

MARCH 13, 2012

TestAmerica - St. Louis

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

X12-005

Lot #: F2B150439

SDG #: SL1254

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.

SDG	: SL1254
Number of Samples	: four samples
Sample Matrix	: Water
Data Deliverable	: Summary
Date SDG Closed	: February 15, 2012

II. Introduction

On February 15, 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: X12-005

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: SL1254

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:

F2B150439 (1): B2HWR3

F2B150439 (2): B2HWT0

F2B150439 (3): B2HWT9

F2B150439 (4): B2HWV0

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:

F2B150439 (1): B2HWR3

F2B150439 (2): B2HWT0

F2B150439 (3): B2HWT9

F2B150439 (4): B2HWV0

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

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

SAMPLE EVENT INFORMATION

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

SAMPLING INFORMATION

NUMBER OF SAMPLES	10
SAMPLE NUMBERS	B2HWR3, B2HWT0, B2HWT9, B2HWV0, B2JFC2, B2JFC3, B2JFD3, B2JFD9, B2JN40, B2JN58
SAMPLE MATRIX	WATER
COLLECTION DATE	2/13/2012 - 2/21/2012
SDG NUM	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.
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JUSTIFICATION	ACCEPTED DISPOSITION: ACCEPT PROPOSED RESOLUTION.
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SUBMITTED BY: Jayna Awalt/TASL Date: 3/7/12

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

METHODS SUMMARY

SL1254

<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

SL1254 : F2B150439

WO #	SAMPLE#	CLIENT	SAMPLE ID	SAMPLED DATE	SAMP TIME
MQVQW	001	B2HWR3		02/13/12	11:17
MQVQX	002	B2HWT0		02/13/12	12:07
MQVQ0	003	B2HWT9		02/13/12	08:00
MQVQ1	004	B2HWV0		02/13/12	11:41

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.

CH2MHill Plateau Remediation Company SL1254		C.O.C. # X12-005-147 Page 1 of 1	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		Telephone No. 376-4650 Purchase Order/Charge Code 30007IES20 Ice Chest No. 625113 Bill of Lading/Air Bill No. 7932 2653 8271 Offsite Property No.	
Collector <i>Aguilar</i> XAF No. X12-005 Project Title AQUIFER TUBES, NOVEMBER 2011 Shipped To (Lab) <u>TestAmerica St. Louis</u> Protocol SURV	Contact/Requester Karen Waters-Husted Sampling Origin Hanford Site Logbook No. HNF-N-506 35 / 86,87 Method of Shipment Commercial Carrier Priority: 30 Days PRIORITY	Hold Time SPECIAL INSTRUCTIONS 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 checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No. B2HWR3 Filter N * W Date 2-13-12 Time 1117 No/Type Container 2x1-L aG 1x20-mL P	Sample Analysis 8310_SVOA_HPLC Activity Scan	Holding Time 14/40 Days 6 Months Preservative Cool-4C None	

Relinquished By <i>Don Aguilar emag</i> Relinquished By SSU-1 Date 2-13-12 Sign <i>[Signature]</i>	Received By <i>SSU #1</i> Received By <i>FedEx</i> Received By <i>Jackson</i> Received By	Date/Time 1340 Date/Time 1400 Date/Time	Sign 2-13-12 Sign <i>[Signature]</i> Sign	Date/Time 1340 Date/Time Date/Time 2-15-12 0930 Date/Time	Matrix * 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
Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time	
FINAL SAMPLE DISPOSITION					

Collector: *Aguilar* Telephone No. 376-4650
 #AF No. X12-005 Purchase Order/Charge Code 30007IES20
 Project Title: AQUIFER TUBES, NOVEMBER 2011 Logbook No. HNF-N-506 35 / 86, 87 Ice Chest No. 603 113
 Shipped To (Lab): TestAmerica St. Louis Method of Shipment: Commercial Carrier Bill of Lading/Air Bill No. 7982 2653 8271
 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 CFR 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
B2HWT0	N	W	2-13-12	1207	2x1-L aG	8310_SVOA_HPLC	14/40 Days	Cool~4C
B2HWT0	N	W	2-13-12	1207	1x20-mL P	Activity Scan	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
<i>Em Aguilar</i>			2-13-12	SSU #1	2-13-12		13-10	S = Soil, DS = Drum Solids, SE = Sediment, DL = Drum Liquids, SO = Solid, T = Tissue, SL = Sludge, WI = Wipe, W = Water, L = Liquid, O = Oil, V = Vegetation, A = Air, X = Other
Relinquished By: SSU-1			2/14/12 1400	Received By: <i>FedEx</i>				
Relinquished By: FEDEX				Received By: <i>Shawson</i>			2-15-12 0930	
Relinquished By:				Received By:				

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

Disposed By: _____ Date/Time: _____

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TestAmerica - St. Louis

CH2M Hill Plateau Remediation Company 8L1254		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C. # X12-005-149 Page 1 of 1
Collector Agular, Karen	Contact/Requester Karen Waters-Husted	Telephone No. 376-4650		
CAF No. X12-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071ES20		
Project Title AQUIFER TUBES, NOVEMBER 2011	Logbook No. HNF-N-506_35 / 84,87	Ice Chest No. GWS 113		
Shipped To (Lab) TestAmerica St. Louis	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. 7932 2653 8271		
Protocol SURV	Priority: 30 Days	Offsite Property No. PRIORITY		
POSSIBLE SAMPLE HAZARDS/REMARKS ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)				
SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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. B2HWT9	Filter N	* W	Date 2-13-12	Time 0800
Sample No. B2HWT9	Filter N	* W	Date 2-13-12	Time 0800
No/Type Container 2x1-L aG		Sample Analysis 8310_SVOA_HPLC		Holding Time 14/40 Days
No/Type Container 1x20-mL P		Sample Analysis Activity Scan		Holding Time 6 Months
				Preservative Cool-4C
				Preservative None

Relinquished By Karen Agular	Print SSU-1	Sign 2-13-12	Date/Time 1340	Received By SSU #1	Print 2-13-12	Sign 2-13-12	Date/Time 1340	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By SSU-1	Print FEDEX	Sign 2/14/12	Date/Time 1400	Received By FEDEX	Date/Time			
Relinquished By FEDEX	Print FEDEX	Sign 2-15-12	Date/Time 0930	Received By SWilson	Date/Time			
Relinquished By FEDEX	Print FEDEX	Sign 2-15-12	Date/Time 0930	Received By SWilson	Date/Time			
Disposal Method (e.g., Return to customer, per lab procedure, used in process)					Disposed By			
FINAL SAMPLE DISPOSITION					Date/Time			

car 234

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C. # X12-005-150 Page 1 of 1	
Collector Aguilar	Contact/Requester Karen Waters-Husted	Telephone No. 376-4650			
SAF No. X12-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071ES20			
Project Title AQUIFER TUBES, NOVEMBER 2011	Logbook No. HNF-N-506 35 / 86, 87	Ice Chest No. GWS 113			
Shipped To (Lab) TestAmerica St. Louis	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. 7932 2653 8271			
Protocol SURV	Priority: 30 Days	Offsite Property No.			
POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)					
SPECIAL INSTRUCTIONS Hold Time 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 checked="" type="checkbox"/> No <input type="checkbox"/>					
Sample No. B2HWV0	Filter * N	Date 2-13-12	Time 11:11	No/Type Container 2x1-L aG	Sample Analysis 8310_SVOA_HPLC
B2HWV0	N	2-13-12	11:11	1x20-mL P	Activity Scan
			Holding Time 14/40 Days	Preservative Cool~4C	
			6 Months	None	

Relinquished By Em Aguilar Sign 2-13-12	Print Em Aguilar Sign 2-13-12	Received By Ssu #1 Sign 2-13-12	Date/Time 1340	Date/Time 13:10
Relinquished By Ssu - 1 Sign 2/14/12	Print Fed EX Sign 2-15-12	Received By Swilson Sign 2-15-12	Date/Time 1400	Date/Time 0930
Relinquished By Sign 2/14/12	Print Sign 2-15-12	Received By Sign 2-15-12	Date/Time 1400	Date/Time 0930
Relinquished By Sign 2/14/12	Print Sign 2-15-12	Received By Sign 2-15-12	Date/Time 1400	Date/Time 0930
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)				
Disposed By Date/Time				



Detailed Results

Tracking no.: 793226538271

Select time format: **12H**

Delivered

Delivered
Signed for by: B.DANIELS

Shipment Dates

Ship date Feb 14, 2012
Delivery date Feb 15, 2012 9:30 AM

Destination

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	95.0 lbs/43.1 kg	Reference	GWS-113

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 15, 2012 9:30 AM	Delivered	EARTH CITY, MO	
Feb 15, 2012 7:16 AM	On FedEx vehicle for delivery	EARTH CITY, MO	
Feb 15, 2012 7:10 AM	At local FedEx facility	EARTH CITY, MO	
Feb 15, 2012 5:33 AM	At destination sort facility	BERKELEY, MO	
Feb 15, 2012 4:45 AM	Departed FedEx location	MEMPHIS, TN	
Feb 15, 2012 1:00 AM	Arrived at FedEx location	MEMPHIS, TN	
Feb 14, 2012 5:09 PM	Left FedEx origin facility	PASCO, WA	
Feb 14, 2012 3:50 PM	Picked up	PASCO, WA	
Feb 14, 2012 10:21 AM	Shipment information sent to FedEx		

MARCH 13, 2012

Lot #(s):

20150439 440
441, 442, 443, 448
451

TestAmerica - St. Louis

CUR Form #: 2 3 4

CONDITION UPON RECEIPT FORM

Client: CHPRC

Quote No: 90029

COC/RFA No: below



Initiated By: [Signature]

Date: 2-5-12

Time: 0930

Shipping Information

Shipper: (FedEx) UPS DHL Courier Client Other: _____ Multiple Packages: (Y) N

Shipping # (s):*		Sample Temperature (s):**	
1. <u>7932 2838 5528</u>	6. _____	1. <u>2</u>	6. _____
2. <u>↓ 2653 8271</u>	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. <u>(Y)</u> N 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 <u>(N)</u> N/A	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?

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

Notes:

X12-020-065, 066, 068, 117, 116, 115, 111, 110, 109

I12-011-028

W12-002-190, 087

S12-001-388

I12-014-035, 034, 040

I12-018-024

X12-005-150, 147, 148, 149

Corrective Action:

Client Contact Name: _____

Informed by: _____

Sample(s) processed "as is"

Sample(s) on hold until: _____

If released, notify: _____

Project Management Review: Jayna Awalt

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: B2HWR3

HPLC

Lot-Sample #....: F2B150439-001 Work Order #....: MQVQW1AC Matrix.....: WATER
 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 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	88	(60 - 98)

CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B2HWT0

HPLC

Lot-Sample #....: F2B150439-002 Work Order #....: MQVQX1AC Matrix.....: WATER
 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 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	90	(60 - 98)

CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B2HWT9

HPLC

Lot-Sample #....: F2B150439-003 Work Order #....: MQVQ01AC Matrix.....: WATER
 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 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	91	(60 - 98)

CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B2HWV0

HPLC

Lot-Sample #....: F2B150439-004 Work Order #....: MQVQ11AC Matrix.....: WATER
 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 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	93	(60 - 98)

METHOD BLANK REPORT

HPLC

Client Lot #....: SL1254 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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
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

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
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 #....: SL1254 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 #....: SL1254 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