TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-84631-1
TestAmerica Sample Delivery Group: DN0006
Client Project/Site: F16-043

For:
CH2M Hill Plateau Remediation Company
PO BOX 1600, MS H8-41
Richland, Washington 99352

Attn: Mr. Scot Fitzgerald

Authorized for release by:
7/5/2016 4:03:36 PM

Kae Yoder, Senior Project Manager
(303)736-0190
kae.yoder@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-84631-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CH2M Hill Plateau Remediation Company

Job Number: 280-84631-1

SDG #: DN0006
SAF#(s): F16-043

Date SDG Closed: June 17, 2016
Data Deliverable: 15 Day / Final

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

The results, RLs and MDLs included in this report have been adjusted for dry weight, as appropriate.

LCS/LCSD = Laboratory Control Sample/Laboratory Control Sample Duplicate
MS/MSD = Matrix Spike/Matrix Spike Duplicate

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

For extractable analyses, several analytes are considered poor performers and will not meet CHPRC QC limits. Per CHPRC direction, the lab's statistical limits have been reported. Excursions outside these statistical limits will include a non-conformance in the sections below.

RECEIPT
The sample was received on 6/17/2016 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)
No analytical or quality issues were noted.

NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)
No analytical or quality issues were noted.

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Reviewed and approved:

Kae E. Yoder
Senior Project Manager

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 280-84631-1
SDG Number: DN0006

Login Number: 84631
List Number: 1
Creator: Muniz, Ashley T

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.8C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-043-073	PAGE 1 OF 1
COLLECTOR W.M. WISE/CHPRC ~~DN0006~~ DN0006 D.B. 6-20-16	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION C9402, I-003	PROJECT DESIGNATION 100-NR-2 Drilling - Soil		SAF NO. F16-043	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO. GWS-443	FIELD LOGBOOK NO. HNF-N-645-4	ACTUAL SAMPLE DEPTH 55.1-57.6	COA 304070	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO TestAmerica Denver	OFFSITE PROPERTY NO. 926-16-16 ~~N/A~~ 6739		BILL OF LADING/AIR BILL NO. 926-16-16 ~~N/A~~ 7765 4207 4131		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C	Cool <=6C
HOLDING TIME	14/40 Days	14/40 Days
TYPE OF CONTAINER	aG	G
NO. OF CONTAINER(S)	1	1
VOLUME	120mL	120mL
SAMPLE ANALYSIS	8270_SVOA_GC MS_SIM: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B35YC6	SOIL	JUN 15 2016	1225	✓	✓

280-84631 Chain of Custody

3.8125-0.0 17Jun16
Transfer (AW)

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM W.M. WISE/CHPRC [signature]	DATE/TIME JUN 15 2016 1340	RECEIVED BY/STORED IN SSU-1	DATE/TIME JUN 15 2016 1340
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME JUN 16 2016 0830	RECEIVED BY/STORED IN Lesly Wall /CHPRC [signature]	DATE/TIME JUN 16 2016 0830
RELINQUISHED BY/REMOVED FROM Lesly Wall /CHPRC [signature]	DATE/TIME JUN 16 2016 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FedEx	DATE/TIME	RECEIVED BY/STORED IN Ashley Muniz [signature]	DATE/TIME 1000 17Jun16
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
SPLIT SPOON PARTS B & A WILL BE COMBINED TO ENSURE ADEQUATE SAMPLE MATERIAL FOR ANALYSIS;
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 6/8/2016 FSR ID = FSR33112 TRVL NUM = TRVL-16-168 A-6003-618 (REV 2)

FedEx ® Tracking

776542074131

Ship date:
Thu 6/16/2016

Richland, WA US

Delivered
Signed for by: J.TRUE

Actual delivery:
Fri 6/17/2016 9:47 am

ARVADA, CO US

Travel History

Date/Time	Activity	Location
6/17/2016 - Friday		
9:47 am	Delivered	ARVADA, CO
9:13 am	On FedEx vehicle for delivery	ARVADA, CO
8:07 am	At local FedEx facility	ARVADA, CO
4:52 am	At destination sort facility	DENVER, CO
3:52 am	Departed FedEx location	MEMPHIS, TN
12:35 am	Arrived at FedEx location	MEMPHIS, TN
6/16/2016 - Thursday		
4:57 pm	Left FedEx origin facility	PASCO, WA
3:56 pm	Shipment information sent to FedEx	
3:34 pm	Picked up	PASCO, WA

Shipment Facts

Tracking number	776542074131	**Service**	FedEx Priority Overnight
Weight	18 lbs / 8.16 kgs	**Signature services**	Direct signature required
Delivered To	Shipping/Receiving	**Total pieces**	1
Total shipment weight	18 lbs / 8.16 kgs	**Terms**	Third Party
Shipper reference	6739	**Packaging**	Your Packaging
Special handling section	Deliver Weekday, Direct Signature Required		

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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Method	Method Description	Protocol	Laboratory
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL DEN
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL DEN
D 2216	Percent Moisture	ASTM	TAL DEN

Protocol References:

ASTM = ASTM International
NWTPH = Northwest Total Petroleum Hydrocarbon
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-84631-1	B35YC6	Soil	06/15/16 12:25	06/17/16 10:00

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: B35YC6
Date Collected: 06/15/16 12:25
Date Received: 06/17/16 10:00

Lab Sample ID: 280-84631-1
Matrix: Soil
Percent Solids: 97.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.16	U	5.1	0.16	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Acenaphthylene	0.17	U	5.1	0.17	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Anthracene	0.74	U	5.1	0.74	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Benzo[a]anthracene	0.92	U	5.1	0.92	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Benzo[a]pyrene	0.76	U	5.1	0.76	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Benzo[b]fluoranthene	1.2	U	5.1	1.2	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Benzo[g,h,i]perylene	1.1	U	5.1	1.1	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Benzo[k]fluoranthene	1.0	U	5.1	1.0	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Chrysene	1.0	U	5.1	1.0	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Dibenz[a,h]anthracene	1.3	U	5.1	1.3	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Fluoranthene	1.0	U	5.1	1.0	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Fluorene	0.48	U	5.1	0.48	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Indeno[1,2,3-cd]pyrene	1.1	U	5.1	1.1	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Naphthalene	0.33	U	5.1	0.33	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Phenanthrene	1.1	U	5.1	1.1	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1
Pyrene	1.1	U	5.1	1.1	ug/Kg	☼	06/27/16 08:04	06/30/16 20:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*72*		*39 - 120*	*06/27/16 08:04*	*06/30/16 20:12*	*1*
Nitrobenzene-d5	*82*		*42 - 120*	*06/27/16 08:04*	*06/30/16 20:12*	*1*
Terphenyl-d14	*71*		*35 - 124*	*06/27/16 08:04*	*06/30/16 20:12*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Client Sample ID: B35YC6
Date Collected: 06/15/16 12:25
Date Received: 06/17/16 10:00

Lab Sample ID: 280-84631-1
Matrix: Soil
Percent Solids: 97.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel (C10-C28)	**4800**		4000	680	ug/Kg	☼	06/27/16 10:50	06/30/16 19:33	1
Motor Oil (C20-C38)	**5600**	**J**	12000	3900	ug/Kg	☼	06/27/16 10:50	06/30/16 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*91*		*49 - 115*	*06/27/16 10:50*	*06/30/16 19:33*	*1*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 280-331375/1-A
Matrix: Solid
Analysis Batch: 331981

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 331375

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.16	U	5.0	0.16	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Acenaphthylene	0.17	U	5.0	0.17	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Anthracene	0.72	U	5.0	0.72	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Benzo[a]anthracene	0.90	U	5.0	0.90	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Benzo[a]pyrene	0.74	U	5.0	0.74	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Benzo[b]fluoranthene	1.2	U	5.0	1.2	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Benzo[g,h,i]perylene	1.1	U	5.0	1.1	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Benzo[k]fluoranthene	1.0	U	5.0	1.0	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Chrysene	1.0	U	5.0	1.0	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Dibenz[a,h]anthracene	1.3	U	5.0	1.3	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Fluoranthene	1.0	U	5.0	1.0	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Fluorene	0.47	U	5.0	0.47	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Indeno[1,2,3-cd]pyrene	1.1	U	5.0	1.1	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Naphthalene	0.33	U	5.0	0.33	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Phenanthrene	1.1	U	5.0	1.1	ug/Kg		06/27/16 08:04	06/30/16 12:55	1
Pyrene	1.1	U	5.0	1.1	ug/Kg		06/27/16 08:04	06/30/16 12:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*87*		*39 - 120*	*06/27/16 08:04*	*06/30/16 12:55*	*1*
Nitrobenzene-d5	*99*		*42 - 120*	*06/27/16 08:04*	*06/30/16 12:55*	*1*
Terphenyl-d14	*82*		*35 - 124*	*06/27/16 08:04*	*06/30/16 12:55*	*1*

Lab Sample ID: LCS 280-331375/2-A
Matrix: Solid
Analysis Batch: 331981

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 331375

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	30.0	24.9		ug/Kg		83	35 - 120
Acenaphthylene	30.0	23.2		ug/Kg		77	41 - 120
Anthracene	30.0	26.3		ug/Kg		88	43 - 120
Benzo[a]anthracene	30.0	25.6		ug/Kg		85	36 - 120
Benzo[a]pyrene	30.0	21.8		ug/Kg		73	20 - 120
Benzo[b]fluoranthene	30.0	24.1		ug/Kg		80	37 - 120
Benzo[g,h,i]perylene	30.0	23.5		ug/Kg		78	20 - 123
Benzo[k]fluoranthene	30.0	23.8		ug/Kg		79	46 - 120
Chrysene	30.0	28.4		ug/Kg		95	34 - 120
Dibenz[a,h]anthracene	30.0	23.1		ug/Kg		77	20 - 120
Fluoranthene	30.0	25.2		ug/Kg		84	45 - 120
Fluorene	30.0	26.0		ug/Kg		87	44 - 120
Indeno[1,2,3-cd]pyrene	30.0	22.9		ug/Kg		76	20 - 127
Naphthalene	30.0	26.0		ug/Kg		87	44 - 120
Phenanthrene	30.0	26.5		ug/Kg		88	44 - 120
Pyrene	30.0	25.1		ug/Kg		84	43 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*85*		*39 - 120*
Nitrobenzene-d5	*96*		*42 - 120*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 280-331375/2-A
Matrix: Solid
Analysis Batch: 331981

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 331375

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*81*		*35 - 124*

Lab Sample ID: 280-84631-1 MS
Matrix: Soil
Analysis Batch: 331981

Client Sample ID: B35YC6
Prep Type: Total/NA
Prep Batch: 331375

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.16	U	28.9	21.1		ug/Kg	☼	73	35 - 120
Acenaphthylene	0.17	U	28.9	19.8		ug/Kg	☼	69	41 - 120
Anthracene	0.74	U	28.9	21.8		ug/Kg	☼	76	43 - 120
Benzo[a]anthracene	0.92	U	28.9	21.7		ug/Kg	☼	75	36 - 120
Benzo[a]pyrene	0.76	U	28.9	19.2		ug/Kg	☼	66	20 - 120
Benzo[b]fluoranthene	1.2	U	28.9	20.6		ug/Kg	☼	71	37 - 120
Benzo[g,h,i]perylene	1.1	U	28.9	18.4		ug/Kg	☼	64	20 - 123
Benzo[k]fluoranthene	1.0	U	28.9	20.5		ug/Kg	☼	71	46 - 120
Chrysene	1.0	U	28.9	22.7		ug/Kg	☼	79	34 - 120
Dibenz[a,h]anthracene	1.3	U	28.9	18.2		ug/Kg	☼	63	20 - 120
Fluoranthene	1.0	U	28.9	20.5		ug/Kg	☼	71	45 - 120
Fluorene	0.48	U	28.9	21.4		ug/Kg	☼	74	44 - 120
Indeno[1,2,3-cd]pyrene	1.1	U	28.9	17.9		ug/Kg	☼	62	20 - 127
Naphthalene	0.33	U	28.9	21.5		ug/Kg	☼	74	44 - 120
Phenanthrene	1.1	U	28.9	21.7		ug/Kg	☼	75	44 - 120
Pyrene	1.1	U	28.9	21.2		ug/Kg	☼	73	43 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*73*		*39 - 120*
Nitrobenzene-d5	*84*		*42 - 120*
Terphenyl-d14	*69*		*35 - 124*

Lab Sample ID: 280-84631-1 MSD
Matrix: Soil
Analysis Batch: 331981

Client Sample ID: B35YC6
Prep Type: Total/NA
Prep Batch: 331375

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	0.16	U	29.6	22.0		ug/Kg	☼	74	35 - 120	4	50
Acenaphthylene	0.17	U	29.6	20.3		ug/Kg	☼	69	41 - 120	3	50
Anthracene	0.74	U	29.6	22.7		ug/Kg	☼	77	43 - 120	4	50
Benzo[a]anthracene	0.92	U	29.6	23.1		ug/Kg	☼	78	36 - 120	6	40
Benzo[a]pyrene	0.76	U	29.6	20.3		ug/Kg	☼	68	20 - 120	6	30
Benzo[b]fluoranthene	1.2	U	29.6	22.0		ug/Kg	☼	74	37 - 120	7	28
Benzo[g,h,i]perylene	1.1	U	29.6	19.8		ug/Kg	☼	67	20 - 123	7	30
Benzo[k]fluoranthene	1.0	U	29.6	21.5		ug/Kg	☼	72	46 - 120	5	28
Chrysene	1.0	U	29.6	24.1		ug/Kg	☼	81	34 - 120	6	41
Dibenz[a,h]anthracene	1.3	U	29.6	19.6		ug/Kg	☼	66	20 - 120	8	25
Fluoranthene	1.0	U	29.6	22.0		ug/Kg	☼	74	45 - 120	7	30
Fluorene	0.48	U	29.6	21.9		ug/Kg	☼	74	44 - 120	2	50
Indeno[1,2,3-cd]pyrene	1.1	U	29.6	17.9		ug/Kg	☼	60	20 - 127	0	50
Naphthalene	0.33	U	29.6	21.5		ug/Kg	☼	73	44 - 120	0	50

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 280-84631-1 MSD — **Client Sample ID: B35YC6**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 331981 — **Prep Batch: 331375**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenanthrene	1.1	U	29.6	22.8		ug/Kg	☼	77	44 - 120	5	42
Pyrene	1.1	U	29.6	22.9		ug/Kg	☼	77	43 - 120	8	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*39 - 120*
Nitrobenzene-d5	*82*		*42 - 120*
Terphenyl-d14	*73*		*35 - 124*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 280-331432/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 332038 — **Prep Batch: 331432**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel (C10-C28)	680	U	4000	680	ug/Kg		06/27/16 10:50	06/30/16 18:19	1
Motor Oil (C20-C38)	3900	U	12000	3900	ug/Kg		06/27/16 10:50	06/30/16 18:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*49 - 115*	*06/27/16 10:50*	*06/30/16 18:19*	*1*

Lab Sample ID: LCS 280-331432/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 332038 — **Prep Batch: 331432**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel (C10-C28)	66700	60000		ug/Kg		90	53 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*105*		*49 - 115*

Lab Sample ID: LCS 280-331432/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 332038 — **Prep Batch: 331432**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	167000	153000		ug/Kg		92	57 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*102*		*49 - 115*

Lab Sample ID: 280-84631-1 MS — **Client Sample ID: B35YC6**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 332038 — **Prep Batch: 331432**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel (C10-C28)	4800		67200	62200		ug/Kg	☼	85	56 - 115

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl	100		49 - 115

Lab Sample ID: 280-84631-1 MS
Matrix: Soil
Analysis Batch: 332038

Client Sample ID: B35YC6
Prep Type: Total/NA
Prep Batch: 331432

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)	5600	J	168000	156000		ug/Kg	☼	89	57 - 115		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl	101		49 - 115

Lab Sample ID: 280-84631-1 MSD
Matrix: Soil
Analysis Batch: 332038

Client Sample ID: B35YC6
Prep Type: Total/NA
Prep Batch: 331432

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel (C10-C28)	4800		64800	62600		ug/Kg	☼	89	56 - 115	1	23

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	105		49 - 115

Lab Sample ID: 280-84631-1 MSD
Matrix: Soil
Analysis Batch: 332038

Client Sample ID: B35YC6
Prep Type: Total/NA
Prep Batch: 331432

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	5600	J	161000	148000		ug/Kg	☼	88	57 - 115	6	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	100		49 - 115

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

GC/MS Semi VOA

Prep Batch: 331375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-84631-1	B35YC6	Total/NA	Soil	3546	
280-84631-1 MS	B35YC6	Total/NA	Soil	3546	
280-84631-1 MSD	B35YC6	Total/NA	Soil	3546	
LCS 280-331375/2-A	Lab Control Sample	Total/NA	Solid	3546	
MB 280-331375/1-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 331981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-84631-1	B35YC6	Total/NA	Soil	8270D SIM	331375
280-84631-1 MS	B35YC6	Total/NA	Soil	8270D SIM	331375
280-84631-1 MSD	B35YC6	Total/NA	Soil	8270D SIM	331375
LCS 280-331375/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	331375
MB 280-331375/1-A	Method Blank	Total/NA	Solid	8270D SIM	331375

GC Semi VOA

Prep Batch: 331432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-84631-1	B35YC6	Total/NA	Soil	3550C	
280-84631-1 MS	B35YC6	Total/NA	Soil	3550C	
280-84631-1 MS	B35YC6	Total/NA	Soil	3550C	
280-84631-1 MSD	B35YC6	Total/NA	Soil	3550C	
280-84631-1 MSD	B35YC6	Total/NA	Soil	3550C	
LCS 280-331432/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCS 280-331432/3-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 280-331432/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 332038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-84631-1	B35YC6	Total/NA	Soil	NWTPH-Dx	331432
280-84631-1 MS	B35YC6	Total/NA	Soil	NWTPH-Dx	331432
280-84631-1 MS	B35YC6	Total/NA	Soil	NWTPH-Dx	331432
280-84631-1 MSD	B35YC6	Total/NA	Soil	NWTPH-Dx	331432
280-84631-1 MSD	B35YC6	Total/NA	Soil	NWTPH-Dx	331432
LCS 280-331432/2-A	Lab Control Sample	Total/NA	Solid	NWTPH-Dx	331432
LCS 280-331432/3-A	Lab Control Sample	Total/NA	Solid	NWTPH-Dx	331432
MB 280-331432/1-A	Method Blank	Total/NA	Solid	NWTPH-Dx	331432

General Chemistry

Analysis Batch: 330547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-84631-1	B35YC6	Total/NA	Soil	D 2216	
280-84631-1 DU	B35YC6	Total/NA	Soil	D 2216	

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-043

TestAmerica Job ID: 280-84631-1
SDG: DN0006

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Soil **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(39-120)	(42-120)	(35-124)
280-84631-1	B35YC6	72	82	71
280-84631-1 MS	B35YC6	73	84	69
280-84631-1 MSD	B35YC6	72	82	73

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(39-120)	(42-120)	(35-124)
LCS 280-331375/2-A	Lab Control Sample	85	96	81
MB 280-331375/1-A	Method Blank	87	99	82

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Matrix: Soil **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH
Lab Sample ID	Client Sample ID	(49-115)
280-84631-1	B35YC6	91
280-84631-1 MS	B35YC6	100
280-84631-1 MS	B35YC6	101
280-84631-1 MSD	B35YC6	105
280-84631-1 MSD	B35YC6	100

Surrogate Legend

OTPH = o-Terphenyl

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH
Lab Sample ID	Client Sample ID	(49-115)
LCS 280-331432/2-A	Lab Control Sample	105
LCS 280-331432/3-A	Lab Control Sample	102
MB 280-331432/1-A	Method Blank	92

Surrogate Legend

OTPH = o-Terphenyl