

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

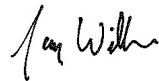
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Tel: (503)906-9200

TestAmerica Job ID: 250-12088-1
Client Project/Site: TPH Reduction Test

For:
Earth Science Products Corp.
PO BOX 327
Wilsonville, Oregon 97070

Attn: Dennis Turner



Authorized for release by:
5/31/2013 5:16:20 PM

Jay Willms, Project Manager I
jay.willms@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



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.

1

2

3

4

5

6

7

8

9

10

11



Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Definitions	5
Client Sample Results	6
QC Sample Results	10
Certification Summary	12
Method Summary	13
Chain of Custody	14
Receipt Checklists	15

Sample Summary

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-12088-1	Control	Solid	05/28/13 10:00	05/28/13 11:25
250-12088-2	Bacteria Only	Solid	05/28/13 10:00	05/28/13 11:25
250-12088-3	LR plus Bacteria	Solid	05/28/13 10:00	05/28/13 11:25

1

2

3

4

5

6

7

8

9

10

11

Case Narrative

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Job ID: 250-12088-1

Laboratory: TestAmerica Portland

Narrative

Receipt

The samples were received on 5/28/2013 11:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 19.3° C.

Except:

The following sample was received at the laboratory outside the required temperature criteria: Bacteria Only (250-12088-2), Control (250-12088-1), LR plus Bacteria (250-12088-3). The samples are considered acceptable since they were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC/MS VOA

No analytical or quality issues were noted.

GC VOA - Method NWTPH-Gx:

The following samples were diluted due to the abundance of target analytes: Bacteria Only (250-12088-2), Control (250-12088-1), LR plus Bacteria (250-12088-3). As such, surrogate recoveries are not reported, and elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC Semi VOA - Method NWTPH-Dx:

Method(s) NWTPH-Dx: The matrix duplicate %RPD associated with batch 17160 was outside the control limits due to non homogeneity of the sample.

Detected hydrocarbons in the diesel range appear to be due to gasoline range overlap. Bacteria Only (250-12088-2), Control (250-12088-1), LR plus Bacteria (250-12088-3)

No other analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.

Definitions/Glossary

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
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)
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)

Client Sample Results

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: Control
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-1
Matrix: Solid
Percent Solids: 64.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	23000		7400		ug/Kg	☼	05/29/13 10:20	05/29/13 19:37	50
Toluene	310000		7400		ug/Kg	☼	05/29/13 10:20	05/29/13 19:37	50
Xylenes, Total	430000		22000		ug/Kg	☼	05/29/13 10:20	05/29/13 19:37	50
Ethylbenzene	79000		7400		ug/Kg	☼	05/29/13 10:20	05/29/13 19:37	50
Naphthalene	ND		15000		ug/Kg	☼	05/29/13 10:20	05/29/13 19:37	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 125				05/29/13 10:20	05/29/13 19:37	50
4-Bromofluorobenzene (Surr)	108		75 - 125				05/29/13 10:20	05/29/13 19:37	50
Dibromofluoromethane (Surr)	95		75 - 125				05/29/13 10:20	05/29/13 19:37	50
Toluene-d8 (Surr)	100		75 - 125				05/29/13 10:20	05/29/13 19:37	50

Client Sample ID: Bacteria Only
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-2
Matrix: Solid
Percent Solids: 65.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	28000		7600		ug/Kg	☼	05/29/13 10:20	05/29/13 20:04	50
Toluene	360000		7600		ug/Kg	☼	05/29/13 10:20	05/29/13 20:04	50
Xylenes, Total	480000		23000		ug/Kg	☼	05/29/13 10:20	05/29/13 20:04	50
Ethylbenzene	89000		7600		ug/Kg	☼	05/29/13 10:20	05/29/13 20:04	50
Naphthalene	ND		15000		ug/Kg	☼	05/29/13 10:20	05/29/13 20:04	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 125				05/29/13 10:20	05/29/13 20:04	50
4-Bromofluorobenzene (Surr)	110		75 - 125				05/29/13 10:20	05/29/13 20:04	50
Dibromofluoromethane (Surr)	95		75 - 125				05/29/13 10:20	05/29/13 20:04	50
Toluene-d8 (Surr)	100		75 - 125				05/29/13 10:20	05/29/13 20:04	50

Client Sample ID: LR plus Bacteria
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-3
Matrix: Solid
Percent Solids: 62.1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	20000		7900		ug/Kg	☼	05/29/13 10:20	05/29/13 20:31	50
Toluene	260000		7900		ug/Kg	☼	05/29/13 10:20	05/29/13 20:31	50
Xylenes, Total	350000		24000		ug/Kg	☼	05/29/13 10:20	05/29/13 20:31	50
Ethylbenzene	65000		7900		ug/Kg	☼	05/29/13 10:20	05/29/13 20:31	50
Naphthalene	ND		16000		ug/Kg	☼	05/29/13 10:20	05/29/13 20:31	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 125				05/29/13 10:20	05/29/13 20:31	50
4-Bromofluorobenzene (Surr)	110		75 - 125				05/29/13 10:20	05/29/13 20:31	50
Dibromofluoromethane (Surr)	98		75 - 125				05/29/13 10:20	05/29/13 20:31	50
Toluene-d8 (Surr)	99		75 - 125				05/29/13 10:20	05/29/13 20:31	50

TestAmerica Portland

Client Sample Results

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Client Sample ID: Control

Date Collected: 05/28/13 10:00

Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-1

Matrix: Solid

Percent Solids: 64.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	4400		590		mg/Kg	☼	05/29/13 10:20	05/29/13 19:12	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	185	X	50 - 150				05/29/13 10:20	05/29/13 19:12	100

Client Sample ID: Bacteria Only

Date Collected: 05/28/13 10:00

Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-2

Matrix: Solid

Percent Solids: 65.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	5300		610		mg/Kg	☼	05/29/13 10:20	05/29/13 19:42	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	203	X	50 - 150				05/29/13 10:20	05/29/13 19:42	100

Client Sample ID: LR plus Bacteria

Date Collected: 05/28/13 10:00

Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-3

Matrix: Solid

Percent Solids: 62.1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	4300		630		mg/Kg	☼	05/29/13 10:20	05/29/13 18:11	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	190	X	50 - 150				05/29/13 10:20	05/29/13 18:11	100

Client Sample Results

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

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

Client Sample ID: Control
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-1
Matrix: Solid
Percent Solids: 64.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	150		19		mg/Kg	☼	05/29/13 12:05	05/30/13 11:31	1
RRO (nC25-nC36)	47		39		mg/Kg	☼	05/29/13 12:05	05/30/13 11:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	59		50 - 150				05/29/13 12:05	05/30/13 11:31	1

Client Sample ID: Bacteria Only
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-2
Matrix: Solid
Percent Solids: 65.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	220		19		mg/Kg	☼	05/29/13 12:05	05/30/13 11:50	1
RRO (nC25-nC36)	41		38		mg/Kg	☼	05/29/13 12:05	05/30/13 11:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	73		50 - 150				05/29/13 12:05	05/30/13 11:50	1

Client Sample ID: LR plus Bacteria
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-3
Matrix: Solid
Percent Solids: 62.1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	180		20		mg/Kg	☼	05/29/13 12:05	05/30/13 12:08	1
RRO (nC25-nC36)	66		40		mg/Kg	☼	05/29/13 12:05	05/30/13 12:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	67		50 - 150				05/29/13 12:05	05/30/13 12:08	1

Client Sample Results

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

General Chemistry

Client Sample ID: Control
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	36		0.010		%			05/29/13 14:30	1
Percent Solids	64		0.010		%			05/29/13 14:30	1

Client Sample ID: Bacteria Only
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	35		0.010		%			05/29/13 14:30	1
Percent Solids	65		0.010		%			05/29/13 14:30	1

Client Sample ID: LR plus Bacteria
Date Collected: 05/28/13 10:00
Date Received: 05/28/13 11:25

Lab Sample ID: 250-12088-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	38		0.010		%			05/29/13 14:30	1
Percent Solids	62		0.010		%			05/29/13 14:30	1

QC Sample Results

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 250-17165/1-A

Matrix: Solid

Analysis Batch: 17201

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 17165

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		100		ug/Kg		05/29/13 10:20	05/29/13 13:16	1
Toluene	ND		100		ug/Kg		05/29/13 10:20	05/29/13 13:16	1
Xylenes, Total	ND		300		ug/Kg		05/29/13 10:20	05/29/13 13:16	1
Ethylbenzene	ND		100		ug/Kg		05/29/13 10:20	05/29/13 13:16	1
Naphthalene	ND		200		ug/Kg		05/29/13 10:20	05/29/13 13:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 125	05/29/13 10:20	05/29/13 13:16	1
4-Bromofluorobenzene (Surr)	105		75 - 125	05/29/13 10:20	05/29/13 13:16	1
Dibromofluoromethane (Surr)	98		75 - 125	05/29/13 10:20	05/29/13 13:16	1
Toluene-d8 (Surr)	100		75 - 125	05/29/13 10:20	05/29/13 13:16	1

Lab Sample ID: LCS 250-17165/2-A

Matrix: Solid

Analysis Batch: 17201

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 17165

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1970	1880		ug/Kg		96	80 - 120
Toluene	1970	1890		ug/Kg		96	80 - 120
Xylenes, Total	5910	5910		ug/Kg		100	70 - 130
Ethylbenzene	1970	1960		ug/Kg		100	80 - 125
Naphthalene	1970	1740		ug/Kg		88	80 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		75 - 125
4-Bromofluorobenzene (Surr)	104		75 - 125
Dibromofluoromethane (Surr)	96		75 - 125
Toluene-d8 (Surr)	99		75 - 125

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 250-17150/1-A

Matrix: Solid

Analysis Batch: 17203

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 17150

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		3.9		mg/Kg		05/29/13 10:20	05/29/13 12:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150	05/29/13 10:20	05/29/13 12:38	1

Lab Sample ID: LCS 250-17150/2-A

Matrix: Solid

Analysis Batch: 17203

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 17150

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	22.9	26.3		mg/Kg		115	70 - 130

TestAmerica Portland

QC Sample Results

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 250-17150/2-A
Matrix: Solid
Analysis Batch: 17203

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17150

Surrogate	LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid)	105		50 - 150

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

Lab Sample ID: MB 250-17160/1-A
Matrix: Solid
Analysis Batch: 17181

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17160

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
DRO (C10-C25)	ND		12		mg/Kg		05/29/13 12:05	05/29/13 13:41	1
RRO (nC25-nC36)	ND		25		mg/Kg		05/29/13 12:05	05/29/13 13:41	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1-Chlorooctadecane	75		50 - 150	05/29/13 12:05	05/29/13 13:41	1

Lab Sample ID: LCS 250-17160/2-A
Matrix: Solid
Analysis Batch: 17181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17160

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
DRO (C10-C25)	123	123		mg/Kg		99	50 - 150
RRO (nC25-nC36)	74.1	70.4		mg/Kg		95	50 - 150

Surrogate	LCS		Limits
	%Recovery	Qualifier	
1-Chlorooctadecane	97		50 - 150

Certification Summary

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	OR00040	06-30-13
Alaska (UST)	State Program	10	UST-012	12-26-13
California	State Program	9	2597	09-30-13
Oregon	NELAP	10	OR100021	01-09-14
USDA	Federal		P330-11-00092	02-17-14
Washington	State Program	10	C586	06-23-13

Method Summary

Client: Earth Science Products Corp.
Project/Site: TPH Reduction Test

TestAmerica Job ID: 250-12088-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PRT
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL PRT
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL PRT
D2216-80	Percent Dry Weight (Solids) per ASTM D2216-80	ASTM	TAL PRT

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 PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200

Login Sample Receipt Checklist

Client: Earth Science Products Corp.

Job Number: 250-12088-1

Login Number: 12088

List Source: TestAmerica Portland

List Number: 1

Creator: Krause, Thomas

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	No ice.
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
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.	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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ ($1/4''$).	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	