

MARCH 13, 2012

TestAmerica - St. Louis

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

## ANALYTICAL REPORT

X12-009

Lot #: F2B160437

SDG #: SL1256

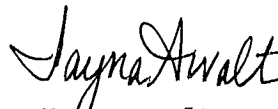
Scot Fitzgerald

CH2M Hill Plateau Remediation

PO Box 1500, MS B6-06

Richland, WA 99352

TESTAMERICA LABORATORIES, INC.



Jayna Awalt  
Project Manager

March 13, 2012

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## CASE NARRATIVE

CH2MHill Plateau Remediation Company  
 P.O. Box 1600  
 MS B3-60  
 Richland, Washington 99352  
 March 13, 2012  
 Attention: Scot Fitzgerald

TestAmerica Laboratories, Inc.

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SDG	: SL1256
Number of Samples	: four samples
Sample Matrix	: Water
Data Deliverable	: Summary
Date SDG Closed	: February 16, 2012

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### II. Introduction

On February 16, 2012, four water samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and CUR forms for documentation of any variations on receipt conditions and temperature. Upon receipt, the samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: X12-009

### III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with a LCS/LCS duplicate.

Deviation from Request: None

### IV. Definitions

QCBLK-	Quality Control Blank, Method Blank
QCLCS-	Quality Control Laboratory Control Sample, Blank Spike
DUP-	Laboratory Duplicate
MS-	Matrix Spike
MSD-	Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

**CH2M Hill Plateau Remediation Company**

March 13, 2012

SDG: SL1256

TestAmerica Laboratories, Inc.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** – For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** – For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **J** – For organic analyses, the sample is estimated and less than the RL.
- **C** – For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** – For all analyses, the sample result was obtained from the analysis of a dilution.
- **N** – For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** – For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.

### PAHs

**Batch: 2051112**

To perform an MS/MSD on a sample for organic extractables, the laboratory requires 3 liters of sample. Due to receiving less than the required three liters, the laboratory performed the MS/MSD extraction using half volume.

**Affected Samples:**

F2B160437 (1): B2JFC2  
F2B160437 (2): B2JFD3  
F2B160437 (3): B2JFD9  
F2B160437 (4): B2JFC3

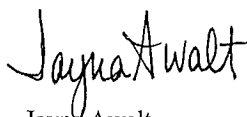
The LCS recoveries are outside the QC lower limits for Acenaphthylene, Anthracene, and Benzo (a) Pyrene. All MS/MSD recoveries for these analytes are within acceptance limits. The surrogate recovery is within 80-110% for all associated samples. Samples are now outside hold time for re-analysis. The results are reported with this narrative as per SDR12-215.

**Affected Samples:**

F2B160437 (1): B2JFC2  
F2B160437 (2): B2JFD3  
F2B160437 (3): B2JFD9  
F2B160437 (4): B2JFC3

I certify that this Summary Package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:



Jayna Awalt  
St. Louis Project Manager

# SAMPLE ISSUE RESOLUTION

<b>SIR NUM</b>	SDR12-215
<b>REV NUM</b>	0
<b>DATE INITIATED</b>	3/7/2012

## SAMPLE EVENT INFORMATION

<b>SAF NUM(S)</b>	I12-006, X12-009, X12-005
<b>OPERABLE UNIT(S)</b>	NONE, 100-NR-2
<b>PROJECT(S)</b>	CERC12, SURV12
<b>SAMPLE EVENT TITLE(S)</b>	CERC12, SURV12
<b>LABORATORY</b>	TestAmerica St. Louis

## SAMPLING INFORMATION

<b>NUMBER OF SAMPLES</b>	10
<b>SAMPLE NUMBERS</b>	B2HWR3, B2HWT0, B2HWT9, B2HWV0, B2JFC2, B2JFC3, B2JFD3, B2JFD9, B2JN40, B2JN58
<b>SAMPLE MATRIX</b>	WATER
<b>COLLECTION DATE</b>	2/13/2012 - 2/21/2012
<b>SDG NUM</b>	SL1256, SL1257, SL1254

## ISSUE BACKGROUND

**CLASS** Laboratory Issue

**TYPE** Quality Control Failure

**DESCRIPTION** FOR ABOVE PAH SAMPLES, THE LCS RECOVERIES FOR A MAJORITY OF ANALYTES WERE BELOW THE QC LIMITS (INCLUDING SOME 0% RECOVERIES). THE SAMPLES ARE NOW OUTSIDE HOLD TIME FOR REANALYSIS. MS/MSD RECOVERIES ARE WITHIN LIMITS AS ARE THE SAMPLE SURROGATE RECOVERIES.

## DISPOSITION

**DESCRIPTION** PROPOSED DISPOSITION: TASL PROPOSES TO REPORT THE ORIGINAL ANALYSIS WITH THE LOW LCS RECOVERIES AND NARRATE THE EXCURSION IN THE CASE NARRATIVE.

**JUSTIFICATION** ACCEPTED DISPOSITION: ACCEPT PROPOSED RESOLUTION.

SUBMITTED BY: Jayna Awalt/TASL Date: 3/7/12

ACCEPTED BY: Karen Waters-Husted/CHPRC Date: 3/8/12

**METHODS SUMMARY**

SL1256

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Polynuclear Aromatic Hydrocarbons by HPLC	SW846 8310	SW846 3510

**References:**

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

**SAMPLE SUMMARY**

SL1256 : F2B160437

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT</u>	<u>SAMPLE ID</u>	<u>SAMPLED</u>	<u>SAMP</u>
				<u>DATE</u>	<u>TIME</u>
MQWDL	001	B2JFC2		02/14/12	07:20
MQWDM	002	B2JFD3		02/14/12	10:23
MQWDN	003	B2JFD9		02/14/12	10:01
MQWDP	004	B2JFC3		02/14/12	09:42

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filler test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

**CH2M Hill Plateau Remediation Company** **SL1256**

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

C.O.C. # **X12-009-057**  
Page 1 of 1

Collector *Aguilera* Telephone No. 376-4650  
 CAF No. X12-009 Purchase Order/Charge Code 300071ES20  
 Project Title AQUIFER TUBES, DECEMBER 2011 Logbook No. HNF-N-506 35 / 88 89 Ice Chest No. 6WS-112  
 Shipped To (Lab) TestAmerica St. Louis Method of Shipment Commercial Carrier Bill of Lading/Air Bill No. 7980-6228 6880  
 Protocol SURV Priority: 30 Days **PRIORITY** Offsite Property No.

**POSSIBLE SAMPLE HAZARDS/REMARKS**

\*\*\* \*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CRF but are not releasable per DOE Order 5400.5 (1990/1993)

**SPECIAL INSTRUCTIONS** Hold Time Total Activity Exemption: Yes  No

Site Wide Generator Knowledge Information Form applies.  
 The CACN for all analytical work at WSCF is 401647.  
 FY11 and FY12 samples cannot be in the same SDG.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2JFC2	N	W	2/14/12	0720	2x1-L aG	8310_SVOA_HPLC	14/40 Days	Cool-4C
B2JFC2	N	W	2/14/12	0720	1x20-mL P	Activity Scan	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
<i>em Aguilera</i>			2-14-12 1306	SSU #1			2-14-12 1306	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
SSU #1			FEB 15 2012 0900	DON BROTHERTON / CHPRC	<i>B. Brotherton</i>		FEB 15 2012 0900	
FEDEX			FEB 15 2012 1600	<i>Don Brotherton</i>			2/16/12 0930	
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process)							Date/Time

54256

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#

X12-009-059

Page 1 of 1

Collector Aguilar Telephone No. 376-4650  
 SAF No. X12-009 Purchase Order/Charge Code 30007IES20  
 Project Title AQUIFER TUBES, DECEMBER 2011 Logbook No. HNF-N-506 35 / 88, 89 Ice Chest No. Guss-112  
 Shipped To (Lab) TestAmerica St. Louis Method of Shipment Commercial Carrier Bill of Lading/Air Bill No. 7980-6238 6880  
 Protocol SURV Priority: 30 Days Priority Offsite Property No.

**POSSIBLE SAMPLE HAZARDS/REMARKS**  
 \*\*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CRF but are not releasable per DOE Order 5400.5 (1990/1993)  
**SPECIAL INSTRUCTIONS** Hold Time Total Activity Exemption: Yes  No   
 Site Wide Generator Knowledge Information Form applies.  
 The CACN for all analytical work at WSCF is 401647.  
 FY11 and FY12 samples cannot be in the same SDG.

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2JFD3	N	2-14-12	1023	2x1-L aG	8310_SVOA_HPLC	14/40 Days	Cool-4C
B2JFD3	N	2-14-12	1023	1x20-mL P	Activity Scan	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
em Aguilar	em Aguilar	2-14-12	1306	SSU #1	SSU #1	2-14-12	1306	S = Soil, DS = Drum Solids, DL = Drum Liquids, SE = Sediment, T = Tissue, SO = Solid, WI = Wipe, SL = Sludge, W = Water, L = Liquid, O = Oil, V = Vegetation, A = Air, X = Other
SSU #1	SSU #1	2-15-12	0900	Ed Kaven	Ed Kaven	2-15-12	0900	
Ed Kaven	Ed Kaven	2-15-12	1400	FED	FED			
Ed Kaven	Ed Kaven	2-15-12	1400	Ed Kaven	Ed Kaven	2-15-12	0930	

**FINAL SAMPLE DISPOSITION**  
 Disposal Method (e.g., Return to customer, per lab procedure, used in process)  
 Disposed By: Ed Kaven  
 Date/Time: 2/16/12 0930

MARCH 13, 2012

TestAmerica - St. Louis

**CH2MHill Plateau Remediation Company** **SLJ254**

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

C.O.C.# **X12-009-060** Page 1 of 1

Collector **Aguilar** Telephone No. **376-4650**

CAF No. **X12-009** Purchase Order/Charge Code **30007IES20**

Project Title **AQUIFER TUBES, DECEMBER 2011** Logbook No. **HNF-N-506 35 / 88, 89**

Shipped To (Lab) **TestAmerica St. Louis** Method of Shipment **Commercial Carrier** Bill of Lading/Air Bill No. **7980 6238 6880**

Protocol **SURV** Priority: **30 Days** **PRIORITY** Offsite Property No.

**POSSIBLE SAMPLE HAZARDS/REMARKS**

\*\* \*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CRF but are not releasable per DOE Order 5400.5 (1990/1993)

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes  No

Site Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647. FY11 and FY12 samples cannot be in the same SDG.

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2JFD9	N	W	2-14-12	100	2x1-L aG	8310_SVOA_HPLC	14/40 Days	Cool~4C
B2JFD9	N	W	2-14-12	100	1x20-mL P	Activity Scan	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
CA Aguilar	CA Aguilar	2-14-12	1306	SSU #1	SSU #1	2-14-12	1306	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, SW = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
SSU #1	SSU #1	2-15-12	0900	Ed Kavon	Ed Kavon	2-15-12	0900	
Ed Kavon	Ed Kavon	2-15-12	1400	FED - EX	FED - EX			
Ben Davis	Ben Davis	2-14-12	0930	Ben Davis	Ben Davis	2-14-12	0930	

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

**FINAL SAMPLE DISPOSITION** Disposed By: **Ben Davis** Date/Time: **2/14/12 0930**

A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company		C.O.C. # X12-009-058	
SL1256		Page 1 of 1	
Collector: <i>Aguilar</i>	Contact/Requester: Karen Waters-Husted	Telephone No. 376-4650	
CAF No. X12-009	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071ES20	
Project Title: AQUIFER TUBES, DECEMBER 2011	Logbook No. HNF-N-506 35 / 88,89	Ice Chest No. <i>6WS-112</i>	
Shipped To (Lab): TestAmerica St. Louis	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No. <i>980 6238 6880</i>	
Protocol: SURV	Priority: 30 Days	Offsite Property No.	
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CRF but are not releasable per DOE Order 5400.5 (1990/1993)		<b>SPECIAL INSTRUCTIONS</b> Site Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647. FY11 and FY12 samples cannot be in the same SDG.	Total Activity Exemption: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Sample No.	Filter	Date	Time
B2JFC3	N	2-14-12	0942
B2JFC3	N	2-14-12	0942
No/Type Container	Sample Analysis	Holding Time	Preservative
2x1-L aG	8310_SVOA_HPLC	14/40 Days	Cool-4C
1x20-mL P	Activity Scan	6 Months	None

Relinquished By: <i>Em Aguilar</i>	Print	Sign	Date/Time
<i>SSU #1</i>			2-14-12
Relinquished By: <i>SSU #1</i>	Print	Sign	Date/Time
<i>SSU #1</i>			2-14-12
Relinquished By: <i>DON BROTHERTON / CHPRC</i>	Print	Sign	Date/Time
<i>FED EX</i>			FEB 15 2012 0900
Relinquished By: <i>DON BROTHERTON / CHPRC</i>	Print	Sign	Date/Time
<i>FED EX</i>			FEB 15 2012 1400
Received By: <i>SSU #1</i>	Print	Sign	Date/Time
<i>SSU #1</i>			2-14-12
Received By: <i>DON BROTHERTON / CHPRC</i>	Print	Sign	Date/Time
<i>FED EX</i>			FEB 15 2012 0900
Received By: <i>Brian Daniels</i>	Print	Sign	Date/Time
<i>Brian Daniels</i>			2/16/12
Matrix *	S	Soil	DS = Drum Solids
SE	SE	Sediment	DL = Drum Liquids
SO	SO	Solid	T = Tissue
SL	SL	Sludge	WI = Wipe
W	W	Water	L = Liquid
O	O	Oil	V = Vegetation
A	A	Air	X = Other
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Date/Time



Detailed Results

Tracking no.: 798062386880

Select time format: 12H

**Delivered**

**Delivered**  
Signed for by: B.DANIELS

Shipment Dates

Destination

Ship date Feb 15, 2012  
Delivery date Feb 16, 2012 9:27 AM

EARTH CITY, MO  
Signature Proof of Delivery

Shipment Options

**Hold at FedEx Location**

Hold at FedEx Location service is not available for this shipment.

Shipment Facts

Service type	Priority Overnight	Delivered to	Shipping/Receiving
Weight	64.0 lbs/29.0 kg	Reference	GWS-112

Shipment Travel History

Select time zone: Local Scan Time

All shipment travel activity is displayed in local time for the location

Date/Time	Activity	Location	Details
Feb 16, 2012 9:27 AM	Delivered	EARTH CITY, MO	
Feb 16, 2012 7:34 AM	On FedEx vehicle for delivery	EARTH CITY, MO	
Feb 16, 2012 7:29 AM	At local FedEx facility	EARTH CITY, MO	
Feb 16, 2012 5:35 AM	At destination sort facility	BERKELEY, MO	
Feb 16, 2012 4:45 AM	Departed FedEx location	MEMPHIS, TN	
Feb 16, 2012 12:56 AM	Arrived at FedEx location	MEMPHIS, TN	
Feb 15, 2012 5:13 PM	Left FedEx origin facility	PASCO, WA	
Feb 15, 2012 4:06 PM	Picked up	PASCO, WA	
Feb 15, 2012 11:07 AM	Shipment information sent to FedEx		

MARCH 13, 2012

Lot #(s):

FCB160431

TestAmerica - St. Louis

CUR Form #: 0 5 8

137

### CONDITION UPON RECEIPT FORM

Client: CPHLL

Quote No: 90029

COC/RFA No: See below



Initiated By: BJ

Date: 2/16/12

Time: 0930

### Shipping Information

Shipper: FedEx UPS DHL Courier Client Other: \_\_\_\_\_ Multiple Packages: Y N

Shipping # (s):*		Sample Temperature (s):**	
1. <u>7980 6238 6880</u>	6. _____	1. <u>3</u>	6. _____
2. _____	7. _____	2. _____	7. _____
3. _____	8. _____	3. _____	8. _____
4. _____	9. _____	4. _____	9. _____
5. _____	10. _____	5. _____	10. _____

\*Numbered shipping lines correspond to Numbered Sample Temp lines

\*\*Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1. <u>Y</u> N	Are there custody seals present on the cooler?	8. <u>Y</u> N	Are there custody seals present on bottles?
2. Y <u>N</u> N/A	Do custody seals on cooler appear to be tampered with?	9. Y <u>N</u> N/A	Do custody seals on bottles appear to be tampered with?
3. <u>Y</u> N	Were contents of cooler frisked after opening, but before unpacking?	10. Y <u>N</u> N/A	Was sample received with proper pH? (If not, make note below)
4. <u>Y</u> N	Sample received with Chain of Custody?	11. Y N <u>N/A</u>	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5. <u>Y</u> N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12. <u>Y</u> N	Sample received in proper containers?
6. Y <u>N</u>	Was sample received broken?	13. Y N <u>N/A</u>	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7. <u>Y</u> N	Is sample volume sufficient for analysis?	14. Y N <u>N/A</u>	Was Internal COC/Workshare received?

<sup>1</sup> For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes: Sample B2K1X2 (cyanide) received with pH of 7.

COCs x12-009-057, 059, 058, 060  
W12-002-086

### Corrective Action:

Client Contact Name: \_\_\_\_\_

Informed by: \_\_\_\_\_

Sample(s) processed "as is"

Sample(s) on hold until: \_\_\_\_\_

If released, notify: \_\_\_\_\_

Project Management Review: Jayna Anwalt

Date: 2/16/12

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

# PAHs

CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B2JFC2

HPLC

Lot-Sample #....: F2B160437-001    Work Order #....: MQWDL1AC    Matrix.....: WATER  
 Date Sampled....: 02/14/12    Date Received...: 02/16/12  
 Prep Date.....: 02/20/12    Analysis Date...: 03/06/12  
 Prep Batch #....: 2051112  
 Dilution Factor: 1    Method.....: SW846 8310

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acenaphthene	ND	5.0	ug/L	0.65
Acenaphthylene	ND	5.0	ug/L	0.40
Anthracene	ND	1.0	ug/L	0.020
Benzo (a) anthracene	ND	1.0	ug/L	0.063
Benzo (b) fluoranthene	ND	1.0	ug/L	0.051
Benzo (k) fluoranthene	ND	1.0	ug/L	0.074
Benzo (ghi) perylene	ND	1.0	ug/L	0.16
Benzo (a) pyrene	ND	1.0	ug/L	0.075
Chrysene	ND	1.0	ug/L	0.035
Dibenz (a, h) anthracene	ND	1.0	ug/L	0.15
Fluoranthene	ND	1.0	ug/L	0.18
Fluorene	ND	1.0	ug/L	0.071
Indeno (1, 2, 3-cd) pyrene	ND	1.0	ug/L	0.14
Naphthalene	ND	5.0	ug/L	0.20
Phenanthrene	ND	1.0	ug/L	0.30
Pyrene	ND	1.0	ug/L	0.083

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
p-Terphenyl	81	( 60 - 98 )

CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B2JFD3

HPLC

Lot-Sample #....: F2B160437-002    Work Order #....: MQWDM1AC    Matrix.....: WATER  
 Date Sampled....: 02/14/12    Date Received...: 02/16/12  
 Prep Date.....: 02/20/12    Analysis Date...: 03/06/12  
 Prep Batch #....: 2051112  
 Dilution Factor: 1    Method.....: SW846 8310

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acenaphthene	ND	5.0	ug/L	0.65
Acenaphthylene	ND	5.0	ug/L	0.40
Anthracene	ND	1.0	ug/L	0.020
Benzo (a) anthracene	ND	1.0	ug/L	0.063
Benzo (b) fluoranthene	ND	1.0	ug/L	0.051
Benzo (k) fluoranthene	ND	1.0	ug/L	0.074
Benzo (ghi) perylene	ND	1.0	ug/L	0.16
Benzo (a) pyrene	ND	1.0	ug/L	0.075
Chrysene	ND	1.0	ug/L	0.035
Dibenz (a, h) anthracene	ND	1.0	ug/L	0.15
Fluoranthene	ND	1.0	ug/L	0.18
Fluorene	ND	1.0	ug/L	0.071
Indeno (1, 2, 3-cd) pyrene	ND	1.0	ug/L	0.14
Naphthalene	ND	5.0	ug/L	0.20
Phenanthrene	ND	1.0	ug/L	0.30
Pyrene	ND	1.0	ug/L	0.083
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
p-Terphenyl	90	( 60 - 98 )		

CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B2JFD9

HPLC

Lot-Sample #....: F2B160437-003    Work Order #....: MQWDN1AC    Matrix.....: WATER  
 Date Sampled....: 02/14/12    Date Received...: 02/16/12  
 Prep Date.....: 02/20/12    Analysis Date...: 03/06/12  
 Prep Batch #....: 2051112  
 Dilution Factor: 1    Method.....: SW846 8310

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acenaphthene	ND	5.0	ug/L	0.65
Acenaphthylene	ND	5.0	ug/L	0.40
Anthracene	ND	1.0	ug/L	0.020
Benzo (a) anthracene	ND	1.0	ug/L	0.063
Benzo (b) fluoranthene	ND	1.0	ug/L	0.051
Benzo (k) fluoranthene	ND	1.0	ug/L	0.074
Benzo (ghi) perylene	ND	1.0	ug/L	0.16
Benzo (a) pyrene	ND	1.0	ug/L	0.075
Chrysene	ND	1.0	ug/L	0.035
Dibenz (a, h) anthracene	ND	1.0	ug/L	0.15
Fluoranthene	ND	1.0	ug/L	0.18
Fluorene	ND	1.0	ug/L	0.071
Indeno (1, 2, 3-cd) pyrene	ND	1.0	ug/L	0.14
Naphthalene	ND	5.0	ug/L	0.20
Phenanthrene	ND	1.0	ug/L	0.30
Pyrene	ND	1.0	ug/L	0.083

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
p-Terphenyl	89	( 60 - 98 )

CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B2JFC3

HPLC

Lot-Sample #....: F2B160437-004    Work Order #....: MQWDP1AC    Matrix.....: WATER  
 Date Sampled....: 02/14/12    Date Received...: 02/16/12  
 Prep Date.....: 02/20/12    Analysis Date...: 03/06/12  
 Prep Batch #....: 2051112  
 Dilution Factor: 1    Method.....: SW846 8310

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acenaphthene	ND	5.0	ug/L	0.65
Acenaphthylene	ND	5.0	ug/L	0.40
Anthracene	ND	1.0	ug/L	0.020
Benzo (a) anthracene	ND	1.0	ug/L	0.063
Benzo (b) fluoranthene	ND	1.0	ug/L	0.051
Benzo (k) fluoranthene	ND	1.0	ug/L	0.074
Benzo (ghi) perylene	ND	1.0	ug/L	0.16
Benzo (a) pyrene	ND	1.0	ug/L	0.075
Chrysene	ND	1.0	ug/L	0.035
Dibenz (a, h) anthracene	ND	1.0	ug/L	0.15
Fluoranthene	ND	1.0	ug/L	0.18
Fluorene	ND	1.0	ug/L	0.071
Indeno (1, 2, 3-cd) pyrene	ND	1.0	ug/L	0.14
Naphthalene	ND	5.0	ug/L	0.20
Phenanthrene	ND	1.0	ug/L	0.30
Pyrene	ND	1.0	ug/L	0.083

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
p-Terphenyl	89	( 60 - 98 )

METHOD BLANK REPORT

HPLC

Client Lot #....: SL1256                      Work Order #....: MQX8L1AA                      Matrix.....: WATER  
 MB Lot-Sample #: F2B200000-112  
 Prep Date.....: 02/20/12  
 Analysis Date...: 03/06/12                      Prep Batch #....: 2051112  
 Dilution Factor: 1

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Acenaphthene	ND	5.0	ug/L	SW846 8310
Acenaphthylene	ND	5.0	ug/L	SW846 8310
Anthracene	ND	1.0	ug/L	SW846 8310
Benzo (a) anthracene	ND	1.0	ug/L	SW846 8310
Benzo (b) fluoranthene	ND	1.0	ug/L	SW846 8310
Benzo (k) fluoranthene	ND	1.0	ug/L	SW846 8310
Benzo (ghi) perylene	ND	1.0	ug/L	SW846 8310
Benzo (a) pyrene	ND	1.0	ug/L	SW846 8310
Chrysene	ND	1.0	ug/L	SW846 8310
Dibenz (a, h) anthracene	ND	1.0	ug/L	SW846 8310
Fluoranthene	ND	1.0	ug/L	SW846 8310
Fluorene	ND	1.0	ug/L	SW846 8310
Indeno (1, 2, 3-cd) pyrene	ND	1.0	ug/L	SW846 8310
Naphthalene	ND	5.0	ug/L	SW846 8310
Phenanthrene	ND	1.0	ug/L	SW846 8310
Pyrene	ND	1.0	ug/L	SW846 8310

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
p-Terphenyl	82	(60 - 98)

**NOTE (S) :**  
 Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #....: SL1256                      Work Order #....: MQX8L1AC                      Matrix.....: WATER  
 LCS Lot-Sample#: F2B200000-112  
 Prep Date.....: 02/20/12                      Analysis Date...: 03/06/12  
 Prep Batch #....: 2051112  
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
Acenaphthene	20.0	13.8	ug/L	69	SW846 8310
Acenaphthylene	40.0	12.0	ug/L	30	SW846 8310
Anthracene	2.00	0.920	ug/L	46	SW846 8310
Benzo (a) anthracene	2.00	1.58	ug/L	79	SW846 8310
Benzo (b) fluoranthene	4.00	3.36	ug/L	84	SW846 8310
Benzo (k) fluoranthene	2.00	1.66	ug/L	83	SW846 8310
Benzo (ghi) perylene	4.00	3.29	ug/L	82	SW846 8310
Benzo (a) pyrene	2.00	0.0	ug/L	0.0	SW846 8310
Chrysene	2.00	1.66	ug/L	83	SW846 8310
Dibenz (a, h) anthracene	4.00	3.31	ug/L	83	SW846 8310
Fluoranthene	4.00	3.21	ug/L	80	SW846 8310
Fluorene	4.00	3.75	ug/L	94	SW846 8310
Indeno (1, 2, 3-cd) pyrene	2.00	1.72	ug/L	86	SW846 8310
Naphthalene	20.0	15.3	ug/L	77	SW846 8310
Phenanthrene	2.00	1.74	ug/L	87	SW846 8310
Pyrene	2.00	1.50	ug/L	75	SW846 8310

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
p-Terphenyl	101	(56 - 108)

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #....: SL1256                      Work Order #....: MQVQW1AD-MS                      Matrix.....: WATER  
 MS Lot-Sample #: F2B150439-001                      MQVQW1AE-MSD  
 Date Sampled...: 02/13/12                      Date Received...: 02/15/12  
 Prep Date.....: 02/20/12                      Analysis Date...: 03/06/12  
 Prep Batch #....: 2051112  
 Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Acenaphthene	ND	39.1	30.1	ug/L	77		SW846 8310
		39.2	31.5	ug/L	80	4.6	SW846 8310
Acenaphthylene	ND	78.2	59.9	ug/L	77		SW846 8310
		78.3	63.2	ug/L	81	5.4	SW846 8310
Anthracene	ND	3.91	3.21	ug/L	82		SW846 8310
		3.92	3.27	ug/L	84	1.9	SW846 8310
Benzo (a) anthracene	ND	3.91	3.54	ug/L	91		SW846 8310
		3.92	3.43	ug/L	88	3.2	SW846 8310
Benzo (b) fluoranthene	ND	7.82	7.11	ug/L	91		SW846 8310
		7.83	6.96	ug/L	89	2.2	SW846 8310
Benzo (k) fluoranthene	ND	3.91	3.51	ug/L	90		SW846 8310
		3.92	3.46	ug/L	88	1.2	SW846 8310
Benzo (ghi) perylene	ND	7.82	7.16	ug/L	92		SW846 8310
		7.83	7.01	ug/L	90	2.1	SW846 8310
Benzo (a) pyrene	ND	3.91	3.48	ug/L	89		SW846 8310
		3.92	3.41	ug/L	87	2.0	SW846 8310
Chrysene	ND	3.91	3.50	ug/L	90		SW846 8310
		3.92	3.42	ug/L	87	2.3	SW846 8310
Dibenz (a, h) anthracene	ND	7.82	7.11	ug/L	91		SW846 8310
		7.83	6.94	ug/L	89	2.5	SW846 8310
Fluoranthene	ND	7.82	6.72	ug/L	86		SW846 8310
		7.83	6.76	ug/L	86	0.68	SW846 8310
Fluorene	ND	7.82	6.27	ug/L	80		SW846 8310
		7.83	6.54	ug/L	84	4.3	SW846 8310
Indeno (1, 2, 3-cd) pyrene	ND	3.91	3.74	ug/L	96		SW846 8310
		3.92	3.66	ug/L	94	1.9	SW846 8310
Naphthalene	ND	39.1	29.1	ug/L	74		SW846 8310
		39.2	30.6	ug/L	78	5.1	SW846 8310
Phenanthrene	ND	3.91	3.23	ug/L	83		SW846 8310
		3.92	3.34	ug/L	85	3.5	SW846 8310
Pyrene	ND	3.91	3.47	ug/L	89		SW846 8310
		3.92	3.48	ug/L	89	0.20	SW846 8310

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
p-Terphenyl	92	(60 - 98)
	90	(60 - 98)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters