.6	250	0.3
Terphenyl	767855	46.5	45	3.3

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 05-AUG-2011

CCal Date: 06-SEP-2011

Analysis Time: 17:21

Instrument: FID4A.I

Client: AMEC GEOMATRIX

Project: FRP SHORELINE

SDG No.: TK37

Lab ID: MOIL#2

Lab File Name: 0906a014.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	5336264	476.3	500	-4.7	
AK103 (C25-C36)	4748998	688.1	500	37.6	<-
CRUDE(Tol-C40)	6123028	810.7	500	62.1	
n-Triacontane	770786	47.0	45	4.4	

* Surrogate areas are subtracted from range areas

<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: TK37 Project: FRP SHORELINE

Instrument ID: FID4A GC Column: RTX-1

Run Date: 08/05/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.68 TRIAC: 9.77

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	08/05/11	1312	6.68	9.77
02	IB	IB	08/05/11	1335	6.68	9.76
03	DIESEL 50	DIESEL 50	08/05/11	1359	6.67	9.77
04	DIESEL 100	DIESEL 100	08/05/11	1422	6.67	9.77
05	DIESEL 250	DIESEL 250	08/05/11	1446	6.68	9.77
06	DIESEL 500	DIESEL 500	08/05/11	1509	6.69	9.77
07	DIESEL 1000	DIESEL 1000	08/05/11	1532	6.70	9.76
08	DIESEL 2500	DIESEL 2500	08/05/11	1555	6.72	9.77
09	MOIL 100	MOIL 100	08/05/11	1642	6.67	9.74
10	MOIL 250	MOIL 250	08/05/11	1705	6.73	9.75
11	MOIL 500	MOIL 500	08/05/11	1728	6.73	9.77
12	MOIL 1000	MOIL 1000	08/05/11	1751	6.73	9.78
13	MOIL 2500	MOIL 2500	08/05/11	1814	6.73	9.81
14	MOIL 5000	MOIL 5000	08/05/11	1838	6.73	9.84*

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.

*The n-Triacontane high point (450ppm) is dropped because it shifts out of RT control limits of +/-.05min.

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: TK37 Project: FRP SHORELINE

Instrument ID: FID4A GC Column: RTX-1

Run Date: 08/31/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.67 TRIAC: 9.75

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	08/31/11	1452	6.67	9.75
02		IB	08/31/11	1515	6.67	9.75
03	DIESEL 50	DIESEL 50	08/31/11	1822	6.66	9.76
04	DIESEL 100	DIESEL 100	08/31/11	1846	6.66	9.76
05	DIESEL 250	DIESEL 250	08/31/11	1909	6.67	9.76
06	DIESEL 500	DIESEL 500	08/31/11	1932	6.68	9.75
07	DIESEL 1000	DIESEL 1000	08/31/11	1956	6.69	9.75
08	DIESEL 2500	DIESEL 2500	08/31/11	2019	6.71	9.76
09		DIESEL ICV	08/31/11	2042	6.67	9.76

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX INC.

SDG No.: TK37 Project: FRP SHORELINE

Instrument ID: FID4A GC Column: RTX-1

Run Date: 09/05/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.65 TRIAC: 9.72

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	ZZZZZ	ZZZZZ	09/05/11	1410	6.68	9.76
02	ZZZZZ	ZZZZZ	09/05/11	1433	6.68	9.75
03	ZZZZZ	ZZZZZ	09/05/11	1457	6.66	9.74
04	ZZZZZ	ZZZZZ	09/05/11	1520	6.71*	9.72
05	ZZZZZ	ZZZZZ	09/05/11	1557	6.66	9.73
06	RT	RT	09/05/11	1620	6.65	9.72
07	FRP SHORELIN	DIESEL#1	09/05/11	1643	6.65	9.74
08	FRP SHORELIN	MOIL#1	09/05/11	1707	6.65	9.73
09	ZZZZZ	ZZZZZ	09/05/11	1730	6.65	9.71
10	ZZZZZ	ZZZZZ	09/05/11	1753	6.65	9.72
11	ZZZZZ	ZZZZZ	09/05/11	1816	6.65	9.72
12	TK37MBS1	TK37MBS1	09/05/11	1840	6.66	9.72
13	TK37LCSS1	TK37LCSS1	09/05/11	1903	6.66	9.72
14	TK37LCSDS1	TK37LCSDS1	09/05/11	1926	6.66	9.72
15	ZZZZZ	ZZZZZ	09/05/11	1949	6.65	9.72
16	ZZZZZ	ZZZZZ	09/05/11	2013	6.65	9.71
17	FRP-082911-0	TK37AMS	09/05/11	2036	6.65	9.71
18	FRP-082911-0	TK37AMSD	09/05/11	2059	6.65	9.71
19	FRP SHORELIN	DIESEL#2	09/05/11	2123	6.66	9.74
20	FRP SHORELIN	MOIL#2	09/05/11	2146	6.65	9.73
21	FRP-082911-0	TK37B	09/05/11	2209	6.65	9.72
22	FRP-082911-0	TK37C	09/05/11	2232	6.66	9.72
23	FRP-082911-0	TK37D	09/05/11	2256	6.65	9.72
24	FRP-082911-0	TK37E	09/05/11	2319	6.65	9.72
25	FRP-082911-0	TK37F	09/05/11	2342	6.65	9.72
26	FRP-082911-0	TK37G	09/06/11	0005	6.65	9.72
27	FRP-082911-0	TK37H	09/06/11	0028	6.66	9.72
28	FRP-082911-0	TK37I	09/06/11	0052	6.65	9.72
29	ZZZZZ	ZZZZZ	09/06/11	0115	6.65	9.73
30	FRP SHORELIN	DIESEL#3	09/06/11	0138	6.66	9.73
31	FRP SHORELIN	MOIL#3	09/06/11	0201	6.65	9.73
32	ZZZZZ	ZZZZZ	09/06/11	1156	6.65	9.72

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX INC.

SDG No.: TK37 Project: FRP SHORELINE

Instrument ID: FID4A GC Column: RTX-1

Run Date: 09/05/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.65 TRIAC: 9.72

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	09/06/11	1218	6.65	9.72
02	ZZZZZ	ZZZZZ	09/06/11	1241	6.65	9.73
03	ZZZZZ	ZZZZZ	09/06/11	1304	6.65	9.72
04	ZZZZZ	ZZZZZ	09/06/11	1328	6.65	9.73
05	ZZZZZ	ZZZZZ	09/06/11	1351	6.65	9.71
06	FRP SHORELIN	DIESEL#2	09/06/11	1414	6.65	9.73
07	ZZZZZ	ZZZZZ	09/06/11	1437	6.65	9.72
08	IB	IB	09/06/11	1524	6.65	9.72
09	FRP SHORELIN	MOIL#1	09/06/11	1548	6.64	9.72
10	FRP-082911-0	TK37A	09/06/11	1611	6.65	9.72
11	ZZZZZ	ZZZZZ	09/06/11	1634	6.65	9.73
12	FRP SHORELIN	DIESEL#3	09/06/11	1657	6.66	9.71
13	FRP SHORELIN	MOIL#2	09/06/11	1721	6.64	9.72

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPHG Analysis
Report and Summary QC Forms

ARI Job ID: TK37

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized: MW
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
Event: 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

ARI ID	Client ID	Analysis Date	Range	Result	RL	MDL
MB-090611	Method Blank	09/06/11	Gasoline	< 5.0 U	5.0	2.4
11-18809		PID3	HC ID	---		
			Trifluorotoluene	96.9%		
			Bromobenzene	92.9%		
TK37A	FRP-082911-021	09/06/11	Gasoline	< 6.0 U	6.0	2.8
11-18809		PID3	HC ID	---		
			Trifluorotoluene	112%		
			Bromobenzene	107%		
TK37B	FRP-082911-022	09/06/11	Gasoline	< 8.4 U	8.4	4.0
11-18810		PID3	HC ID	---		
			Trifluorotoluene	115%		
			Bromobenzene	109%		
TK37C	FRP-082911-023	09/06/11	Gasoline	< 8.5 U	8.5	4.1
11-18811		PID3	HC ID	---		
			Trifluorotoluene	113%		
			Bromobenzene	106%		
TK37D	FRP-082911-024	09/06/11	Gasoline	< 8.3 U	8.3	4.0
11-18812		PID3	HC ID	---		
			Trifluorotoluene	106%		
			Bromobenzene	100%		
TK37E	FRP-082911-025	09/06/11	Gasoline	< 7.8 U	7.8	3.7
11-18813		PID3	HC ID	---		
			Trifluorotoluene	102%		
			Bromobenzene	100%		
TK37F	FRP-082911-027	09/06/11	Gasoline	< 6.9 U	6.9	3.3
11-18814		PID3	HC ID	---		
			Trifluorotoluene	104%		
			Bromobenzene	102%		
TK37G	FRP-082911-028	09/06/11	Gasoline	< 7.4 U	7.4	3.5
11-18815		PID3	HC ID	---		
			Trifluorotoluene	109%		
			Bromobenzene	105%		
TK37H	FRP-082911-029	09/06/11	Gasoline	< 9.9 U	9.9	4.8
11-18816		PID3	HC ID	---		
			Trifluorotoluene	108%		
			Bromobenzene	104%		
TK37I	FRP-082911-030	09/06/11	Gasoline	< 7.1 U	7.1	3.4
11-18817		PID3	HC ID	---		
			Trifluorotoluene	106%		
			Bromobenzene	103%		

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
Event: 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Data Release Authorized:
Reported: 09/12/11

ARI ID	Client ID	Analysis Date	Range	Result	RL	MDL

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: TK37
Matrix: Soil

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
Event: 8769

Client ID	BFB	TFT	BBZ	TOT OUT
MB-090611	NA	96.9%	92.9%	0
LCS-090611	NA	99.3%	95.6%	0
LCSD-090611	NA	104%	99.8%	0
FRP-082911-021	NA	112%	107%	0
FRP-082911-022	NA	115%	109%	0
FRP-082911-023	NA	113%	106%	0
FRP-082911-024	NA	106%	100%	0
FRP-082911-025	NA	102%	100%	0
FRP-082911-025 MS	NA	96.3%	91.9%	0
FRP-082911-025 MSD	NA	99.4%	95.6%	0
FRP-082911-027	NA	104%	102%	0
FRP-082911-028	NA	109%	105%	0
FRP-082911-029	NA	108%	104%	0
FRP-082911-030	NA	106%	103%	0

	LCS/MB LIMITS	QC LIMITS
(BFB) = Bromofluorobenzene	(70-130)	(70-130)
(TFT) = Trifluorotoluene	(80-120)	(66-123)
(BBZ) = Bromobenzene	(80-120)	(62-130)

Log Number Range: 11-18809 to 11-18817

FORM II TPHG

TK37 : 00175

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG

Sample ID: FRP-082911-025
MATRIX SPIKE

Lab Sample ID: TK37E
LIMS ID: 11-18813
Matrix: Soil
Data Release Authorized: MW
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
Event: 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Date Analyzed MS: 09/06/11 15:21
MSD: 09/06/11 15:47
Instrument/Analyst MS: PID3/MH
MSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount MS: 64.2 mg-dry-wt
MSD: 64.2 mg-dry-wt

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Gasoline Range Hydrocarbons	< 7.79 U	72.7	77.9	93.3%	73.9	77.9	94.9%	1.6%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	MS	MSD
Trifluorotoluene	96.3%	99.4%
Bromobenzene	91.9%	95.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG

Sample ID: LCS-090611
LAB CONTROL SAMPLE

Lab Sample ID: LCS-090611
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/12/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
Event: 8769
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 09/06/11 08:57
LCSD: 09/06/11 09:24
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	46.4	50.0	92.8%	49.4	50.0	98.8%	6.3%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	99.3%	104%
Bromobenzene	95.6%	99.8%

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB0906S1

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: TK35-TK37 Project No.: FRP

Date Analyzed : 09/06/11 Matrix: SOIL

Time Analyzed : 0950 Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0906S1	LCS0906	09/06/11
02	LCSD0906S1	LCSD0906	09/06/11
03	FRP-082911-0	TK35Q	09/06/11
04	FRP-082911-0	TK35QMS	09/06/11
05	FRP-082911-0	TK35QMSD	09/06/11
06	FRP-082911-0	TK35R	09/06/11
07	FRP-082911-0	TK37A	09/06/11
08	FRP-082911-0	TK37B	09/06/11
09	FRP-082911-0	TK37C	09/06/11
10	FRP-082911-0	TK37D	09/06/11
11	FRP-082911-0	TK37E	09/06/11
12	FRP-082911-0	TK37EMS	09/06/11
13	FRP-082911-0	TK37EMSD	09/06/11
14	FRP-082911-0	TK37F	09/06/11
15	FRP-082911-0	TK37G	09/06/11
16	FRP-082911-0	TK37H	09/06/11
17	FRP-082911-0	TK37I	09/06/11
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

FORM IV BETX/GAS

6a
GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: AMEC GEOMATRIX

Instrument/Det: PID3.I/RTX 502-2 FID Project:TK37

Calibration Date: 05-SEP-2011 SDG No.: FRP

Gas Range	RF1 0.1	RF2 0.25	RF3 1.0	RF4 2.5	RF5 5.0	RF6 10	Ave RF	%RSD
WA Gas	1297345	921946	930015	909776	1041948	1022068	1020516	14.4
AK Gas	2088715	1638794	1496714	1460200	1620905	1631137	1656077	13.6
NW Gas	1371115	1000256	977279	946776	1079463	1040004	1069149	14.5
Cal Gas	2549190	1987080	1858913	1817093	2031564	2023314	2044526	12.8
8015Gas	2527205	2035482	1867307	1822603	2025303	2018857	2049459	12.2
$TFT(Surr)	86.68182	78.84091	74.86567	75.01000	76.54887	75.49438		
	73.90500						77.33524	5.708
$BB(Surr)	55.90909	49.45455	46.70149	46.92000	47.48872	46.64045		
	44.80500						48.27419	7.532

10H

<- Indicates %RSD outside limits
Surrogate areas are not included in RF calculation.

Quant Ranges :
WA Gas Toluene - nC12
AK Gas nC6 - nC10
NW Gas Toluene - Naphthalene
Cal Gas nC6 - nC12
8015 Gas 2-Methylpentane - 1,2,4-Trimethylbenzene

Calibration Files	Analysis Time
0905a003.d	05-SEP-2011 10:44
0905a004.d	05-SEP-2011 11:10
0905a005.d	05-SEP-2011 11:36
0905a006.d	05-SEP-2011 12:03
0905a007.d	05-SEP-2011 12:29
0905a008.d	05-SEP-2011 12:55

SURR Calibration Files	Analysis Time
0808a005.d	08-AUG-2011 07:19
0808a006.d	08-AUG-2011 07:45
0808a007.d	08-AUG-2011 08:11
0808a008.d	08-AUG-2011 08:37
0808a009.d	08-AUG-2011 09:03
0808a010.d	08-AUG-2011 09:30
0808a011.d	08-AUG-2011 09:56

BETX INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: 20110808-1 Project No.: FRP

Instrument/Det: PID3 /RTX 502-2 PID Calibration Date: 08/08/11

COMPOUND	CALIBRATION FACTORS 0.25	0.5	5	25	50	MEAN	%RSD
Benzene	2492	2536	2535	2477	2596		
Toluene	2900	2136	2463	2340	2498		
Ethylbenzene	2400	2340	2462	2294	2385		
M/P-Xylene	2836	2454	2618	2435	2579		
O-Xylene	2364	2298	2295	2140	2266		
MTBE	886	864	858	893			
TFT(Surr)	410	381	364	377	393		
BB(Surr)	932	827	792	819	856		

Calibration Files

/chem3/pid3.i/20110808-1.b/0808a005.d
/chem3/pid3.i/20110808-1.b/0808a006.d
/chem3/pid3.i/20110808-1.b/0808a007.d
/chem3/pid3.i/20110808-1.b/0808a008.d
/chem3/pid3.i/20110808-1.b/0808a009.d
/chem3/pid3.i/20110808-1.b/0808a010.d
/chem3/pid3.i/20110808-1.b/0808a011.d

BETX INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: 20110808-1 Project No.: FRP

Instrument/Det: PID3 /RTX 502-2 PID Calibration Date: 08/08/11

COMPOUND	CALIBRATION FACTORS 100	200	MEAN	%RSD			
Benzene	2537	2462	2519	1.82			
Toluene	2434	2387	2451	9.42			
Ethylbenzene	2332	2262	2354	2.87			
M/P-Xylene	2529	2432	2555	5.63			
O-Xylene	2226	2164	2250	3.52			
MTBE	879	873	1124	1.52			
TFT(Surr)	393	387	386	3.71			
BB(Surr)	849	837	844	5.20			

FORM VI BETX-2

TK37:00181

7a

GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

ICal Date: 05-SEP-2011

CCal Date: 06-SEP-2011

Lab File Name: 0906a003.d

Client: AMEC GEOMATRIX

Project: FRP

SDG No.: TK35-TK37

Inst/Det: PID3.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	2423472	2.37	2.50	-5.0
AKGas (C6-C10)	3856068	2.33	2.50	-6.9
NWGas (Tol-Nap)	2522276	2.36	2.50	-5.6
CAGas (C6-C12)	4803746	2.35	2.50	-6.0
8015B (2MP-TMB)	4805120	2.34	2.50	-6.2

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

FORM VII-GAS

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: AMEC GEOMATRIX

ICal Date: 05-SEP-2011
Project: FRP

CCal Date: 06-SEP-2011
SDG No.: TK35-TK37

Lab File Name: 0906a003.d
Inst/Det: PID3.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	154083	103.4	100.0	3.4
Bromoflrbenz	52481	99.2	100.0	-0.8

FORM VII-Surr

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 05-SEP-2011
CCal Date: 06-SEP-2011
Lab File Name: 0906a014.d

Client: AMEC GEOMATRIX
Project: FRP
SDG No.: TK35-TK37
Inst/Det: PID3.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	2564554	2.51	2.50	0.5
AKGas (C6-C10)	4174885	2.52	2.50	0.8
NWGas (Tol-Nap)	2666537	2.49	2.50	-0.2
CAGas (C6-C12)	5175739	2.53	2.50	1.3
8015B (2MP-TMB)	5249858	2.56	2.50	2.5

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

FORM VII-GAS

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: AMEC GEOMATRIX

ICal Date: 05-SEP-2011
Project: FRP

CCal Date: 06-SEP-2011
SDG No.: TK35-TK37

Lab File Name: 0906a014.d
Inst/Det: PID3.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	165998	111.6	100.0	11.6
Bromoflrbenz	54296	108.1	100.0	8.1

FORM VII-Surr

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: AMEC GEOMATRIX

ICal Date: 05-SEP-2011
Project: FRP

CCal Date: 06-SEP-2011
SDG No.: TK35-TK37

Lab File Name: 0906a025.d
Inst/Det: PID3.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	2286522	2.24	2.50	-10.4
AKGas (C6-C10)	3651161	2.20	2.50	-11.8
NWGas (Tol-Nap)	2390286	2.24	2.50	-10.6
CAGas (C6-C12)	4540752	2.22	2.50	-11.2
8015B (2MP-TMB)	4593078	2.24	2.50	-10.4

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

FORM VII-GAS

TK37:00186

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: AMEC GEOMATRIX

ICal Date: 05-SEP-2011
Project: FRP

CCal Date: 06-SEP-2011
SDG No.: TK35-TK37

Lab File Name: 0906a025.d
Inst/Det: PID3.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	149813	101.4	100.0	1.4
Bromoflrbenz	52173	101.5	100.0	1.5

FORM VII-Surr

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: 20110808-1 Project: FRP

Instrument ID: PID3 GC Detector: RTX 502-2 PID

Run Date: 08/08/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

METHOD SURROGATE RT
S1 : 9.66 S2 : 16.99

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #	S2 RT #
01		RINSE	08/08/11	0454		
02		RT+BCAL 2	08/08/11	0520	9.66	16.99
03		GCAL 2	08/08/11	0547	9.66	16.99
04		RINSE	08/08/11	0652		
05		BETX .25	08/08/11	0719	9.66	16.99
06		BETX .5	08/08/11	0745	9.66	16.99
07		BETX 5	08/08/11	0811	9.66	16.99
08		BETX 25	08/08/11	0837	9.66	16.99
09		BETX 50	08/08/11	0903	9.66	16.99
10		BETX 100	08/08/11	0930	9.66	16.99
11		BETX 200	08/08/11	0956	9.66	16.99
12		BETX ICV	08/08/11	1022	9.66	16.99

		QC LIMITS
S1	= TFT(Surr)	(+/- 0.07 MINUTES)
S2	= BB(Surr)	(+/- 0.07 MINUTES)

* Values outside of QC limits.

FORM VIII-2 BETX

TK37:00188

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: 20110905-1 Project: FRP

Instrument ID: PID3 GC Detector: RTX 502-2 PID

Run Date: 09/05/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

METHOD SURROGATE RT
S1 : 9.66 S2 : 16.99

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #	S2 RT #
01		RT+BCAL 1	09/05/11	0924	9.66	16.99
02		RINSE	09/05/11	0951		
03		GAS .1	09/05/11	1044	9.66	16.99
04		GAS .25	09/05/11	1110	9.66	16.99
05		GAS 1	09/05/11	1136	9.66	16.99
06		GAS 2.5	09/05/11	1203	9.66	16.99
07		GAS 5	09/05/11	1229	9.66	16.99
08		GAS 10	09/05/11	1255	9.66	16.99
09		RINSE	09/05/11	1321		17.05
10		GAS ICV	09/05/11	1347	9.66	16.99

	QC LIMITS
S1 = TFT(Surr)	(+/- 0.07 MINUTES)
S2 = BB(Surr)	(+/- 0.07 MINUTES)

* Values outside of QC limits.

FORM VIII-2 BETX

TK37 : 00189

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: AMEC GEOMATRIX

SDG No.: TK35-TK37 Project: FRP

Instrument ID: PID3 GC Detector: RTX 502-2 FID

Run Date: 09/06/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

METHOD SURROGATE RT
S1 : 9.66 S2 : 16.98

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #	S2 RT #
01	ZZZZZ	ZZZZZ	09/06/11	0739		17.03
02	RT+BCAL 1	RT+BCAL 1	09/06/11	0805	9.66	16.99
03	FRP	GCAL 1	09/06/11	0831	9.66	16.99
04	LCS0906S1	LCS0906	09/06/11	0857	9.66	16.99
05	LCSD0906S1	LCSD0906	09/06/11	0924	9.66	16.99
06	MB0906S1	MB0906	09/06/11	0950	9.66	16.99
07	FRP-082911-0	TK35Q	09/06/11	1033	9.66	16.99
08	FRP-082911-0	TK35QMS	09/06/11	1059	9.66	16.99
09	FRP-082911-0	TK35QMSD	09/06/11	1125	9.66	16.99
10	FRP-082911-0	TK35R	09/06/11	1152	9.66	16.99
11	FRP-082911-0	TK37A	09/06/11	1218	9.66	16.99
12	FRP-082911-0	TK37B	09/06/11	1244	9.66	16.99
13	ZZZZZ	ZZZZZ	09/06/11	1310		
14	FRP	GCAL 2	09/06/11	1336	9.66	16.99
15	FRP-082911-0	TK37C	09/06/11	1403	9.66	16.99
16	FRP-082911-0	TK37D	09/06/11	1429	9.66	16.99
17	FRP-082911-0	TK37E	09/06/11	1455	9.66	16.99
18	FRP-082911-0	TK37EMS	09/06/11	1521	9.66	16.98
19	FRP-082911-0	TK37EMSD	09/06/11	1547	9.66	16.99
20	FRP-082911-0	TK37F	09/06/11	1614	9.66	16.99
21	FRP-082911-0	TK37G	09/06/11	1640	9.66	16.98
22	FRP-082911-0	TK37H	09/06/11	1706	9.66	16.98
23	FRP-082911-0	TK37I	09/06/11	1732	9.66	16.98
24	ZZZZZ	ZZZZZ	09/06/11	1758		
25	FRP	GCAL 3	09/06/11	1825	9.66	16.98

	QC LIMITS
S1 = TFT(Surr)	(+/- 0.07 MINUTES)
S2 = BB(Surr)	(+/- 0.07 MINUTES)

* Values outside of QC limits.

TK37:00190

Metals Analysis
Report and Summary QC Forms

ARI Job ID: TK37

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

SDG: TK37

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
FRP-082911-021	TK37A	11-18809	
FRP-082911-021D	TK37ADUP	11-18809	
FRP-082911-021S	TK37ASPK	11-18809	
FRP-082911-022	TK37B	11-18810	
PBS	TK37MB1	11-18810	
LCSS	TK37MB1SPK	11-18810	
FRP-082911-023	TK37C	11-18811	
FRP-082911-024	TK37D	11-18812	
FRP-082911-025	TK37E	11-18813	
FRP-082911-027	TK37F	11-18814	
FRP-082911-028	TK37G	11-18815	
FRP-082911-029	TK37H	11-18816	
FRP-082911-030	TK37I	11-18817	

Were ICP interelement corrections applied ?	Yes/No	YES
Were ICP background corrections applied ?	Yes/No	YES
If yes - were raw data generated before application of background corrections ?	Yes/No	NO

Comments: _____

THIS DATA PACKAGE HAS BEEN REVIEWED AND AUTHORIZED FOR RELEASE BY:

Signature: _____ Name: Jay Kuhn

Date: 9/20/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-021
SAMPLE

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 91.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	3.8	5	**10,900**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.092	0.2	**3.2**	
3050B	09/01/11	6010B	09/05/11	**7440-43-9**	**Cadmium**	0.12	0.2	**0.3**	
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.29	0.5	**22.7**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.053	0.2	**27.2**	
3050B	09/01/11	6010B	09/05/11	**7439-92-1**	**Lead**	0.14	2	**8**	
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0012	0.02	**0.03**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.32	1	**30**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.69	5	5	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.57	5	5	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.064	0.3	**46.2**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.13	1	**45**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-021
DUPLICATE

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	10,900	11,100	1.8%	+/- 20%	
Arsenic	200.8	3.2	3.3	3.1%	+/- 20%	
Cadmium	6010B	0.3	0.3	0.0%	+/- 0.2	L
Chromium	6010B	22.7	21.3	6.4%	+/- 20%	
Copper	6010B	27.2	27.2	0.0%	+/- 20%	
Lead	6010B	8	8	0.0%	+/- 2	L
Mercury	7471A	0.03	0.03	0.0%	+/- 0.02	L
Nickel	6010B	30	30	0.0%	+/- 20%	
Selenium	6010B	5 U	5 U	0.0%	+/- 5	L
Thallium	6010B	5 U	5 U	0.0%	+/- 5	L
Vanadium	6010B	46.2	45.7	1.1%	+/- 20%	
Zinc	6010B	45	43	4.5%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-021
MATRIX SPIKE

Lab Sample ID: TK37A
LIMS ID: 11-18809
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011 8769
Date Sampled: 08/29/11
Date Received: 08/29/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	10,900	11,000	215	46.5%	H
Arsenic	200.8	3.2	28.7	26.5	96.2%	
Cadmium	6010B	0.3	52.4	53.6	97.2%	
Chromium	6010B	22.7	72.6	53.6	93.1%	
Copper	6010B	27.2	76.4	53.6	91.8%	
Lead	6010B	8	213	215	95.3%	
Mercury	7471A	0.03	0.28	0.226	111%	
Nickel	6010B	30	82	53.6	97.0%	
Selenium	6010B	5 U	208	215	96.7%	
Thallium	6010B	5 U	203	215	94.4%	
Vanadium	6010B	46.2	92.3	53.6	86.0%	
Zinc	6010B	45	95	53.6	93.3%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-022
SAMPLE

Lab Sample ID: TK37B
LIMS ID: 11-18810
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 74.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	4.4	6	**15,000**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.11	0.3	**8.7**	
3050B	09/01/11	6010B	09/05/11	**7440-43-9**	**Cadmium**	0.14	0.2	**0.3**	
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.33	0.6	**17.0**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.062	0.2	**21.9**	
3050B	09/01/11	6010B	09/05/11	**7439-92-1**	**Lead**	0.16	2	**12**	
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0012	0.02	**0.10**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.37	1	**13**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.80	6	6	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.66	6	6	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.074	0.4	**50.7**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.15	1	**47**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-023
SAMPLE

Lab Sample ID: TK37C
LIMS ID: 11-18811
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 77.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	4.4	6	**11,800**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.11	0.2	**3.0**	
3050B	09/01/11	6010B	09/05/11	7440-43-9	Cadmium	0.14	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.33	0.6	**14.0**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.062	0.2	**18.0**	
3050B	09/01/11	6010B	09/05/11	7439-92-1	Lead	0.16	2	2	U
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0014	0.03	**0.03**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.37	1	**10**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.81	6	6	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.66	6	6	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.074	0.4	**48.0**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.15	1	**25**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-024
SAMPLE

Lab Sample ID: TK37D
LIMS ID: 11-18812
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 77.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	4.4	6	**11,200**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.11	0.3	**3.0**	
3050B	09/01/11	6010B	09/05/11	7440-43-9	Cadmium	0.14	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.33	0.6	**13.5**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.062	0.2	**17.5**	
3050B	09/01/11	6010B	09/05/11	7439-92-1	Lead	0.16	2	2	U
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0014	0.03	**0.03**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.37	1	**10**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.80	6	6	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.65	6	6	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.074	0.4	**47.0**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.15	1	**25**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-025
SAMPLE

Lab Sample ID: TK37E
LIMS ID: 11-18813
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 75.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	4.4	6	**7,990**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.11	0.2	**1.6**	
3050B	09/01/11	6010B	09/05/11	7440-43-9	Cadmium	0.14	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.33	0.6	**11.2**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.061	0.2	**10.6**	
3050B	09/01/11	6010B	09/05/11	7439-92-1	Lead	0.16	2	2	U
CLP	09/01/11	7471A	09/06/11	7439-97-6	Mercury	0.0012	0.02	0.02	U
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.37	1	**7**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.80	6	6	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.65	6	6	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.074	0.4	**42.4**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.15	1	**19**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-027
SAMPLE

Lab Sample ID: TK37F
LIMS ID: 11-18814
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 88.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	3.8	5	**13,200**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.095	0.2	**3.9**	
3050B	09/01/11	6010B	09/05/11	**7440-43-9**	**Cadmium**	0.12	0.2	**0.3**	
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.29	0.5	**19.2**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.053	0.2	**77.1**	
3050B	09/01/11	6010B	09/05/11	**7439-92-1**	**Lead**	0.14	2	**15**	
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0013	0.02	**0.95**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.32	1	**19**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.69	5	5	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.57	5	5	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.064	0.3	**52.6**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.13	1	**60**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-028
SAMPLE

Lab Sample ID: TK37G
LIMS ID: 11-18815
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 88.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	3.9	6	**11,300**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.094	0.2	**2.8**	
3050B	09/01/11	6010B	09/05/11	7440-43-9	Cadmium	0.12	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.30	0.6	**14.1**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.055	0.2	**18.5**	
3050B	09/01/11	6010B	09/05/11	**7439-92-1**	**Lead**	0.14	2	**3**	
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0010	0.02	**0.03**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.33	1	**10**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.72	6	6	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.59	6	6	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.066	0.3	**42.5**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.13	1	**31**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-029
SAMPLE

Lab Sample ID: TK37H
LIMS ID: 11-18816
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 74.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	4.4	6	**15,700**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.11	0.3	**5.1**	
3050B	09/01/11	6010B	09/05/11	7440-43-9	Cadmium	0.14	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.34	0.6	**18.4**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.062	0.2	**21.6**	
3050B	09/01/11	6010B	09/05/11	**7439-92-1**	**Lead**	0.16	2	**6**	
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0014	0.03	**0.09**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.37	1	**14**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.81	6	6	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.66	6	6	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.075	0.4	**51.3**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.15	1	**42**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: FRP-082911-030
SAMPLE

Lab Sample ID: TK37I
LIMS ID: 11-18817
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: 08/29/11
Date Received: 08/29/11

Percent Total Solids: 83.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	**7429-90-5**	**Aluminum**	4.0	6	**10,900**	
3050B	09/01/11	200.8	09/06/11	**7440-38-2**	**Arsenic**	0.097	0.2	**2.6**	
3050B	09/01/11	6010B	09/05/11	7440-43-9	Cadmium	0.12	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	**7440-47-3**	**Chromium**	0.30	0.6	**15.3**	
3050B	09/01/11	6010B	09/05/11	**7440-50-8**	**Copper**	0.056	0.2	**21.4**	
3050B	09/01/11	6010B	09/05/11	**7439-92-1**	**Lead**	0.15	2	**3**	
CLP	09/01/11	7471A	09/06/11	**7439-97-6**	**Mercury**	0.0011	0.02	**0.07**	
3050B	09/01/11	6010B	09/05/11	**7440-02-0**	**Nickel**	0.34	1	**12**	
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.73	6	6	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.60	6	6	U
3050B	09/01/11	6010B	09/05/11	**7440-62-2**	**Vanadium**	0.068	0.3	**47.9**	
3050B	09/01/11	6010B	09/05/11	**7440-66-6**	**Zinc**	0.14	1	**29**	

Reported in mg/kg-dry (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: TK37MB
LIMS ID: 11-18810
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	MDL	RL	Result	Q
3050B	09/01/11	6010B	09/05/11	7429-90-5	Aluminum	3.6	5	5	U
3050B	09/01/11	200.8	09/06/11	7440-38-2	Arsenic	0.087	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	7440-43-9	Cadmium	0.11	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	7440-47-3	Chromium	0.27	0.5	0.5	U
3050B	09/01/11	6010B	09/05/11	7440-50-8	Copper	0.050	0.2	0.2	U
3050B	09/01/11	6010B	09/05/11	7439-92-1	Lead	0.13	2	2	U
CLP	09/01/11	7471A	09/06/11	7439-97-6	Mercury	0.0013	0.02	0.02	U
3050B	09/01/11	6010B	09/05/11	7440-02-0	Nickel	0.30	1	1	U
3050B	09/01/11	6010B	09/05/11	7782-49-2	Selenium	0.65	5	5	U
3050B	09/01/11	6010B	09/05/11	7440-28-0	Thallium	0.53	5	5	U
3050B	09/01/11	6010B	09/05/11	7440-62-2	Vanadium	0.060	0.3	0.3	U
3050B	09/01/11	6010B	09/05/11	7440-66-6	Zinc	0.12	1	1	U

Reported in mg/kg (ppm).
U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: TK37LCS
LIMS ID: 11-18810
Matrix: Soil
Data Release Authorized:
Reported: 09/07/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010B	196	200	98.0%	
Arsenic	200.8	25.5	25.0	102%	
Cadmium	6010B	49.3	50.0	98.6%	
Chromium	6010B	48.9	50.0	97.8%	
Copper	6010B	47.2	50.0	94.4%	
Lead	6010B	199	200	99.5%	
Mercury	7471A	0.52	0.50	104%	
Nickel	6010B	50	50	100%	
Selenium	6010B	204	200	102%	
Thallium	6010B	202	200	101%	
Vanadium	6010B	49.7	50.0	99.4%	
Zinc	6010B	49	50	98.0%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

SDG: TK37

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Aluminum	AL	ICP	IP090571	2000.0	2015.65	100.8	2000.0	1971.60	98.6	1966.51	98.3	1985.10	99.3	1956.77	97.8	1937.95	96.9
Arsenic	AS	PMS	MS090681	50.0	50.18	100.4	50.0	50.33	100.7	50.36	100.7	50.03	100.1	50.49	101.0	50.14	100.3
Cadmium	CD	ICP	IP090571	1000.0	1039.86	104.0	1000.0	1036.01	103.6	1019.23	101.9	1030.38	103.0	1020.06	102.0	995.99	99.6
Chromium	CR	ICP	IP090571	1000.0	1035.17	103.5	1000.0	1017.04	101.7	1004.59	100.5	1013.59	101.4	991.78	99.2	976.83	97.7
Copper	CU	ICP	IP090571	1000.0	1024.19	102.4	1000.0	1020.90	102.1	1014.27	101.4	1025.08	102.5	1018.55	101.9	988.22	98.8
Lead	PB	ICP	IP090571	2000.0	1894.37	94.7	2000.0	1873.56	93.7	1882.59	94.1	1846.60	92.3	1828.24	91.4	1933.66	96.7
Mercury	HG	CVA	HG090601	8.0	8.29	103.6	4.0	4.18	104.5	4.16	104.0	4.19	104.8	4.21	105.3		
Nickel	NI	ICP	IP090571	1000.0	1001.58	100.2	1000.0	972.11	97.2	951.48	95.1	947.65	94.8	925.50	92.6	1017.97	101.8
Selenium	SE	ICP	IP090571	2000.0	1945.76	97.3	2000.0	1928.53	96.4	1882.52	94.1	1884.57	94.2	1858.11	92.9	2015.76	100.8
Thallium	TL	ICP	IP090571	2000.0	1924.49	96.2	2000.0	1900.54	95.0	1859.85	93.0	1867.20	93.4	1832.78	91.6	1990.17	99.5
Vanadium	V	ICP	IP090571	1000.0	1005.52	100.6	1000.0	992.87	99.3	988.53	98.9	999.62	100.0	995.90	99.6	966.49	96.6
Zinc	ZN	ICP	IP090571	1000.0	996.87	99.7	1000.0	975.64	97.6	958.74	95.9	963.64	96.4	952.66	95.3	998.13	99.8

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TK37 : 000295

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

UNITS: ug/L

SDG: TK37

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Aluminum	AL	ICP	IP090571	2000.0	1933.62	96.7	1959.29	98.0								
Arsenic	AS	PMS	MS090681	50.0	50.04	100.1	49.95	99.9	50.25	100.5	50.43	100.9				
Cadmium	CD	ICP	IP090571	1000.0	1007.56	100.8	1001.23	100.1								
Chromium	CR	ICP	IP090571	1000.0	981.10	98.1	996.29	99.6								
Copper	CU	ICP	IP090571	1000.0	1001.63	100.2	992.99	99.3								
Lead	PB	ICP	IP090571	2000.0	1960.11	98.0	1942.34	97.1								
Mercury	HG	CVA	HG090601	4.0												
Nickel	NI	ICP	IP090571	1000.0	1023.59	102.4	1036.21	103.6								
Selenium	SE	ICP	IP090571	2000.0	2036.35	101.8	2038.23	101.9								
Thallium	TL	ICP	IP090571	2000.0	1999.21	100.0	2001.33	100.1								
Vanadium	V	ICP	IP090571	1000.0	978.52	97.9	970.56	97.1								
Zinc	ZN	ICP	IP090571	1000.0	1002.25	100.2	1018.50	101.9								

Control Limits: Mercury 80-120; Other Metals 90-110

FORM II (1)

TK37.002207

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

UNITS: ug/L

SDG: TK37

ANALYTE	EL	M	RUN	CRA/I TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Aluminum	AL	ICP	IP090571	50.0	61.01	**122.0**	84.68	**169.4**								
Arsenic	AS	PMS	MS090681	0.2	0.18	**90.0**										
Cadmium	CD	ICP	IP090571	2.0	2.08	**104.0**	1.90	**95.0**								
Chromium	CR	ICP	IP090571	5.0	5.89	**117.8**	4.60	**92.0**								
Copper	CU	ICP	IP090571	2.0	2.33	**116.5**	2.88	**144.0**								
Lead	PB	ICP	IP090571	20.0	19.30	**96.5**	17.85	**89.3**								
Mercury	HG	CVA	HG090601	0.1	0.09	**90.0**										
Nickel	NI	ICP	IP090571	10.0	10.66	**106.6**	9.82	**98.2**								
Selenium	SE	ICP	IP090571	50.0	51.23	**102.5**	60.79	**121.6**								
Thallium	TL	ICP	IP090571	50.0	49.78	**99.6**	51.16	**102.3**								
Vanadium	V	ICP	IP090571	3.0	2.98	**99.3**	2.95	**98.3**								
Zinc	ZN	ICP	IP090571	10.0	9.50	**95.0**	9.12	**91.2**								

Control Limits: no control limits have been established by the EPA at this time.

FORM II (2)

TK37 00298

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

UNITS:ug/L

SDG: TK37

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Aluminum	AL	ICP	IP090571	200.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	AS	PMS	MS090681	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Cadmium	CD	ICP	IP090571	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Chromium	CR	ICP	IP090571	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Copper	CU	ICP	IP090571	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Lead	PB	ICP	IP090571	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Mercury	HG	CVA	HG090601	0.2	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		
Nickel	NI	ICP	IP090571	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Selenium	SE	ICP	IP090571	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Thallium	TL	ICP	IP090571	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Vanadium	V	ICP	IP090571	50.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Zinc	ZN	ICP	IP090571	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

TK37.00289

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

UNITS: ug/L

SDG: TK37

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Aluminum	AL	ICP	IP090571	200.0	50.0	50.0	U	50.0	U								
Arsenic	AS	PMS	MS090681	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U				
Cadmium	CD	ICP	IP090571	5.0	2.0	2.0	U	2.0	U								
Chromium	CR	ICP	IP090571	10.0	5.0	5.0	U	5.0	U								
Copper	CU	ICP	IP090571	25.0	2.0	2.0	U	2.0	U								
Lead	PB	ICP	IP090571	3.0	20.0	20.0	U	20.0	U								
Mercury	HG	CVA	HG090601	0.2	0.1												
Nickel	NI	ICP	IP090571	40.0	10.0	10.0	U	10.0	U								
Selenium	SE	ICP	IP090571	5.0	50.0	50.0	U	50.0	U								
Thallium	TL	ICP	IP090571	10.0	50.0	50.0	U	50.0	U								
Vanadium	V	ICP	IP090571	50.0	3.0	3.0	U	3.0	U								
Zinc	ZN	ICP	IP090571	20.0	10.0	10.0	U	10.0	U								

TK37.00219

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ICS SOURCE: I.V.

PROJECT: FRP Shoreline Invest

RUNID: IP090571

SDG: TK37

INSTRUMENT ID: OPTIMA ICP 2

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	196895.2	194763.4	**97.4**	187389.5	188019.5	**94.0**			
Antimony		1000	-3.4	929.4	**92.9**	-7.8	890.3	**89.0**			
Arsenic		1000	7.7	985.9	**98.6**	10.6	1028.3	**102.8**			
Barium		1000	-1.0	966.1	**96.6**	-0.4	907.8	**90.8**			
Beryllium		1000	0.1	977.0	**97.7**	0.0	1017.5	**101.8**			
Boron			-6.2	-4.9		-6.4	-6.7				
Cadmium		1000	1.9	1013.8	**101.4**	1.6	979.6	**98.0**			
Calcium	100000	100000	102754.6	101065.2	**101.1**	97755.6	99262.7	**99.3**			
Chromium		1000	-1.6	999.0	**99.9**	-1.2	967.0	**96.7**			
Cobalt		1000	0.9	982.8	**98.3**	0.8	929.5	**93.0**			
Copper		1000	-3.2	1020.7	**102.1**	-2.1	1005.5	**100.6**			
Iron	200000	200000	195380.4	190322.7	**95.2**	181034.4	178768.3	**89.4**			
Lead		1000	-1.5	949.4	**94.9**	-3.8	984.3	**98.4**			
Magnesium	100000	100000	102233.8	96751.4	**96.8**	96391.2	93063.3	**93.1**			
Manganese		1000	0.1	924.3	**92.4**	-0.2	860.5	**86.1**			
Molybdenum			1.6	1.7		1.0	0.5				
Nickel		1000	1.8	924.5	**92.5**	3.6	967.4	**96.7**			
Potassium			45.0	278.3		107.5	320.4				
Selenium		1000	8.2	971.6	**97.2**	11.8	1029.7	**103.0**			
Silicon			-5.6	-0.8		-1.4	-2.7				
Silver		1000	-0.9	983.6	**98.4**	-0.5	1035.3	**103.5**			
Sodium			13.5	13.1		35.2	25.6				
Strontium			10.3	10.0		10.4	10.5				
Thallium		1000	12.2	940.5	**94.1**	13.5	978.7	**97.9**			
Tin			2.9	3.6		1.4	2.0				
Titanium			9.5	8.7		7.4	8.0				
Vanadium		1000	12.7	979.6	**98.0**	10.0	960.5	**96.1**			
Zinc		1000	-6.6	924.5	**92.5**	-6.4	948.3	**94.8**			

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

ICS SOURCE: I.V.

PROJECT: FRP Shoreline Invest

RUNID: MS090681

SDG: TK37

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	20000	20000	19996.5	19808.1	**99.0**						
Antimony			0.1	0.1							
Arsenic		20	0.0	19.5	**97.5**						
Cadmium		20	0.0	19.9	**99.5**						
Chromium		20	0.5	20.6	**103.0**						
Cobalt		20	0.1	19.6	**98.0**						
Copper		20	0.5	20.5	**102.5**						
Iron	20000	20000	20137.2	20309.4	**101.5**						
Manganese		20	0.7	20.6	**103.0**						
Molybdenum	400	400	417.9	421.0	**105.3**						
Nickel		20	0.6	20.1	**100.5**						
Selenium			0.0	-0.1							
Silver		20	0.0	19.2	**96.0**						
Vanadium			0.0	-0.4							
Zinc		20	1.0	20.5	**102.5**						

TK37.00212

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

ANALYSIS METHOD: ICP

SDG: TK37

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFER-ENCE	Q
Aluminum	FRP-082911-021L	TK37A-L	Soil	IP090571	101922.77		101770.65		0.1	
Cadmium	FRP-082911-021L	TK37A-L	Soil	IP090571	2.42	B	10.00	U	100.0	
Chromium	FRP-082911-021L	TK37A-L	Soil	IP090571	212.70		222.25		4.5	
Copper	FRP-082911-021L	TK37A-L	Soil	IP090571	254.30		253.50		0.3	
Lead	FRP-082911-021L	TK37A-L	Soil	IP090571	71.16		100.00	U	100.0	
Nickel	FRP-082911-021L	TK37A-L	Soil	IP090571	277.36		292.80		5.6	
Selenium	FRP-082911-021L	TK37A-L	Soil	IP090571	13.43	U	250.00	U		
Thallium	FRP-082911-021L	TK37A-L	Soil	IP090571	6.49	U	250.00	U		
Vanadium	FRP-082911-021L	TK37A-L	Soil	IP090571	432.53		439.20		1.5	
Zinc	FRP-082911-021L	TK37A-L	Soil	IP090571	422.68		440.00		4.1	

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

ANALYSIS METHOD: PMS

SDG: TK37

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFER-ENCE	Q
Arsenic	FRP-082911-021L	TK37A-L	Soil	MS090681	3.04	B	3.10	B	2.0	

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

SDG: TK37 UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Aluminum	AL	ICP	OPTIMA ICP 2	308.22		200	50.0	4/1/2011	250000.0	8/3/2011
Arsenic	AS	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		
Cadmium	CD	ICP	OPTIMA ICP 2	228.80		5	2.0	4/1/2011	20000.0	8/3/2011
Chromium	CR	ICP	OPTIMA ICP 2	267.72		10	5.0	4/1/2011	100000.0	8/3/2011
Copper	CU	ICP	OPTIMA ICP 2	324.75		25	2.0	4/1/2011	40000.0	8/3/2011
Lead	PB	ICP	OPTIMA ICP 2	220.35		3	20.0	4/1/2011	300000.0	8/3/2011
Mercury	HG	CVA	CETAC MERCURY	253.70		0.2	0.1	4/1/2011		
Nickel	NI	ICP	OPTIMA ICP 2	231.60		40	10.0	4/1/2011	100000.0	8/3/2011
Selenium	SE	ICP	OPTIMA ICP 2	196.02		5	50.0	4/1/2011	20000.0	8/3/2011
Thallium	TL	ICP	OPTIMA ICP 2	190.86		10	50.0	4/1/2011	30000.0	8/3/2011
Vanadium	V	ICP	OPTIMA ICP 2	292.40		50	3.0	4/1/2011	50000.0	8/3/2011
Zinc	ZN	ICP	OPTIMA ICP 2	213.86		20	10.0	4/1/2011	100000.0	8/3/2011

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

IEC DATE: 7/29/2011

SDG: TK37

INSTRUMENT ID: OPTIMA ICP 2

ANALYTE	WAVELENGTH	AL	AS	BA	BE	CA	CD	CO	CR	CU	FE
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	10.6149000	0.0000000	0.0000000
Arsenic	188.98	0.0000000	0.0000000	0.0000000	0.0000000	0.0782700	0.0000000	-0.8345790	1.1215100	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.1892080	0.0000000	0.0000000	0.0725549
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	5.2418600	0.0000000	0.0000000	0.0000000	0.0000000	0.1195910	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.5252460	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0153433	0.0000000	0.0000000	0.0000000	0.0000000	-0.0413852
Cobalt	228.62	0.0000000	0.0000000	0.1238430	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.2279050	-0.0318969	0.0000000	-0.0576582
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.6163900	0.0000000	0.0000000
Lead	220.35	-0.1933070	0.0000000	0.0000000	0.0000000	-0.0313291	0.0000000	0.0000000	-2.3072100	1.2452600	0.0604941
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.1350880	0.0000000	-1.6380600	-1.2519300	0.0000000	0.6248050
Manganese	257.61	0.0065894	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.0058926
Molybdenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0213077	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0729253	0.0000000	0.3514040	0.0000000	0.0000000	0.0000000
Silicon	288.16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.4885200	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	12.3032000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0697991	0.0000000	1.7836600	0.3510820	0.0000000	-0.1057610
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	-0.1956000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.0000000	0.0000000	0.1325580	0.0000000	0.0000000	0.1632010	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.9361800	0.0000000	0.0656240
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.1475900	0.0000000	0.0387756

TK37.00216

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

IEC DATE: 7/29/2011

SDG: TK37

INSTRUMENT ID: OPTIMA ICP 2

ANALYTE	WAVELENGTH	MG	MN	MO	NI	PB	SB	TI	TL	V	ZN
Aluminum	308.22	0.0000000	0.0000000	15.3131000	0.0000000	0.0000000	0.0000000	1.5167500	0.0000000	17.6996000	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	-0.4730780	0.0000000	0.0000000	-0.8897510	0.0000000	-3.3546800	0.0000000
Arsenic	188.98	0.0000000	0.0000000	2.3330800	0.0000000	0.0000000	0.0000000	-5.4412000	0.0000000	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0766262	0.0000000	0.0000000	0.0000000	0.0000000	0.6419380	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.2960780	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	-0.7324130	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0546494	0.0000000	0.1395070	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.2773470	0.0000000
Cobalt	228.62	0.0000000	0.0000000	-0.1579570	0.1588330	0.0000000	0.0000000	1.8115900	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0041446	0.0000000	0.2688440	0.0000000	0.0000000	0.0000000	0.2461180	0.0000000	0.0000000	0.0000000
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	8.4403600	0.0000000
Lead	220.35	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	279.08	0.0000000	0.0000000	-4.6256200	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0052560	0.0000000	0.0000000	0.0000000	-0.2175850	0.0000000	0.0000000	0.0000000	-0.0271775	0.0000000
Molybdenum	202.03	0.0117204	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.7744280	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0551056	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silicon	288.16	-0.1370260	0.0000000	-2.7358100	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.2442620	0.2419260	0.0000000	0.0000000	0.0000000	-0.0470302	0.0000000	-0.2758080	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	242.4230000	0.0000000	0.0000000	318.1570000
Thallium	190.80	0.0000000	-1.4179000	1.9562000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	1.2892100	0.0000000
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.5848020	-0.3044710	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.9873960	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	-0.1398510	-0.6804250	0.0000000	0.0000000	0.0000000	0.6004670	0.0000000	0.0000000	0.0000000
Zinc	206.20	0.0000000	0.0000000	0.2377960	0.0000000	-0.0708227	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

TK37 : 002127

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

SDG: TK37

ANALYSIS METHOD: ICP

ARI PREP CODE: SWC

PREPDATE: 9/1/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-082911-021	TK37A	1.023	0.0	50.0
FRP-082911-021D	TK37ADUP	1.022	0.0	50.0
FRP-082911-021S	TK37ASPK	1.019	0.0	50.0
FRP-082911-022	TK37B	1.081	0.0	50.0
FRP-082911-023	TK37C	1.042	0.0	50.0
FRP-082911-024	TK37D	1.053	0.0	50.0
FRP-082911-025	TK37E	1.079	0.0	50.0
FRP-082911-027	TK37F	1.062	0.0	50.0
FRP-082911-028	TK37G	1.020	0.0	50.0
FRP-082911-029	TK37H	1.081	0.0	50.0
FRP-082911-030	TK37I	1.057	0.0	50.0
PBS	TK37MB1	1.000	0.0	50.0
LCSS	TK37MB1SPK	1.000	0.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

SDG: TK37

ANALYSIS METHOD: PMS

ARI PREP CODE: SWN

PREPDATE: 9/1/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-082911-021	TK37A	1.028	0.0	50.0
FRP-082911-021D	TK37ADUP	1.025	0.0	50.0
FRP-082911-021S	TK37ASPK	1.031	0.0	50.0
FRP-082911-022	TK37B	1.031	0.0	50.0
FRP-082911-023	TK37C	1.048	0.0	50.0
FRP-082911-024	TK37D	1.037	0.0	50.0
FRP-082911-025	TK37E	1.067	0.0	50.0
FRP-082911-027	TK37F	1.035	0.0	50.0
FRP-082911-028	TK37G	1.039	0.0	50.0
FRP-082911-029	TK37H	1.072	0.0	50.0
FRP-082911-030	TK37I	1.073	0.0	50.0
PBS	TK37MB1	1.000	0.0	50.0
LCSS	TK37MB1SPK	1.000	0.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest

SDG: TK37

ANALYSIS METHOD: CVA

ARI PREP CODE: SMM

PREPDATE: 9/1/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
FRP-082911-021	TK37A	0.239	0.0	50.0
FRP-082911-021D	TK37ADUP	0.236	0.0	50.0
FRP-082911-021S	TK37ASPK	0.242	0.0	50.0
FRP-082911-022	TK37B	0.296	0.0	50.0
FRP-082911-023	TK37C	0.233	0.0	50.0
FRP-082911-024	TK37D	0.238	0.0	50.0
FRP-082911-025	TK37E	0.284	0.0	50.0
FRP-082911-027	TK37F	0.229	0.0	50.0
FRP-082911-028	TK37G	0.282	0.0	50.0
FRP-082911-029	TK37H	0.248	0.0	50.0
FRP-082911-030	TK37I	0.273	0.0	50.0
PBS	TK37MB1	0.200	0.0	50.0
LCSW	TK37MB1SPK	0.200	0.0	50.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 9/5/2011

SDG: TK37 | RUNID: IP090571 | METHOD: ICP | END DATE: 9/5/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	10262			X						X		X	X								X	X		X				X		X	X
S2	S2	1.00	10304									X		X	X																	X	
S3	S3	1.00	10322																				X	X		X				X			X
S4	S4	1.00	10345																														
S5	S5	1.00	10370			X																											
ICV	ICV	1.00	10442			X						X		X	X								X	X		X				X		X	X
ICB	ICB	1.00	10482			X						X		X	X								X	X		X				X		X	X
CRI	CRII	1.00	10524			X						X		X	X								X	X		X				X		X	X
ICSA	ICSAI	1.00	10573			X						X		X	X								X	X		X				X		X	X
ICSAB	ICSABI	1.00	11014			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	HiPurQC7M	1.00	11065																														
ZZZZZZ	SPEXQC21	1.00	11110																														
ZZZZZZ	DICHECK	1.00	11152																														
CCV	CCV1	1.00	11193			X						X		X	X								X	X		X				X		X	X
CCB	CCB1	1.00	11233			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	TK28MB	5.00	11274																														
ZZZZZZ	TK19MB2	5.00	11325																														
ZZZZZZ	TK19BtDUP	5.00	11370																														
ZZZZZZ	TK19Bt	5.00	11411																														
ZZZZZZ	TK19BtSPK	5.00	11452																														
ZZZZZZ	TK28ADUP	5.00	11494																														
ZZZZZZ	BLK	1.00	11561																														
CCV	CCV2	1.00	12002			X						X		X	X								X	X		X				X		X	X
CCB	CCB2	1.00	12044			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	TK28MB	5.00	12085																														
ZZZZZZ	TK19MB2	5.00	12133																														
ZZZZZZ	TK19BtDUP	5.00	12180																														
ZZZZZZ	TK19Bt	5.00	12221																														
ZZZZZZ	TK19BtSPK	5.00	12263																														
ZZZZZZ	TK28ADUP	5.00	12304																														
ZZZZZZ	TK28A	5.00	12350																														
ZZZZZZ	TK28ASPK	5.00	12391																														
CCV	CCV3	1.00	12445			X						X		X	X								X	X		X				X		X	X
CCB	CCB3	1.00	12500			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	TK30MB1	5.00	12541																														

FORM XIV

TK37 : 090221

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 9/5/2011

SDG: TK37 | RUNID: IP090571 METHOD: ICP | END DATE: 9/5/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-082911-025	TK37E	2.00	12584			X						X		X	X								X	X		X				X		X	X
FRP-082911-027	TK37F	2.00	13024			X						X		X	X								X	X		X				X		X	X
FRP-082911-028	TK37G	2.00	13064			X						X		X	X								X	X		X				X		X	X
FRP-082911-029	TK37H	2.00	13104			X						X		X	X								X	X		X				X		X	X
FRP-082911-030	TK37I	2.00	13144			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	TK30B	5.00	13192																														
ZZZZZZ	TK30ADUP	5.00	13233																														
ZZZZZZ	TK30A	5.00	13275																														
ZZZZZZ	TK30ASPK	5.00	13321																														
CCV	CCV4	1.00	13370			X						X		X	X								X	X		X				X		X	X
CCB	CCB4	1.00	13415			X						X		X	X								X	X		X				X		X	X
S3	S3	1.00	13464																				X	X		X				X			X
CCV	CCV5	1.00	13525			X						X		X	X								X	X		X				X		X	X
CCB	CCB5	1.00	13580			X						X		X	X								X	X		X				X		X	X
PBS	TK37MB1	2.00	14021			X						X		X	X								X	X		X				X		X	X
FRP-082911-021L	TK37A-L	10.00	14063			X						X		X	X								X	X		X				X		X	X
FRP-082911-021	TK37A	2.00	14103			X						X		X	X								X	X		X				X		X	X
FRP-082911-021D	TK37ADUP	2.00	14142			X						X		X	X								X	X		X				X		X	X
FRP-082911-021S	TK37ASPK	2.00	14182			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	ZZZZZZ	2.00	14221																														
FRP-082911-022	TK37B	2.00	14260			X						X		X	X								X	X		X				X		X	X
FRP-082911-023	TK37C	2.00	14300			X						X		X	X								X	X		X				X		X	X
FRP-082911-024	TK37D	2.00	14340			X						X		X	X								X	X		X				X		X	X
LCSS	TK37MB1SPK	2.00	14375			X						X		X	X								X	X		X				X		X	X
CCV	CCV6	1.00	14422			X						X		X	X								X	X		X				X		X	X
CCB	CCB6	1.00	14474			X						X		X	X								X	X		X				X		X	X
ZZZZZZ	ZZZZZZ	1.00	14535																														
CRI	CRIF	1.00	15000			X						X		X	X								X	X		X				X		X	X
ICSA	ICSAF	1.00	15050			X						X		X	X								X	X		X				X		X	X
ICSAB	ICSABF	1.00	15091			X						X		X	X								X	X		X				X		X	X
CCV	CCV7	1.00	15142			X						X		X	X								X	X		X				X		X	X
CCB	CCB7	1.00	15192			X						X		X	X								X	X		X				X		X	X

TK37 : 082222

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest INSTRUMENT ID: PE ELAN 6000 MS START DATE: 9/6/2011

SDG: TK37 RUNID: MS090681 METHOD: PMS END DATE: 9/6/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	09090				X																										
S1	S1	1.00	09170				X																										
S2	S2	1.00	09240				X																										
S3	S3	1.00	09320				X																										
S4	S4	1.00	09400				X																										
ZZZZZZ	Rinse Sampl	1.00	09470																														
ICV	MICV	1.00	09570				X																										
ICB	ICB	1.00	10040				X																										
CCV	MCCV1	1.00	10110				X																										
CCB	CCB1	1.00	10190				X																										
CRI	MCRI	1.00	10260				X																										
ICSA	ICSAI	1.00	10330				X																										
ICSAB	ICSABI	1.00	10410				X																										
ZZZZZZ	LR200	1.00	10490																														
ZZZZZZ	LR300	1.00	10560																														
CCV	MCCV2	1.00	11040				X																										
CCB	CCB2	1.00	11110				X																										
ZZZZZZ	TJ71RMB2	2.00	11190																														
ZZZZZZ	TK36MB1	2.00	11260																														
ZZZZZZ	TK36MB1SPK	2.00	11320																														
ZZZZZZ	TK36A-L	10.00	11390																														
ZZZZZZ	TK36A	2.00	11460																														
ZZZZZZ	TK36ADUP	2.00	11520																														
ZZZZZZ	TK36ASPK	2.00	11590																														
ZZZZZZ	TK24A	2.00	12060																														
ZZZZZZ	TK24B	2.00	12130																														
ZZZZZZ	TK24C	2.00	12190																														
CCV	MCCV3	1.00	12260				X																										
CCB	CCB3	1.00	12330				X																										
ZZZZZZ	TK24MB1	2.00	12410																														
ZZZZZZ	TK24MB1SPK	2.00	12480																														
ZZZZZZ	TK24G-L	10.00	12540																														
ZZZZZZ	TK24G	2.00	13010																														
ZZZZZZ	TK24GDUP	2.00	13080																														
ZZZZZZ	TK24GSPK	2.00	13140																														

FORM XIV

TK37.00228

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 9/6/2011

SDG: TK37 | RUNID: MS090681 METHOD: PMS | END DATE: 9/6/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TK24N-L	10.00	13210																														
ZZZZZZ	TK24N	2.00	13280																														
ZZZZZZ	TK24NDUP	2.00	13340																														
ZZZZZZ	TK24NSPK	2.00	13410																														
CCV	MCCV4	1.00	13480				X																										
CCB	CCB4	1.00	13550				X																										
ZZZZZZ	TK24MB2	2.00	14040																														
ZZZZZZ	TK24MB2SPK	2.00	14100																														
ZZZZZZ	TK24D	2.00	14170																														
ZZZZZZ	TK24E	2.00	14240																														
ZZZZZZ	TK24F	2.00	14310																														
ZZZZZZ	TK24H	2.00	14370																														
ZZZZZZ	TK24I	2.00	14440																														
ZZZZZZ	TK24J	2.00	14510																														
ZZZZZZ	TK24K	2.00	14580																														
ZZZZZZ	TK24L	2.00	15040																														
CCV	MCCV5	1.00	15110				X																										
CCB	CCB5	1.00	15180				X																										
ZZZZZZ	TK35MB1	20.00	15280																														
ZZZZZZ	TK35MB1SPK	20.00	15350																														
ZZZZZZ	TK24M	2.00	15420																														
ZZZZZZ	TK35B	20.00	15480																														
ZZZZZZ	TK35C	20.00	15550																														
ZZZZZZ	TK35D	20.00	16020																														
ZZZZZZ	TK35E	20.00	16080																														
ZZZZZZ	TK35F	20.00	16150																														
ZZZZZZ	TK35G	20.00	16220																														
ZZZZZZ	TK35H	20.00	16280																														
CCV	MCCV6	1.00	16350				X																										
CCB	CCB6	1.00	16430				X																										
ZZZZZZ	TK35A-L	100.00	16500																														
ZZZZZZ	TK35A	20.00	16570																														
ZZZZZZ	TK35ADUP	20.00	17030																														
ZZZZZZ	TK35ASPK	20.00	17100																														
ZZZZZZ	ZZZZZZ	20.00	17170																														

FORM XIV

TK37 : 002214

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 9/6/2011

SDG: TK37 | RUNID: MS090681 METHOD: PMS | END DATE: 9/6/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	TK35I	20.00	17230																														
ZZZZZZ	TK35J	20.00	17300																														
ZZZZZZ	TK35K	20.00	17370																														
ZZZZZZ	TK35L	20.00	17430																														
ZZZZZZ	TK35M	20.00	17500																														
CCV	MCCV7	1.00	17570				X																										
CCB	CCB7	1.00	18040				X																										
ZZZZZZ	TK35N	20.00	18120																														
ZZZZZZ	TK35O	20.00	18180																														
ZZZZZZ	TK35P	20.00	18250																														
ZZZZZZ	TK35Q	20.00	18320																														
ZZZZZZ	TK35R	20.00	18380																														
FRP-082911-022	TK37B	20.00	18450				X																										
FRP-082911-023	TK37C	20.00	18520				X																										
FRP-082911-024	TK37D	20.00	18590				X																										
FRP-082911-025	TK37E	20.00	19050				X																										
FRP-082911-027	TK37F	20.00	19120				X																										
CCV	MCCV8	1.00	19190				X																										
CCB	CCB8	1.00	19260				X																										
PBS	TK37MB1	20.00	19340				X																										
LCSS	TK37MB1SPK	20.00	19400				X																										
FRP-082911-021L	TK37A-L	100.00	19470				X																										
FRP-082911-021	TK37A	20.00	19530				X																										
FRP-082911-021D	TK37ADUP	20.00	20000				X																										
FRP-082911-021S	TK37ASPK	20.00	20070				X																										
FRP-082911-028	TK37G	20.00	20130				X																										
FRP-082911-029	TK37H	20.00	20200				X																										
FRP-082911-030	TK37I	20.00	20270				X																										
ZZZZZZ	TK51B	20.00	20340																														
CCV	MCCV9	1.00	20400				X																										
CCB	CCB9	1.00	20480				X																										

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest | INSTRUMENT ID: CETAC MERCURY | START DATE: 9/6/2011

SDG: TK37 | RUNID: HG090601 METHOD: CVA | END DATE: 9/6/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	09295														X																
S0.1	S0.1	1.00	09313														X																
S0.5	S0.5	1.00	09330														X																
S1	S1	1.00	09344														X																
S2	S2	1.00	09362														X																
S5	S5	1.00	09380														X																
S10	S10	1.00	09394														X																
ICV	AICV	1.00	09425														X																
ICB	ICB	1.00	09442														X																
CCV	ACCV1	1.00	09460														X																
CCB	CCB1	1.00	09474														X																
CRA	CRA	1.00	09492														X																
ZZZZZZ	TJ59MB1	1.00	09505																														
ZZZZZZ	TJ59MB1SPK	1.00	09523																														
ZZZZZZ	TJ59REF1	5.00	09541																														
ZZZZZZ	TJ59B	1.00	09554																														
ZZZZZZ	TJ59BDUP	1.00	09572																														
ZZZZZZ	TJ59BSPK	1.00	09590																														
ZZZZZZ	TJ60A	1.00	10003																														
ZZZZZZ	TJ60B	1.00	10021																														
ZZZZZZ	TJ60C	1.00	10035																														
CCV	ACCV2	1.00	10053														X																
CCB	CCB2	1.00	10071														X																
ZZZZZZ	TJ60D	1.00	10085																														
ZZZZZZ	TK20MB1	1.00	10102																														
ZZZZZZ	TK20MB1SPK	1.00	10120																														
ZZZZZZ	TK20REF1	5.00	10133																														
ZZZZZZ	TK20A	1.00	10151																														
ZZZZZZ	TK20ADUP	1.00	10165																														
ZZZZZZ	TK20ASPK	1.00	10182																														
PBW	TK37MB1	1.00	10200														X																
LCSW	TK37MB1SPK	1.00	10214														X																
FRP-082911-021	TK37A	1.00	10231														X																
CCV	ACCV3	1.00	10245														X																
CCB	CCB3	1.00	10263														X																

FORM XIV

TK37 00225

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: AMEC Geomatrix

PROJECT: FRP Shoreline Invest | INSTRUMENT ID: CETAC MERCURY | START DATE: 9/6/2011

SDG: TK37 | RUNID: HG090601 METHOD: CVA | END DATE: 9/6/2011

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
FRP-082911-021D	TK37ADUP	1.00	10281														X																
FRP-082911-021S	TK37ASPK	1.00	10295														X																
FRP-082911-022	TK37B	1.00	10313														X																
FRP-082911-023	TK37C	1.00	10330														X																
FRP-082911-024	TK37D	1.00	10344														X																
FRP-082911-025	TK37E	1.00	10362														X																
FRP-082911-027	TK37F	1.00	10375														X																
FRP-082911-028	TK37G	1.00	10393														X																
FRP-082911-029	TK37H	1.00	10411														X																
FRP-082911-030	TK37I	1.00	10424														X																
CCV	ACCV4	1.00	10442														X																
CCB	CCB4	1.00	10460														X																

TK37 : 00227

Geotechnical Analysis
Report and Summary QC Forms

ARI Job ID: TK37

ANALYTICAL RESOURCES INCORPORATED

GEOTECHNICAL ANALYSIS DATA SHEET
Moisture Content by Method ASTM D2216

Data Release Authorized: gb
Reported: 09/08/11
Date Received: 08/29/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Client/ ARI ID	Date Sampled	Matrix	Analysis Date	Result
FRP-082911-026 TK37J 11-18818	08/29/11	Soil	09/01/11 16:07	33.72

Reported in Percent

ANALYTICAL RESOURCES INCORPORATED

GEOTECHNICAL ANALYSIS DATA SHEET
Wet Density by Method ASTM D7263

Data Release Authorized: gs
Reported: 09/08/11
Date Received: 08/29/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Client/ ARI ID	Date Sampled	Matrix	Analysis Date	Result
FRP-082911-026 TK37J 11-18818	08/29/11	Soil	09/01/11 16:07	115.8

Reported in lb/ft3

ANALYTICAL RESOURCES INCORPORATED

GEOTECHNICAL ANALYSIS DATA SHEET
Dry Density by Method ASTM D7263

Data Release Authorized:
Reported: 09/08/11
Date Received: 08/29/11

QC Report No: TK37-AMEC Geomatrix
Project: FRP Shoreline Investigation 2011
8769

Client/ ARI ID	Date Sampled	Matrix	Analysis Date	Result
FRP-082911-026 TK37J 11-18818	08/29/11	Soil	09/01/11 16:07	86.6

Reported in lb/ft3

AMEC Geomatrix
6769
FRP Shoreline Investigation 2011

Percent Retained in Each Size Fraction

Description	%Coarse Gravel				% Gravel			% Coarse Sand	% Medium Sand		% Fine Sand			% Very Coarse Silt	% Coarse Silt	% Medium Silt	% Fine Silt	% Fine Silt	% Very Fine Silt	% Clay
Particle Size (microns)	3-2"	2-1 1/2"	1 1/2"-1"	1-3/4"	3/4-1/2"	1/2-3/8"	3/8"-4750	4750-2000	2000-850	850-425	425-250	250-150	150-75	75-32	32-22	22-13	13-9	9-7	7-3.2	<3.2
FRP-082911-005	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	7.6	30.4	38.8	16.1	0.9	1.8	0.5	0.9	0.9	1.8
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	7.5	31.1	39.7	14.6	0.9	1.4	0.9	0.5	1.4	1.8
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.0	30.5	37.9	15.5	1.4	1.8	0.0	1.4	1.4	1.8
FRP-082911-026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	10.9	44.7	29.9	3.9	3.3	1.1	1.1	2.2	2.2

TK37

TK37 : 002552

AMEC Geomatrix
8769
FRP Shoreline Investigation 2011

Percent Finer (Passing) Than the Indicated Size

Sieve Size (microns)	3"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4 (4750)	#10 (2000)	#20 (650)	#40 (425)	#60 (250)	#100 (150)	#200 (75)	32	22	13	9	7	3.2	1.3
FRP-082911-005	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	92.2	61.8	22.9	6.9	6.0	4.1	3.7	2.8	1.8	1.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	92.2	61.1	21.4	6.9	6.0	4.6	3.7	3.2	1.8	1.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	91.8	61.2	23.3	7.8	6.4	4.6	4.6	3.2	1.8	1.4
FRP-082911-026	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.4	88.5	43.8	13.9	10.0	6.7	5.6	4.5	2.2	1.7

Testing performed according to ASTM D421/D422

TK37

TK37 1 082558

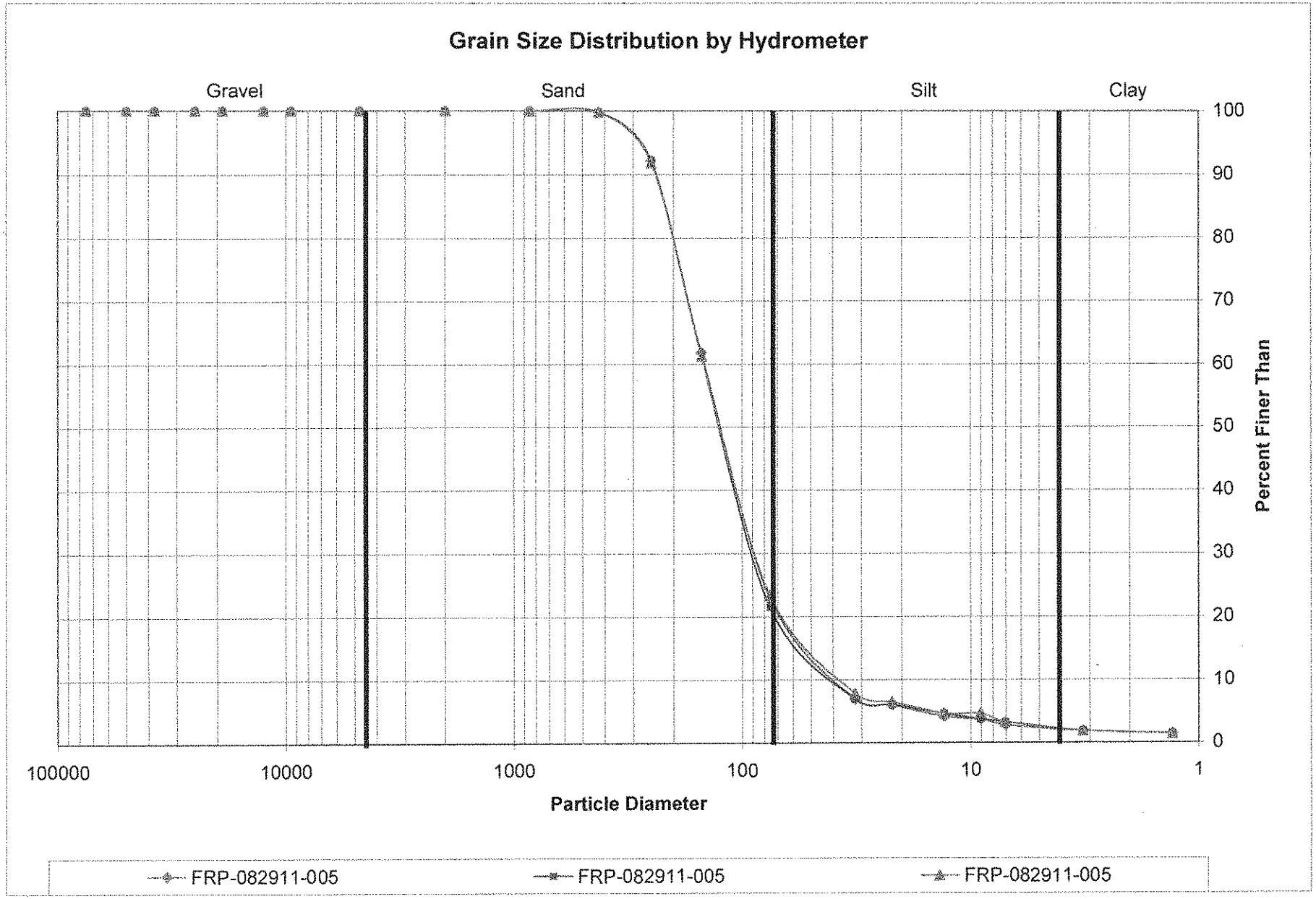
Client:	AMEC Geomatrix	Project No.:	8769
		Project:	FRP Shoreline Investigation 2011
ARI Triplicate Sample ID:	TK35S	Batch No.:	TK37-01
Client Triplicate Sample ID:	FRP-082911-005	Page:	1 of 1

Relative Standard Deviation, By Size

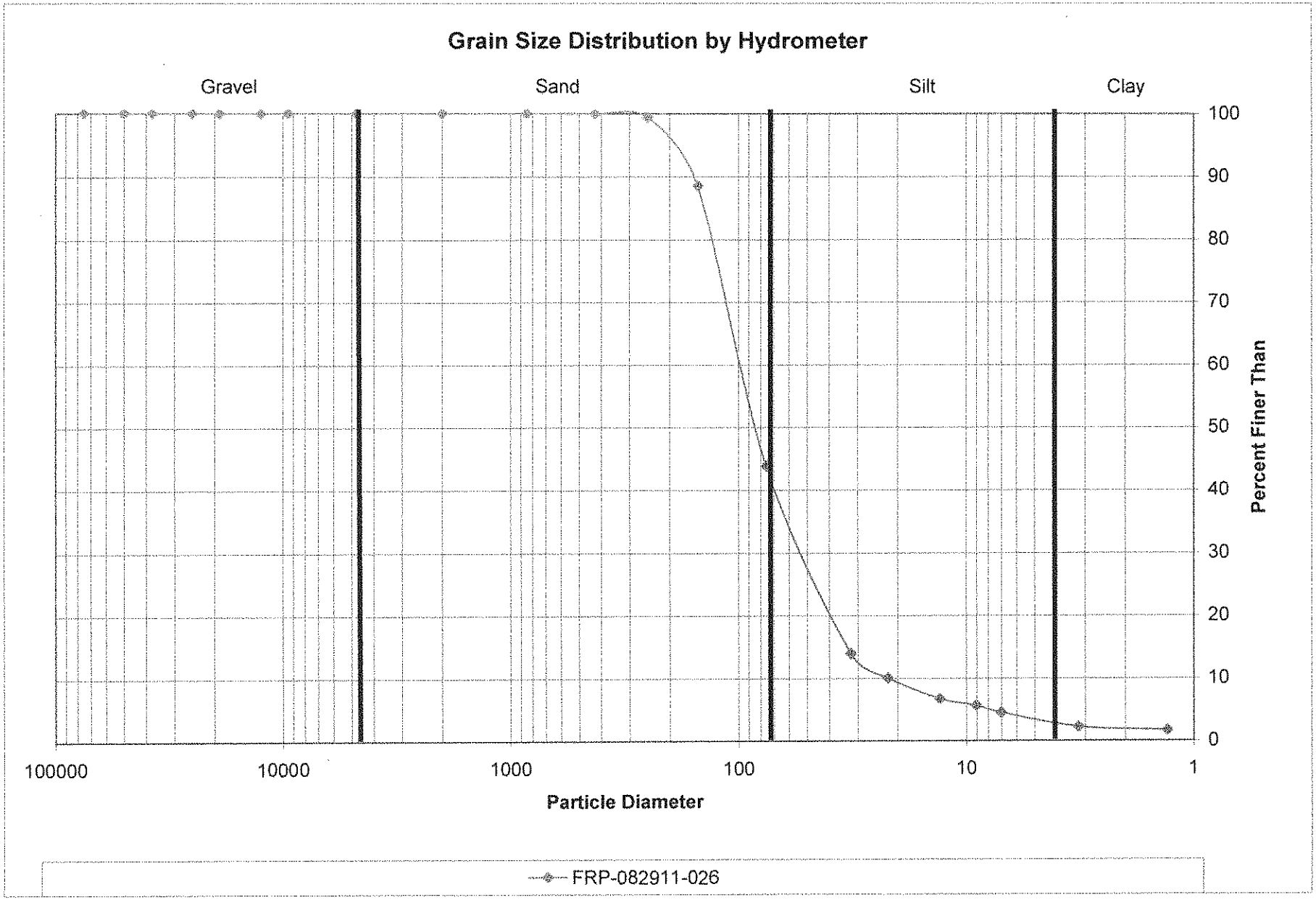
Sample ID	75000	50000	37500	25000	19000	12500	9500	4750	2000	850	425	250	150	75	32	22	13	9	7	3.2	1.3
FRP-082911-005	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	92.2	61.8	22.9	6.9	6.0	4.1	3.7	2.8	1.8	1.4
FRP-082911-005	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	92.2	61.1	21.4	6.9	6.0	4.6	3.7	3.2	1.8	1.4
FRP-082911-005	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	91.8	61.2	23.3	7.8	6.4	4.6	4.6	3.2	1.8	1.4
AVE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.99	99.77	92.06	61.37	22.57	7.20	6.13	4.44	3.98	3.06	1.84	1.38
STDEV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.24	0.34	1.00	0.54	0.27	0.26	0.54	0.26	0.00	0.00
%RSD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.26	0.56	4.44	7.49	4.45	5.90	13.45	8.59	0.19	0.19

This Triplicate applies to the Batch Containing the Following Samples

Sample ID	Date Sampled	Date Set up	Date Started	Date Complete	Data Qualifiers
FRP-082911-005	8/29/2011	9/1/2011	9/6/2011	9/8/2011	
	8/29/2011	9/1/2011	9/6/2011	9/8/2011	
	8/29/2011	9/1/2011	9/6/2011	9/9/2011	
FRP-082911-026	8/29/2011	9/1/2011	9/6/2011	9/8/2011	

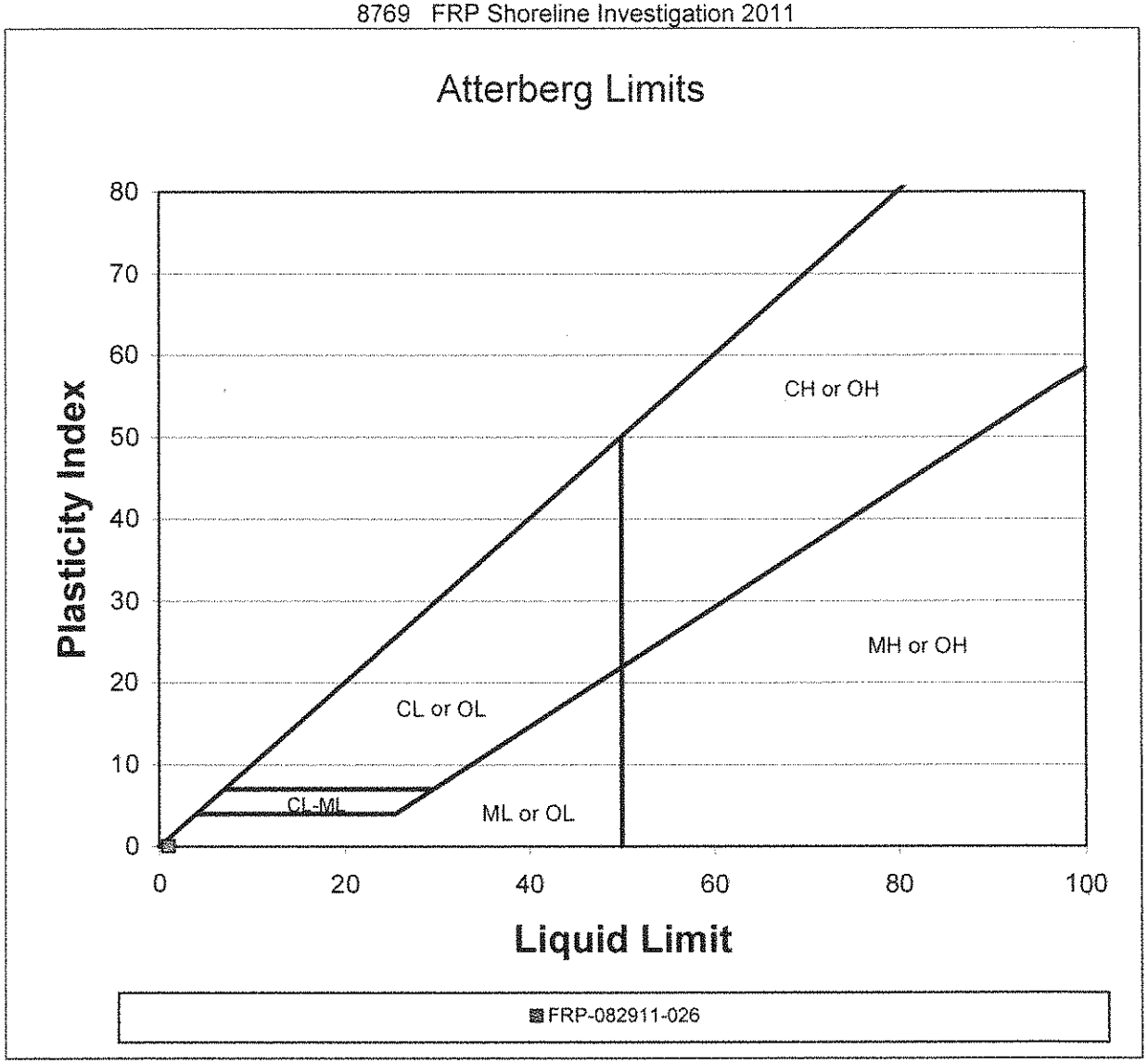

Grain Size Distribution by Hydrometer
Gravel
Sand
Silt
Clay
100
90
80
70
60
50
40
30
20
10
0
Percent Finer Than
100000
10000
1000
100
10
1
Particle Diameter
FRP-082911-005
FRP-082911-005
FRP-082911-005

TKG7 : 002235



TN637 : 0022305

AMEC Geomatrix
8769 FRP Shoreline Investigation 2011



Sample Identification	As-Received Moisture Content	Plasticity Index	Liquid Limit	Plastic Limit	USCS
FRP-082911-026	33.72	NA	NA	NA	Non-Plastic

TK37

TK37 : 00237

Total Solids

ARI Job ID: TK37

Volatiles Total Solids-voats
Data By: Paul K. Campbell
Created: 9/ 6/11

Worklist: 3477
Analyst: PKC
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. TK37A 11-18809				% 91.50
2. TK37B 11-18810				% 74.75
3. TK37C 11-18811				% 77.37
4. TK37D 11-18812				% 77.01
5. TK37E 11-18813				% 75.40
6. TK37F 11-18814				% 88.27
7. TK37G 11-18815				% 88.64
8. TK37H 11-18816				% 74.11
9. TK37I 11-18817				% 83.83

* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

BETX/TPHG Total Solids-betxts
Data By: Monica Herbert
Created: 9/10/11

Worklist: 4811
Analyst: MH
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. TK37A 11-18809			*	91.5
2. TK37B 11-18810			*	74.8
3. TK37C 11-18811			*	77.4
4. TK37D 11-18812			*	77.0
5. TK37E 11-18813			*	75.4
6. TK37F 11-18814			*	88.3
7. TK37G 11-18815			*	88.6
8. TK37H 11-18816			*	74.1
9. TK37I 11-18817			*	83.8

Worklist ID: 4811 Page: 1
* - BETX TS Copied From VOA TS
% - BETX TS Copied From Metals TS
$ - BETX TS Copied From Extraction TS

Extractions Total Solids-extts
Data By: Yen Luu
Created: 8/30/11

Worklist: 1790
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	TK37A 11-18809 FRP-082911-021	1.16	12.65	11.66	91.4	NR
2.	TK37B 11-18810 FRP-082911-022	1.19	11.74	9.07	74.7	NR
3.	TK37C 11-18811 FRP-082911-023	1.18	12.66	9.86	75.6	NR
4.	TK37D 11-18812 FRP-082911-024	1.18	12.00	9.43	76.2	NR
5.	TK37E 11-18813 FRP-082911-025	1.18	11.79	9.30	76.5	NR
6.	TK37F 11-18814 FRP-082911-027	1.16	11.93	10.64	88.0	NR
7.	TK37G 11-18815 FRP-082911-028	1.18	12.22	10.96	88.6	NR
8.	TK37H 11-18816 FRP-082911-029	1.19	12.98	9.89	73.8	NR
9.	TK37I 11-18817 FRP-082911-030	1.17	13.04	11.00	82.8	NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 8/30/11

Worklist: 1790
Analyst: YL
Comments:

Oven ID: 015

Balance ID: 217545206

Samples In: Date: 8/30/11 Time: 21:15 Temp: 105 Analyst: YL

Samples Out: Date: 9/3/11 Time: 10:15 Temp: 105° Analyst: RR

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	TK37A 11-18809 FRP-082911-021	1.16 1.19	12.65	11.66		NR
2.	TK37B 11-18810 FRP-082911-022	~~1.06~~ 1.19	11.74	9.07		NR
3.	TK37C 11-18811 FRP-082911-023	1.18	12.66	9.86		NR
4.	TK37D 11-18812 FRP-082911-024	1.18	12.06	9.43		NR
5.	TK37E 11-18813 FRP-082911-025	1.18	11.79	9.30		NR
6.	TK37F 11-18814 FRP-082911-027	1.16	11.93	10.64		NR
7.	TK37G 11-18815 FRP-082911-028	1.18	12.22	10.96		NR
8.	TK37H 11-18816 FRP-082911-029	1.19	12.98	9.89		NR
9.	TK37I 11-18817 FRP-082911-030	1.17	13.64	11.00		NR

TK37:00242

Solids Data Entry Report Checked by: MJ Date: 09/02/11
Date: 09/02/11 Data Analyst: DM

Solids Determination performed on 09/01/11 by KM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
TK37	A	FRP-082911-021	0.993	10.509	9.700	91.50
TK37	B	FRP-082911-022	0.994	10.076	7.783	74.75
TK37	C	FRP-082911-023	0.980	10.622	8.440	77.37
TK37	D	FRP-082911-024	0.995	10.698	8.467	77.01
TK37	E	FRP-082911-025	1.013	10.856	8.435	75.40
TK37	F	FRP-082911-027	0.963	10.117	9.043	88.27
TK37	G	FRP-082911-028	0.996	10.113	9.077	88.64
TK37	H	FRP-082911-029	1.005	10.363	7.940	74.11
TK37	I	FRP-082911-030	0.933	10.146	8.656	83.83

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Total Solids Bench Sheet

Laboratory Section Metals

Oven Identification: 07 **Balance ID:** 068755

Samples in Oven: Date: 9/01/11 Time: 1355 Temp: 103°C Analyst: KM

Removed from Oven: Date: 9-02-11 Time: 0740 Temp: 103°C Analyst: DM

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs[1]
TK37 A	0.993	10.509	9.700	–	✓
" B	0.994	10.076	7.783	–	✓
" C	0.980	10.622	8.440	–	✓
" D	0.995	10.698	8.467	–	✓
" E	1.013	10.856	8.435	–	✓
" F	0.963	10.117	9.043	–	✓
" G	0.996	10.113	9.077	–	✓
" H	1.005	10.363	7.940	–	✓
" I	0.933	10.146	8.656	–	✓
		KM			
			9/01/11		

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

TK37 : 00244