

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: 280-87722-1

Client Project/Site: Soil Testing Suite

For:

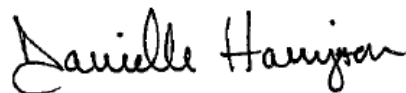
Pioneer Natural Resources USA, Inc.

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Authorized for release by:

9/23/2016 2:50:43 PM

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LINKS

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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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Definitions/Glossary

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

GC Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
F2	MS/MSD RPD exceeds control limits

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

Case Narrative

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

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Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: Pioneer Natural Resources USA, Inc.

Project: Soil Suite

Report Number: 280-87722-1

With the 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. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

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

RECEIPT

The samples were received on 09/03/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 1.0C.

Sample aliquots for the 7196A Hexavalent Chromium analysis were subcontracted to TestAmerica Pittsburg; 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238-2907

GC/MS VOA, 8260B

The Method 8260B performed on sample from another client and/or lot was outside control limits for Ethylbenzene and Xylenes, Total.

No other anomalies were observed.

GC Volatiles, SW846 8015B

The Method 8015B MS/MSD performed on sample FILLY 44-13 SPILL PATH NATIVE was within control limits.

No other anomalies were observed.

GC Semivolatiles, SW846 8015B

The Method 8015B MS/MSD performed on sample from another client and/or lot was outside control limits.

No other anomalies were observed.

Total Metals SW846 6010B, 6020 and 7471A

The Method 20B sample duplicate was performed on sample FILLY 44-13 SPILL PATH WEST was within control limits.

The Method 6010B MS/MSD performed on sample FILLY 44-13 SPILL PATH NATIVE was within control limits.

The Method 6020 MS/MSD performed on sample FILLY 44-13 SPILL PATH NATIVE was within control limits.

The Method 7471A MS/MSD performed on sample from another client and/or lot was within control limits.

No other anomalies were observed.

Case Narrative

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Job ID: 280-87722-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

General Chemistry

The Hexavalent Chromium MS/MSD were performed on samples from another client and/or lot and were outside control limits.

All sample duplicates were performed on samples from another client and/or lot and were within control limits.

No other anomalies were observed.

General Comments

The pH and conductivity analysis with the saturated paste extraction were performed at our TestAmerica Nashville Laboratory:
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
615.726.0177

Detection Summary

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH EAST

Lab Sample ID: 280-87722-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	25	H	4.9		mg/Kg	1		☼	8015B	Total/NA
Barium	390		1.1		mg/Kg	1		☼	6010B	Total/NA
Calcium	4000		55		mg/Kg	1		☼	6010B	Total/NA
Magnesium	3000		22		mg/Kg	1		☼	6010B	Total/NA
Sodium	1300		550		mg/Kg	1		☼	6010B	Total/NA
Arsenic	3.1		0.095		mg/Kg	1		☼	6020	Total/NA
Chromium	14		0.19		mg/Kg	1		☼	6020	Total/NA
Copper	36		0.24		mg/Kg	1		☼	6020	Total/NA
Lead	17		0.095		mg/Kg	1		☼	6020	Total/NA
Nickel	17		0.14		mg/Kg	1		☼	6020	Total/NA
Selenium	0.44		0.19		mg/Kg	1		☼	6020	Total/NA
Zinc	89		0.95		mg/Kg	1		☼	6020	Total/NA
Mercury	0.044		0.026		mg/Kg	1		☼	7471A	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
Sodium Adsorption Ratio	37		1.2		No Unit	10			20B	Soluble
pH	7.7		0.1		SU	1			9040C	Soluble
Specific Conductance (25C)	690		10		umhos/cm	1			9050A	Soluble

Client Sample ID: FILLY 44-13 SPILL PATH WEST

Lab Sample ID: 280-87722-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	14		5.3		mg/Kg	1		☼	8015B	Total/NA
Barium	330		1.2		mg/Kg	1		☼	6010B	Total/NA
Calcium	5100		60		mg/Kg	1		☼	6010B	Total/NA
Magnesium	3200		24		mg/Kg	1		☼	6010B	Total/NA
Arsenic	3.3		0.12		mg/Kg	1		☼	6020	Total/NA
Chromium	14		0.25		mg/Kg	1		☼	6020	Total/NA
Copper	31		0.31		mg/Kg	1		☼	6020	Total/NA
Lead	16		0.12		mg/Kg	1		☼	6020	Total/NA
Nickel	16		0.19		mg/Kg	1		☼	6020	Total/NA
Selenium	0.48		0.25		mg/Kg	1		☼	6020	Total/NA
Zinc	80		1.2		mg/Kg	1		☼	6020	Total/NA
Mercury	0.047		0.025		mg/Kg	1		☼	7471A	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
Sodium Adsorption Ratio	7.8		1.2		No Unit	10			20B	Soluble
pH	7.3		0.1		SU	1			9040C	Soluble
Specific Conductance (25C)	530		10		umhos/cm	1			9050A	Soluble

Client Sample ID: FILLY 44-13 SPILL PATH NATIVE

Lab Sample ID: 280-87722-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	23	H	5.4		mg/Kg	1		☼	8015B	Total/NA
Barium	220		1.3		mg/Kg	1		☼	6010B	Total/NA
Calcium	3700		66		mg/Kg	1		☼	6010B	Total/NA
Magnesium	3900		27		mg/Kg	1		☼	6010B	Total/NA
Arsenic	2.9		0.12		mg/Kg	1		☼	6020	Total/NA
Chromium	24		0.25		mg/Kg	1		☼	6020	Total/NA
Copper	30		0.31		mg/Kg	1		☼	6020	Total/NA
Lead	17		0.12		mg/Kg	1		☼	6020	Total/NA
Nickel	20		0.19		mg/Kg	1		☼	6020	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH NATIVE
(Continued)

Lab Sample ID: 280-87722-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Selenium	0.61		0.25		mg/Kg	1		☼	6020	Total/NA
Zinc	100		1.2		mg/Kg	1		☼	6020	Total/NA
Mercury	0.032		0.026		mg/Kg	1		☼	7471A	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
Cr (III)	24		2.0		mg/Kg	1			7196A	Total/NA
pH	8.0		0.1		SU	1			9040C	Soluble
Specific Conductance (25C)	1100		10		umhos/cm	1			9050A	Soluble

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Method Summary

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015B	Gasoline Range Organics - (GC)	SW846	TAL DEN
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
20B	Sodium Adsorption Ratio	USDA	TAL DEN
6010B	Total Metals	SW846	TAL DEN
6020	Total Metals by ICP-MS	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
7196A	Chromium, Hexavalent	SW846	TAL PIT
7196A	Chromium, Trivalent (Colorimetric)	SW846	TAL DEN
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USDA = "USDA Agriculture Handbook 60, section 20B".

Laboratory References:

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

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-87722-1	FILLY 44-13 SPILL PATH EAST	Solid	08/31/16 10:22	09/03/16 09:55
280-87722-2	FILLY 44-13 SPILL PATH WEST	Solid	08/31/16 10:25	09/03/16 09:55
280-87722-3	FILLY 44-13 SPILL PATH NATIVE	Solid	08/31/16 10:29	09/03/16 09:55

Client Sample Results

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH EAST

Lab Sample ID: 280-87722-1

Date Collected: 08/31/16 10:22

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 76.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0057		mg/Kg	☼	09/06/16 12:00	09/07/16 03:27	1
Ethylbenzene	ND		0.0057		mg/Kg	☼	09/06/16 12:00	09/07/16 03:27	1
Toluene	ND		0.0057		mg/Kg	☼	09/06/16 12:00	09/07/16 03:27	1
Xylenes, Total	ND		0.0057		mg/Kg	☼	09/06/16 12:00	09/07/16 03:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		58 - 140	09/06/16 12:00	09/07/16 03:27	1
Toluene-d8 (Surr)	94		80 - 126	09/06/16 12:00	09/07/16 03:27	1
4-Bromofluorobenzene (Surr)	92		76 - 127	09/06/16 12:00	09/07/16 03:27	1
Dibromofluoromethane (Surr)	98		75 - 121	09/06/16 12:00	09/07/16 03:27	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.5		mg/Kg	☼	09/09/16 10:51	09/10/16 01:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	77		77 - 123	09/09/16 10:51	09/10/16 01:07	1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	25	H	4.9		mg/Kg	☼	09/15/16 10:05	09/20/16 14:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	90		49 - 115	09/15/16 10:05	09/20/16 14:19	1

Method: 20B - Sodium Adsorption Ratio - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium Adsorption Ratio	37		1.2		No Unit		09/12/16 18:30	09/14/16 00:34	10

Method: 6010B - Total Metals

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	390		1.1		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1
Boron	ND		11		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1
Cadmium	ND		0.55		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1
Calcium	4000		55		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1
Magnesium	3000		22		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1
Molybdenum	ND		2.2		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1
Silver	ND		1.1		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1
Sodium	1300		550		mg/Kg	☼	09/06/16 14:01	09/08/16 21:09	1

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.1		0.095		mg/Kg	☼	09/06/16 14:00	09/08/16 01:13	1
Chromium	14		0.19		mg/Kg	☼	09/06/16 14:00	09/08/16 01:13	1
Copper	36		0.24		mg/Kg	☼	09/06/16 14:00	09/08/16 01:13	1
Lead	17		0.095		mg/Kg	☼	09/06/16 14:00	09/08/16 01:13	1
Nickel	17		0.14		mg/Kg	☼	09/06/16 14:00	09/08/16 01:13	1
Selenium	0.44		0.19		mg/Kg	☼	09/06/16 14:00	09/08/16 01:13	1
Zinc	89		0.95		mg/Kg	☼	09/06/16 14:00	09/08/16 01:13	1

TestAmerica Denver

Client Sample Results

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH EAST

Lab Sample ID: 280-87722-1

Date Collected: 08/31/16 10:22

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 76.6

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.044		0.026		mg/Kg	☼	09/13/16 12:30	09/13/16 18:14	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	23.4		0.1		%	—		09/06/16 08:47	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.7		0.1		SU	—	09/09/16 10:41	09/13/16 10:40	1
Specific Conductance (25C)	690		10		umhos/cm	—	09/09/16 10:41	09/14/16 11:00	1

Client Sample Results

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH WEST

Lab Sample ID: 280-87722-2

Date Collected: 08/31/16 10:25

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 75.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0060		mg/Kg	☼	09/06/16 12:00	09/07/16 03:48	1
Ethylbenzene	ND		0.0060		mg/Kg	☼	09/06/16 12:00	09/07/16 03:48	1
Toluene	ND		0.0060		mg/Kg	☼	09/06/16 12:00	09/07/16 03:48	1
Xylenes, Total	ND		0.0060		mg/Kg	☼	09/06/16 12:00	09/07/16 03:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		58 - 140	09/06/16 12:00	09/07/16 03:48	1
Toluene-d8 (Surr)	94		80 - 126	09/06/16 12:00	09/07/16 03:48	1
4-Bromofluorobenzene (Surr)	98		76 - 127	09/06/16 12:00	09/07/16 03:48	1
Dibromofluoromethane (Surr)	100		75 - 121	09/06/16 12:00	09/07/16 03:48	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.6		mg/Kg	☼	09/09/16 10:51	09/10/16 01:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	77		77 - 123	09/09/16 10:51	09/10/16 01:31	1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	14		5.3		mg/Kg	☼	09/09/16 10:27	09/15/16 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	59		49 - 115	09/09/16 10:27	09/15/16 23:43	1

Method: 20B - Sodium Adsorption Ratio - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium Adsorption Ratio	7.8		1.2		No Unit		09/12/16 18:30	09/14/16 00:34	10

Method: 6010B - Total Metals

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	330		1.2		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1
Boron	ND		12		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1
Cadmium	ND		0.60		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1
Calcium	5100		60		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1
Magnesium	3200		24		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1
Molybdenum	ND		2.4		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1
Silver	ND		1.2		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1
Sodium	ND		600		mg/Kg	☼	09/06/16 14:01	09/08/16 21:12	1

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.3		0.12		mg/Kg	☼	09/06/16 14:00	09/08/16 01:17	1
Chromium	14		0.25		mg/Kg	☼	09/06/16 14:00	09/08/16 01:17	1
Copper	31		0.31		mg/Kg	☼	09/06/16 14:00	09/08/16 01:17	1
Lead	16		0.12		mg/Kg	☼	09/06/16 14:00	09/08/16 01:17	1
Nickel	16		0.19		mg/Kg	☼	09/06/16 14:00	09/08/16 01:17	1
Selenium	0.48		0.25		mg/Kg	☼	09/06/16 14:00	09/08/16 01:17	1
Zinc	80		1.2		mg/Kg	☼	09/06/16 14:00	09/08/16 01:17	1

TestAmerica Denver

Client Sample Results

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH WEST

Lab Sample ID: 280-87722-2

Date Collected: 08/31/16 10:25

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 75.7

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.047		0.025		mg/Kg	☼	09/13/16 12:30	09/13/16 18:16	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	24.3		0.1		%	—		09/06/16 08:47	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3		0.1		SU	—	09/09/16 10:41	09/13/16 10:40	1
Specific Conductance (25C)	530		10		umhos/cm	—	09/09/16 10:41	09/14/16 11:00	1

Client Sample Results

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH NATIVE

Lab Sample ID: 280-87722-3

Date Collected: 08/31/16 10:29

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 68.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0078		mg/Kg	☼	09/06/16 12:00	09/07/16 04:10	1
Ethylbenzene	ND		0.0078		mg/Kg	☼	09/06/16 12:00	09/07/16 04:10	1
Toluene	ND		0.0078		mg/Kg	☼	09/06/16 12:00	09/07/16 04:10	1
Xylenes, Total	ND		0.0078		mg/Kg	☼	09/06/16 12:00	09/07/16 04:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		58 - 140	09/06/16 12:00	09/07/16 04:10	1
Toluene-d8 (Surr)	94		80 - 126	09/06/16 12:00	09/07/16 04:10	1
4-Bromofluorobenzene (Surr)	94		76 - 127	09/06/16 12:00	09/07/16 04:10	1
Dibromofluoromethane (Surr)	98		75 - 121	09/06/16 12:00	09/07/16 04:10	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.8		mg/Kg	☼	09/09/16 10:51	09/10/16 01:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	81		77 - 123	09/09/16 10:51	09/10/16 01:55	1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	23	H	5.4		mg/Kg	☼	09/15/16 10:05	09/20/16 14:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		49 - 115	09/15/16 10:05	09/20/16 14:48	1

Method: 20B - Sodium Adsorption Ratio - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium Adsorption Ratio	ND		1.2		No Unit		09/12/16 18:30	09/14/16 00:34	10

Method: 6010B - Total Metals

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	220		1.3		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1
Boron	ND		13		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1
Cadmium	ND		0.66		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1
Calcium	3700		66		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1
Magnesium	3900		27		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1
Molybdenum	ND		2.7		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1
Silver	ND		1.3		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1
Sodium	ND		660		mg/Kg	☼	09/06/16 14:01	09/08/16 21:14	1

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.9		0.12		mg/Kg	☼	09/06/16 14:00	09/08/16 01:20	1
Chromium	24		0.25		mg/Kg	☼	09/06/16 14:00	09/08/16 01:20	1
Copper	30		0.31		mg/Kg	☼	09/06/16 14:00	09/08/16 01:20	1
Lead	17		0.12		mg/Kg	☼	09/06/16 14:00	09/08/16 01:20	1
Nickel	20		0.19		mg/Kg	☼	09/06/16 14:00	09/08/16 01:20	1
Selenium	0.61		0.25		mg/Kg	☼	09/06/16 14:00	09/08/16 01:20	1
Zinc	100		1.2		mg/Kg	☼	09/06/16 14:00	09/08/16 01:20	1

TestAmerica Denver

Client Sample Results

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH NATIVE

Lab Sample ID: 280-87722-3

Date Collected: 08/31/16 10:29

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 68.7

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.032		0.026		mg/Kg	☼	09/13/16 12:30	09/13/16 18:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.58		mg/Kg	☼	09/13/16 14:30	09/14/16 15:16	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (III)	24		2.0		mg/Kg	—		09/21/16 12:34	1
Percent Moisture	31.3		0.1		%			09/06/16 08:47	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.0		0.1		SU	—	09/09/16 10:41	09/13/16 10:40	1
Specific Conductance (25C)	1100		10		umhos/cm		09/09/16 10:41	09/14/16 11:00	1

Surrogate Summary

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (58-140)	TOL (80-126)	BFB (76-127)	DBFM (75-121)
280-87447-A-2-D MS	Matrix Spike	91	91	88	99
280-87447-A-2-E MSD	Matrix Spike Duplicate	95	98	92	101
280-87722-1	FILLY 44-13 SPILL PATH EAST	88	94	92	98
280-87722-2	FILLY 44-13 SPILL PATH WEST	92	94	98	100
280-87722-3	FILLY 44-13 SPILL PATH NATIVE	89	94	94	98
LCS 280-341002/2-A	Lab Control Sample	99	91	84	103
LCSD 280-341002/3-A	Lab Control Sample Dup	93	92	85	98
MB 280-341002/1-A	Method Blank	100	100	95	104

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TFT1 (77-123)			
280-87722-1	FILLY 44-13 SPILL PATH EAST	77			
280-87722-2	FILLY 44-13 SPILL PATH WEST	77			
280-87722-3	FILLY 44-13 SPILL PATH NATIVE	81			
280-87722-3 MS	FILLY 44-13 SPILL PATH NATIVE	78			
280-87722-3 MSD	FILLY 44-13 SPILL PATH NATIVE	80			
LCS 280-341509/2-A	Lab Control Sample	91			
MB 280-341509/1-A	Method Blank	99			

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		OTPH1 (49-115)			
280-87722-1	FILLY 44-13 SPILL PATH EAST	90			
280-87722-2	FILLY 44-13 SPILL PATH WEST	59			
280-87722-3	FILLY 44-13 SPILL PATH NATIVE	82			
280-87796-A-1-B MS	Matrix Spike	83			
280-87796-A-1-C MSD	Matrix Spike Duplicate	70			
280-88014-A-18-D MS	Matrix Spike	83			
280-88014-A-18-E MSD	Matrix Spike Duplicate	82			
LCS 280-341487/2-A	Lab Control Sample	90			

TestAmerica Denver

Surrogate Summary

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTPH1 (49-115)
LCS 280-342257/2-A	Lab Control Sample	90
MB 280-341487/1-A	Method Blank	89
MB 280-342257/1-A	Method Blank	89

Surrogate Legend

OTPH = o-Terphenyl

Lab Chronicle

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH EAST

Date Collected: 08/31/16 10:22

Date Received: 09/03/16 09:55

Lab Sample ID: 280-87722-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Prep	20B			101.544 g	50 mL	340958	09/12/16 18:30	TEB	TAL DEN
Soluble	Analysis	20B		10			342155	09/14/16 00:34	SJS	TAL DEN
Soluble	Prep	Sat Paste Ext			1 g	1 mL	368904	09/09/16 10:41	AAB	TAL NSH
Soluble	Analysis	9040C		1			369657	09/13/16 10:40	AML	TAL NSH
Soluble	Prep	Sat Paste Ext			1 g	1 mL	368904	09/09/16 10:41	AAB	TAL NSH
Soluble	Analysis	9050A		1			370034	09/14/16 11:00	JAB	TAL NSH
Total/NA	Analysis	Moisture		1			340866	09/06/16 08:47	JAP	TAL DEN

Client Sample ID: FILLY 44-13 SPILL PATH EAST

Date Collected: 08/31/16 10:22

Date Received: 09/03/16 09:55

Lab Sample ID: 280-87722-1

Matrix: Solid

Percent Solids: 76.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030A			5.740 g	5 mL	341002	09/06/16 12:00	ADD	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	341004	09/07/16 03:27	ADD	TAL DEN
Total/NA	Prep	5030A			10.30 g	10 mL	341509	09/09/16 10:51	NAS	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	341546	09/10/16 01:07	NAS	TAL DEN
Total/NA	Prep	3546			31.9 g	1 mL	342257	09/15/16 10:05	KI	TAL DEN
Total/NA	Analysis	8015B		1			342893	09/20/16 14:19	AMB1	TAL DEN
Total/NA	Prep	3050B			1.191 g	100 mL	340930	09/06/16 14:01	TEB	TAL DEN
Total/NA	Analysis	6010B		1			341430	09/08/16 21:09	CMK	TAL DEN
Total/NA	Prep	3050B			1.378 g	100 mL	340929	09/06/16 14:00	TEB	TAL DEN
Total/NA	Analysis	6020		1			341303	09/08/16 01:13	JM	TAL DEN
Total/NA	Prep	7471A			0.51 g	50 mL	341654	09/13/16 12:30	CDH	TAL DEN
Total/NA	Analysis	7471A		1			342037	09/13/16 18:14	CDH	TAL DEN

Client Sample ID: FILLY 44-13 SPILL PATH WEST

Date Collected: 08/31/16 10:25

Date Received: 09/03/16 09:55

Lab Sample ID: 280-87722-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Prep	20B			100.245 g	50 mL	340958	09/12/16 18:30	TEB	TAL DEN
Soluble	Analysis	20B		10			342155	09/14/16 00:34	SJS	TAL DEN
Soluble	Prep	Sat Paste Ext			1 g	1 mL	368904	09/09/16 10:41	AAB	TAL NSH
Soluble	Analysis	9040C		1			369657	09/13/16 10:40	AML	TAL NSH
Soluble	Prep	Sat Paste Ext			1 g	1 mL	368904	09/09/16 10:41	AAB	TAL NSH
Soluble	Analysis	9050A		1			370034	09/14/16 11:00	JAB	TAL NSH
Total/NA	Analysis	Moisture		1			340866	09/06/16 08:47	JAP	TAL DEN

TestAmerica Denver

Lab Chronicle

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH WEST

Lab Sample ID: 280-87722-2

Date Collected: 08/31/16 10:25

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 75.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030A			5.533 g	5 mL	341002	09/06/16 12:00	ADD	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	341004	09/07/16 03:48	ADD	TAL DEN
Total/NA	Prep	5030A			10.07 g	10 mL	341509	09/09/16 10:51	NAS	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	341546	09/10/16 01:31	NAS	TAL DEN
Total/NA	Prep	3546			30.1 g	1 mL	341487	09/09/16 10:27	KI	TAL DEN
Total/NA	Analysis	8015B		1			342385	09/15/16 23:43	AMB1	TAL DEN
Total/NA	Prep	3050B			1.103 g	100 mL	340930	09/06/16 14:01	TEB	TAL DEN
Total/NA	Analysis	6010B		1			341430	09/08/16 21:12	CMK	TAL DEN
Total/NA	Prep	3050B			1.058 g	100 mL	340929	09/06/16 14:00	TEB	TAL DEN
Total/NA	Analysis	6020		1			341303	09/08/16 01:17	JM	TAL DEN
Total/NA	Prep	7471A			0.55 g	50 mL	341654	09/13/16 12:30	CDH	TAL DEN
Total/NA	Analysis	7471A		1			342037	09/13/16 18:16	CDH	TAL DEN

Client Sample ID: FILLY 44-13 SPILL PATH NATIVE

Lab Sample ID: 280-87722-3

Date Collected: 08/31/16 10:29

Matrix: Solid

Date Received: 09/03/16 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Prep	20B			100.043 g	50 mL	340958	09/12/16 18:30	TEB	TAL DEN
Soluble	Analysis	20B		10			342155	09/14/16 00:34	SJS	TAL DEN
Total/NA	Analysis	7196A		1			343162	09/21/16 12:34	DEG	TAL DEN
Soluble	Prep	Sat Paste Ext			1 g	1 mL	368904	09/09/16 10:41	AAB	TAL NSH
Soluble	Analysis	9040C		1			369657	09/13/16 10:40	AML	TAL NSH
Soluble	Prep	Sat Paste Ext			1 g	1 mL	368904	09/09/16 10:41	AAB	TAL NSH
Soluble	Analysis	9050A		1			370034	09/14/16 11:00	JAB	TAL NSH
Total/NA	Analysis	Moisture		1			340866	09/06/16 08:47	JAP	TAL DEN

Client Sample ID: FILLY 44-13 SPILL PATH NATIVE

Lab Sample ID: 280-87722-3

Date Collected: 08/31/16 10:29

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 68.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030A			4.641 g	5 mL	341002	09/06/16 12:00	ADD	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	341004	09/07/16 04:10	ADD	TAL DEN
Total/NA	Prep	5030A			9.73 g	10 mL	341509	09/09/16 10:51	NAS	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	341546	09/10/16 01:55	NAS	TAL DEN
Total/NA	Prep	3546			32.2 g	1 mL	342257	09/15/16 10:05	KI	TAL DEN
Total/NA	Analysis	8015B		1			342893	09/20/16 14:48	AMB1	TAL DEN
Total/NA	Prep	3050B			1.098 g	100 mL	340930	09/06/16 14:01	TEB	TAL DEN
Total/NA	Analysis	6010B		1			341430	09/08/16 21:14	CMK	TAL DEN
Total/NA	Prep	3050B			1.180 g	100 mL	340929	09/06/16 14:00	TEB	TAL DEN
Total/NA	Analysis	6020		1			341303	09/08/16 01:20	JM	TAL DEN
Total/NA	Prep	7471A			0.58 g	50 mL	341654	09/13/16 12:30	CDH	TAL DEN

TestAmerica Denver

Lab Chronicle

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-87722-1

Client Sample ID: FILLY 44-13 SPILL PATH NATIVE

Lab Sample ID: 280-87722-3

Date Collected: 08/31/16 10:29

Matrix: Solid

Date Received: 09/03/16 09:55

Percent Solids: 68.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7471A		1			342037	09/13/16 18:19	CDH	TAL DEN
Total/NA	Prep	3060A			2.49 g	100 mL	187791	09/13/16 14:30	JLR	TAL PIT
Total/NA	Analysis	7196A		1	25.0 mL	25.0 mL	187946	09/14/16 15:16	JLR	TAL PIT


Laboratory References:

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

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Chain of Custody Record

Client Information Client Contact: Bill Ward Company: Nonwest Corporation Address: 950 South Cherry Street Suite 800 City: Denver State: CO, Zip: 80246 Phone: _____ Email: wward@nonwestcorp.com Project Name: Pioneer Natural Resources Site: Colorado		Sampler: A. Cand: 11 Lab PM: Harrington, Danielle M E-Mail: danielle.harrington@testamericainc.com Carrier Tracking No(s): COC No: 280-34119-4609.1 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): 15 days PO #: _____ WO #: _____ Project #: 28001998 SSOW #: _____		Analysis Requested Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: _____ M - Hexane N - None O - AsNaO2 P - Na2O4S R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Identification Sample Date: 8/31 Sample Time: 1022 Sample Type (C=Comp, G=grab): G Matrix (W=water, S=solid, O=organic, A=air): S		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Total Number of Containers: 5	
Filly 44-13 Sp:11 Path East Filly 44-13 Sp:11 Path West Filly 44-13 Sp:11 Path Native Temperature Blank		Special Instructions/Note: Login: see special instructions  280-87722 Chain of Custody	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by: Relinquished by: [Signature] Date: 9/12/16 1800 Company: Nonwest			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/OC Requirements: SAMPLER please circle all that apply: pH, Nitrate by IC, Nitrite by IC, Potentially Dissolved Metals, HEXAVALENT CHROMIUM Method of Shipment:			
Relinquished by: [Signature] Date: 9/12/16 1800 Company: Nonwest		Relinquished by: [Signature] Date: 9/13/16 0955 Company: TAD	
Relinquished by: [Signature] Date: _____ Company: _____		Relinquished by: [Signature] Date: _____ Company: _____	
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks: 1.0+0.0 DR#5 Drw 9/3/16	