


| Table 910-1                                      |                        |  |                        |                           |
|--|------------------------|---|------------------------|---------------------------|
| CONCENTRATION LEVELS                             |                        | sampled 5.10.17   |                        |                           |
| Contaminant of Concern                           | Concentrations         | Units   | SUSAN 33-21 TOP OF PIT | SUSAN 33-21 BOTTOM OF PIT |
| Organic Compounds in Soil                        |                        |   |                        |                           |
| TPH (Gasoline Range Organics)                    | 500                    | mg/kg   |                        | ND                        |
| TPH (Diesel Range Organics)                      |                        | mg/kg   |                        | 56                        |
| Benzene  | 0.17                   | mg/kg   |                        | ND                        |
| Toluene  | 85                     | mg/kg   |                        | ND                        |
| Ethylbenzene                                     | 100                    | mg/kg   |                        | ND                        |
| Xylenes (total)                                  | 175                    | mg/kg   |                        | ND                        |
| Acenaphthene                                     | 1000                   | mg/kg   |                        |                           |
| Anthracene                                       | 1000                   | mg/kg   |                        |                           |
| Benzo(A)anthracene                               | 0.22                   | mg/kg   |                        |                           |
| Benzo(B)fluoranthene                             | 0.22                   | mg/kg   |                        |                           |
| Benzo(K)fluoranthene                             | 2.2                    | mg/kg   |                        |                           |
| Benzo(A)pyrene                                   | 0.022                  | mg/kg   |                        |                           |
| Chrysene   | 22                     | mg/kg   |                        |                           |
| Dibenzo(A,H)anthracene                           | 0.022                  | mg/kg   |                        |                           |
| Fluoranthene                                     | 1000                   | mg/kg   |                        |                           |
| Fluorene   | 1000                   | mg/kg   |                        |                           |
| Indeno(1,2,3,C,D)pyrene                          | 0.22                   | mg/kg   |                        |                           |
| Napthalene                                       | 23                     | mg/kg   |                        |                           |
| Pyrene   | 1000                   | mg/kg   |                        |                           |
| Organic Compounds in Ground Water                |                        |   |                        |                           |
| Benzene  | 5                      | µg/l  |                        |                           |
| Toluene  | 560 to 1000            | µg/l  |                        |                           |
| Ethylbenzene                                     | 700                    | µg/l  |                        |                           |
| Xylenes (total)                                  | 1400 to 10,000         | µg/l  |                        |                           |
| Inorganics in Soils                              |                        |   |                        |                           |
| Electrical Conductivity (EC)                     | <4000 or 2x background | umhos/cm  | 450                    | 1300                      |
| Sodium Adsorption Ratio (SAR)                    | <12                    | NA  | 5.1                    | 16                        |
| pH   | 6.0-9.0                | NA  | 7.9                    | 8.1                       |
| Inorganics in Ground Water                       |                        |   |                        |                           |
| Total Dissolved Solids (TDS)                     | <1.25 x background     | NA  |                        |                           |
| Chlorides  | <1.25 x background     | NA  |                        |                           |
| Sulfates   | <1.25 x background     | NA  |                        |                           |
| Metals in Soils                                  |                        |   |                        |                           |
| Arsenic  | 0.39                   | mg/kg   |                        | NT                        |
| Barium Total                                     | 15,000                 | mg/kg   |                        | 410                       |
| Boron  | NA                     | mg/kg   |                        | ND                        |
| Boron (Hot Water Soluble)                        | 2                      | mg/L  |                        | NT                        |
| Cadmium  | 70                     | mg/kg   |                        | ND                        |
| Chromium (III)                                   | 120,000                | mg/kg   |                        | NA                        |
| Chromium (VI)                                    | 23                     | mg/kg   |                        | NT                        |
| Copper   | 3,100                  | mg/kg   |                        | 40                        |
| Lead   | 400                    | mg/kg   |                        | 17                        |
| Mercury  | 23                     | mg/kg   |                        | 0.051                     |
| Nickel   | 1,600                  | mg/kg   |                        | 18                        |
| Selenium   | 390                    | mg/kg   |                        | 0.56                      |
| Silver   | 390                    | mg/kg   |                        | ND                        |
| Zinc   | 23,000                 | mg/kg   |                        | 81                        |
| Chromium   | >23                    | mg/kg   |                        | 20                        |
| Liquid Hydrocarbons in Soils and Ground Water    |                        |   |                        |                           |
| Liquid hydrocarbons including condensate and oil | Below detection level  | NA  |                        |                           |

NA - not applicable

NT - not tested

ND - below the method detection limit

Cr - if Total Cr is >23 mg/kg, an analysis is completed for Cr VI, to facilitate calculation of Cr III

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Denver

4955 Yarrow Street

Arvada, CO 80002

Tel: (303)736-0100

TestAmerica Job ID: 280-97127-1

Client Project/Site: Soil Testing Suite

For:

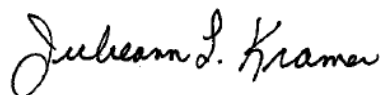
Pioneer Natural Resources USA, Inc.

5205 N. OConnor

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Irving, Texas 75039

Attn: LaCretia White



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5/31/2017 1:21:47 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: 280-97127-1

### Qualifiers

#### GC Semi VOA

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

#### Metals

| Qualifier | Qualifier Description   |
|-----------|---|
| F1        | MS and/or MSD Recovery is outside acceptance limits.  |
| F2        | MS/MSD RPD exceeds control limits   |
| F3        | Duplicate RPD exceeds the control limit   |
| 4         | MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable. |

### 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             | Detection Limit (DoD/DOE)   |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC            | Decision Level Concentration (Radiochemistry)   |
| EDL            | Estimated Detection Limit (Dioxin)  |
| LOD            | Limit of Detection (DoD/DOE)  |
| LOQ            | Limit of Quantitation (DoD/DOE)   |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |
| 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 (Radiochemistry)   |
| 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: 280-97127-1

**Job ID: 280-97127-1**

**Laboratory: TestAmerica Denver**

**Narrative**

## CASE NARRATIVE

**Client: Pioneer Natural Resources USA, Inc.**

**Project: Soil Suite**  
**Report Number: 280-97127-1**

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 05/27/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.0C.

Please note, the sample containers did not have a collection date or time listed.

### **GC/MS VOA, 8260B**

The Method 8260B performed on sample from another client and/or lot and was in control limits for all analytes.

No other anomalies were observed.

### **GC Volatiles, SW846 8015B**

The Method 8015B MS/MSD performed on sample SUSAN 33-21 BOTTOM OF PIT was within control limits.

No other anomalies were observed.

### **GC Semivolatiles, SW846 8015B**

Surrogate o-Terphenyl for method 8015B was recovered below the QC limits in samples SUSAN 33-21 BOTTOM OF PIT. This anomaly is due to possible matrix interferences; therefore, corrective action is deemed unnecessary. Sample data should be considered biased low.

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

No other anomalies were observed.

### **Total Metals SW846 6010B, 6020 and 7471A**

The Method 20B sample duplicate was performed on sample SUSAN 33-21 BOTTOM OF PIT and was within control limits.

The Method 6010B MS/MSD performed on sample from another client and/or lot was outside control limits for Barium, Boron, and Molybdenum.

The Method 6020 MS/MSD performed on sample SUSAN 33/21 BOTTOM OF PIT was outside control limits for Copper and Zinc.

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

## Case Narrative

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

TestAmerica Job ID: 280-97127-1

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### Job ID: 280-97127-1 (Continued)

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#### Laboratory: TestAmerica Denver (Continued)

No other anomalies were observed.

#### General Chemistry

The specific conductance and pH sample duplicates were performed on sample from another client an/or lot was within control limits.

All other sample duplicates were performed on sample 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: 280-97127-1

## Client Sample ID: SUSAN 33-21 TOP OF PIT

## Lab Sample ID: 280-97127-1

| Analyte                    | Result | Qualifier | RL  | RL | Unit     | Dil Fac | D | Method | Prep Type |
|----------------------------|--------|-----------|-----|----|----------|---------|---|--------|-----------|
| Sodium Adsorption Ratio    | 5.1    |           | 1.2 |    | No Unit  | 10      |   | 20B    | Soluble   |
| Sodium                     | 130    |           | 10  |    | mg/Kg    | 10      |   | 20B    | Soluble   |
| Calcium                    | 34     |           | 2.0 |    | mg/Kg    | 10      |   | 20B    | Soluble   |
| Magnesium                  | 11     |           | 2.0 |    | mg/Kg    | 10      |   | 20B    | Soluble   |
| pH                         | 7.9    |           | 0.1 |    | SU       | 1       |   | 9040C  | Soluble   |
| Specific Conductance (25C) | 450    |           | 10  |    | umhos/cm | 1       |   | 9050A  | Soluble   |

## Client Sample ID: SUSAN 33-21 BOTTOM OF PIT

## Lab Sample ID: 280-97127-2

| Analyte                         | Result | Qualifier | RL    | MDL | Unit     | Dil Fac | D | Method | Prep Type |
|---------------------------------|--------|-----------|-------|-----|----------|---------|---|--------|-----------|
| Diesel Range Organics [C10-C28] | 56     |           | 5.1   |     | mg/Kg    | 1       | ✱ | 8015B  | Total/NA  |
| Barium                          | 410    |           | 1.3   |     | mg/Kg    | 1       | ✱ | 6010B  | Total/NA  |
| Calcium                         | 13000  |           | 65    |     | mg/Kg    | 1       | ✱ | 6010B  | Total/NA  |
| Magnesium                       | 4200   |           | 26    |     | mg/Kg    | 1       | ✱ | 6010B  | Total/NA  |
| Sodium                          | 1600   |           | 650   |     | mg/Kg    | 1       | ✱ | 6010B  | Total/NA  |
| Chromium                        | 20     |           | 0.19  |     | mg/Kg    | 1       | ✱ | 6020   | Total/NA  |
| Copper                          | 40     | F1        | 0.23  |     | mg/Kg    | 1       | ✱ | 6020   | Total/NA  |
| Lead                            | 17     |           | 0.093 |     | mg/Kg    | 1       | ✱ | 6020   | Total/NA  |
| Nickel                          | 18     |           | 0.14  |     | mg/Kg    | 1       | ✱ | 6020   | Total/NA  |
| Selenium                        | 0.56   |           | 0.19  |     | mg/Kg    | 1       | ✱ | 6020   | Total/NA  |
| Zinc                            | 81     | F1        | 0.93  |     | mg/Kg    | 1       | ✱ | 6020   | Total/NA  |
| Mercury                         | 0.051  |           | 0.023 |     | mg/Kg    | 1       | ✱ | 7471A  | Total/NA  |
| Analyte                         | Result | Qualifier | RL    | RL  | Unit     | Dil Fac | D | Method | Prep Type |
| Sodium Adsorption Ratio         | 16     |           | 1.2   |     | No Unit  | 10      |   | 20B    | Soluble   |
| pH                              | 8.1    |           | 0.1   |     | SU       | 1       |   | 9040C  | Soluble   |
| Specific Conductance (25C)      | 1300   |           | 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: 280-97127-1

| 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    |
| 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



## Sample Summary

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

TestAmerica Job ID: 280-97127-1

| Lab Sample ID | Client Sample ID          | Matrix | Collected      | Received       |
|---------------|---------------------------|--------|----------------|----------------|
| 280-97127-1   | SUSAN 33-21 TOP OF PIT    | Solid  | 05/10/17 08:51 | 05/13/17 10:15 |
| 280-97127-2   | SUSAN 33-21 BOTTOM OF PIT | Solid  | 05/10/17 08:54 | 05/13/17 10:15 |

# Client Sample Results

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

TestAmerica Job ID: 280-97127-1

**Client Sample ID: SUSAN 33-21 TOP OF PIT**

**Lab Sample ID: 280-97127-1**

**Date Collected: 05/10/17 08:51**

**Matrix: Solid**

**Date Received: 05/13/17 10:15**

## Method: 20B - Sodium Adsorption Ratio - Soluble

| Analyte                 | Result | Qualifier | RL  | RL | Unit    | D | Prepared       | Analyzed       | Dil Fac |
|-------------------------|--------|-----------|-----|----|---------|---|----------------|----------------|---------|
| Sodium Adsorption Ratio | 5.1    |           | 1.2 |    | No Unit |   | 05/17/17 18:10 | 05/20/17 08:44 | 10      |
| Sodium                  | 130    |           | 10  |    | mg/Kg   |   | 05/17/17 18:10 | 05/20/17 08:44 | 10      |
| Calcium                 | 34     |           | 2.0 |    | mg/Kg   |   | 05/17/17 18:10 | 05/20/17 08:44 | 10      |
| Magnesium               | 11     |           | 2.0 |    | mg/Kg   |   | 05/17/17 18:10 | 05/20/17 08:44 | 10      |

## General Chemistry

| Analyte          | Result | Qualifier | RL  | RL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------|--------|-----------|-----|----|------|---|----------|----------------|---------|
| Percent Moisture | 15.9   |           | 0.1 |    | %    |   |          | 05/16/17 10:30 | 1       |

## General Chemistry - Soluble

| Analyte                    | Result | Qualifier | RL  | RL | Unit     | D | Prepared       | Analyzed       | Dil Fac |
|----------------------------|--------|-----------|-----|----|----------|---|----------------|----------------|---------|
| pH                         | 7.9    |           | 0.1 |    | SU       |   | 05/19/17 12:18 | 05/22/17 14:03 | 1       |
| Specific Conductance (25C) | 450    |           | 10  |    | umhos/cm |   | 05/19/17 12:18 | 05/22/17 14:15 | 1       |

# Client Sample Results

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

TestAmerica Job ID: 280-97127-1

**Client Sample ID: SUSAN 33-21 BOTTOM OF PIT**

**Lab Sample ID: 280-97127-2**

**Date Collected: 05/10/17 08:54**

**Matrix: Solid**

**Date Received: 05/13/17 10:15**

**Percent Solids: 74.9**

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

| Analyte        | Result | Qualifier | RL     | MDL | Unit  | D | Prepared       | Analyzed       | Dil Fac |
|----------------|--------|-----------|--------|-----|-------|---|----------------|----------------|---------|
| Benzene        | ND     |           | 0.0071 |     | mg/Kg | ☼ | 05/18/17 19:30 | 05/18/17 20:10 | 1       |
| Ethylbenzene   | ND     |           | 0.0071 |     | mg/Kg | ☼ | 05/18/17 19:30 | 05/18/17 20:10 | 1       |
| Toluene        | ND     |           | 0.0071 |     | mg/Kg | ☼ | 05/18/17 19:30 | 05/18/17 20:10 | 1       |
| Xylenes, Total | ND     |           | 0.0071 |     | mg/Kg | ☼ | 05/18/17 19:30 | 05/18/17 20:10 | 1       |

| Surrogate                    | %Recovery | Qualifier | Limits   | Prepared       | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|----------------|----------------|---------|
| 1,2-Dichloroethane-d4 (Surr) | 111       |           | 58 - 140 | 05/18/17 19:30 | 05/18/17 20:10 | 1       |
| Toluene-d8 (Surr)            | 103       |           | 80 - 126 | 05/18/17 19:30 | 05/18/17 20:10 | 1       |
| 4-Bromofluorobenzene (Surr)  | 102       |           | 76 - 127 | 05/18/17 19:30 | 05/18/17 20:10 | 1       |
| Dibromofluoromethane (Surr)  | 112       |           | 75 - 121 | 05/18/17 19:30 | 05/18/17 20:10 | 1       |

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

| Analyte                                  | Result | Qualifier | RL  | MDL | Unit  | D | Prepared       | Analyzed       | Dil Fac |
|--|--------|-----------|-----|-----|-------|---|----------------|----------------|---------|
| Gasoline Range Organics (GRO)<br>-C6-C10 | ND     |           | 1.6 |     | mg/Kg | ☼ | 05/17/17 14:00 | 05/17/17 18:38 | 1       |

| Surrogate              | %Recovery | Qualifier | Limits   | Prepared       | Analyzed       | Dil Fac |
|------------------------|-----------|-----------|----------|----------------|----------------|---------|
| a,a,a-Trifluorotoluene | 90        |           | 77 - 123 | 05/17/17 14:00 | 05/17/17 18:38 | 1       |

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

| Analyte                         | Result | Qualifier | RL  | MDL | Unit  | D | Prepared       | Analyzed       | Dil Fac |
|---------------------------------|--------|-----------|-----|-----|-------|---|----------------|----------------|---------|
| Diesel Range Organics [C10-C28] | 56     |           | 5.1 |     | mg/Kg | ☼ | 05/18/17 10:30 | 05/23/17 00:53 | 1       |

| Surrogate   | %Recovery | Qualifier | Limits   | Prepared       | Analyzed       | Dil Fac |
|-------------|-----------|-----------|----------|----------------|----------------|---------|
| o-Terphenyl | 45        | X         | 49 - 115 | 05/18/17 10:30 | 05/23/17 00:53 | 1       |

## Method: 20B - Sodium Adsorption Ratio - Soluble

| Analyte                 | Result | Qualifier | RL  | RL | Unit    | D | Prepared       | Analyzed       | Dil Fac |
|-------------------------|--------|-----------|-----|----|---------|---|----------------|----------------|---------|
| Sodium Adsorption Ratio | 16     |           | 1.2 |    | No Unit |   | 05/17/17 18:10 | 05/20/17 08:47 | 10      |

## Method: 6010B - Total Metals

| Analyte    | Result | Qualifier | RL   | MDL | Unit  | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|-----|-------|---|----------------|----------------|---------|
| Barium     | 410    |           | 1.3  |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |
| Boron      | ND     |           | 13   |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |
| Cadmium    | ND     |           | 0.65 |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |
| Calcium    | 13000  |           | 65   |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |
| Magnesium  | 4200   |           | 26   |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |
| Molybdenum | ND     |           | 2.6  |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |
| Silver     | ND     |           | 1.3  |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |
| Sodium     | 1600   |           | 650  |     | mg/Kg | ☼ | 05/18/17 13:15 | 05/22/17 10:16 | 1       |

## Method: 6020 - Total Metals by ICP-MS

| Analyte  | Result | Qualifier | RL    | MDL | Unit  | D | Prepared       | Analyzed       | Dil Fac |
|----------|--------|-----------|-------|-----|-------|---|----------------|----------------|---------|
| Chromium | 20     |           | 0.19  |     | mg/Kg | ☼ | 05/16/17 12:40 | 05/17/17 05:27 | 1       |
| Copper   | 40     | F1        | 0.23  |     | mg/Kg | ☼ | 05/16/17 12:40 | 05/17/17 05:27 | 1       |
| Lead     | 17     |           | 0.093 |     | mg/Kg | ☼ | 05/16/17 12:40 | 05/17/17 05:27 | 1       |
| Nickel   | 18     |           | 0.14  |     | mg/Kg | ☼ | 05/16/17 12:40 | 05/17/17 05:27 | 1       |
| Selenium | 0.56   |           | 0.19  |     | mg/Kg | ☼ | 05/16/17 12:40 | 05/17/17 05:27 | 1       |
| Zinc     | 81     | F1        | 0.93  |     | mg/Kg | ☼ | 05/16/17 12:40 | 05/17/17 05:27 | 1       |

TestAmerica Denver

# Client Sample Results

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

TestAmerica Job ID: 280-97127-1

**Client Sample ID: SUSAN 33-21 BOTTOM OF PIT**

**Lab Sample ID: 280-97127-2**

Date Collected: 05/10/17 08:54

Matrix: Solid

Date Received: 05/13/17 10:15

Percent Solids: 74.9

## Method: 7471A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL    | MDL | Unit  | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-------|-----|-------|---|----------------|----------------|---------|
| Mercury | 0.051  |           | 0.023 |     | mg/Kg | ☼ | 05/17/17 12:05 | 05/17/17 16:53 | 1       |

## General Chemistry

| Analyte          | Result | Qualifier | RL  | RL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------|--------|-----------|-----|----|------|---|----------|----------------|---------|
| Percent Moisture | 25.1   |           | 0.1 |    | %    | — |          | 05/16/17 10:30 | 1       |

## General Chemistry - Soluble

| Analyte                    | Result | Qualifier | RL  | RL | Unit     | D | Prepared       | Analyzed       | Dil Fac |
|----------------------------|--------|-----------|-----|----|----------|---|----------------|----------------|---------|
| pH                         | 8.1    |           | 0.1 |    | SU       | — | 05/19/17 12:18 | 05/22/17 14:03 | 1       |
| Specific Conductance (25C) | 1300   |           | 10  |    | umhos/cm | — | 05/19/17 12:18 | 05/22/17 14:15 | 1       |

# Surrogate Summary

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

TestAmerica Job ID: 280-97127-1

## 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<br>(58-140)                              | TOL<br>(80-126) | BFB<br>(76-127) | DBFM<br>(75-121) |
| 280-97127-2         | SUSAN 33-21 BOTTOM OF PIT | 111  | 103             | 102             | 112              |
| 280-97127-2 MS      | SUSAN 33-21 BOTTOM OF PIT | 108  | 113             | 117             | 112              |
| 280-97127-2 MSD     | SUSAN 33-21 BOTTOM OF PIT | 103  | 111             | 115             | 107              |
| LCS 280-374199/2-A  | Lab Control Sample        | 107  | 105             | 105             | 108              |
| LCSD 280-374199/3-A | Lab Control Sample Dup    | 103  | 109             | 106             | 108              |
| MB 280-374199/1-A   | Method Blank              | 103  | 103             | 105             | 108              |

### 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<br>(77-123)                               |  |  |  |
| 280-97127-2         | SUSAN 33-21 BOTTOM OF PIT | 90   |  |  |  |
| 280-97127-2 MS      | SUSAN 33-21 BOTTOM OF PIT | 88   |  |  |  |
| 280-97127-2 MSD     | SUSAN 33-21 BOTTOM OF PIT | 85   |  |  |  |
| LCS 280-373969/2-A  | Lab Control Sample        | 103  |  |  |  |
| LCSD 280-373969/3-A | Lab Control Sample Dup    | 99   |  |  |  |
| MB 280-373969/1-A   | Method Blank              | 100  |  |  |  |

### 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<br>(49-115)                              |  |  |  |
| 280-96935-A-2-E MS  | Matrix Spike              | 76   |  |  |  |
| 280-96935-A-2-F MSD | Matrix Spike Duplicate    | 101  |  |  |  |
| 280-97127-2         | SUSAN 33-21 BOTTOM OF PIT | 45 X   |  |  |  |
| LCS 280-374071/2-A  | Lab Control Sample        | 99   |  |  |  |
| LCSD 280-374071/3-A | Lab Control Sample Dup    | 103  |  |  |  |
| MB 280-374071/1-A   | Method Blank              | 94   |  |  |  |

### Surrogate Legend

OTPH = o-Terphenyl

TestAmerica Denver

# Lab Chronicle

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

TestAmerica Job ID: 280-97127-1

**Client Sample ID: SUSAN 33-21 TOP OF PIT**

**Date Collected: 05/10/17 08:51**

**Date Received: 05/13/17 10:15**

**Lab Sample ID: 280-97127-1**

**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           |     |            | 92.407 g       | 50 mL        | 373651       | 05/17/17 18:10       | MLS     | TAL DEN |
| Soluble   | Analysis   | 20B           |     | 10         |                |              | 374462       | 05/20/17 08:44       | CML     | TAL DEN |
| Soluble   | Prep       | Sat Paste Ext |     |            | 1 g            | 1 mL         | 430683       | 05/19/17 12:18       | BAA     | TAL NSH |
| Soluble   | Analysis   | 9040C         |     | 1          |                |              | 431896       | 05/22/17 14:03       | SCR     | TAL NSH |
| Soluble   | Prep       | Sat Paste Ext |     |            | 1 g            | 1 mL         | 430683       | 05/19/17 12:18       | BAA     | TAL NSH |
| Soluble   | Analysis   | 9050A         |     | 1          |                |              | 432178       | 05/22/17 14:15       | JAB     | TAL NSH |
| Total/NA  | Analysis   | Moisture      |     | 1          |                |              | 373746       | 05/16/17 10:30       | PAH     | TAL DEN |

**Client Sample ID: SUSAN 33-21 BOTTOM OF PIT**

**Date Collected: 05/10/17 08:54**

**Date Received: 05/13/17 10:15**

**Lab Sample ID: 280-97127-2**

**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           |     |            | 90.889 g       | 50 mL        | 373651       | 05/17/17 18:10       | MLS     | TAL DEN |
| Soluble   | Analysis   | 20B           |     | 10         |                |              | 374462       | 05/20/17 08:47       | CML     | TAL DEN |
| Soluble   | Prep       | Sat Paste Ext |     |            | 1 g            | 1 mL         | 430683       | 05/19/17 12:18       | BAA     | TAL NSH |
| Soluble   | Analysis   | 9040C         |     | 1          |                |              | 431896       | 05/22/17 14:03       | SCR     | TAL NSH |
| Soluble   | Prep       | Sat Paste Ext |     |            | 1 g            | 1 mL         | 430683       | 05/19/17 12:18       | BAA     | TAL NSH |
| Soluble   | Analysis   | 9050A         |     | 1          |                |              | 432178       | 05/22/17 14:15       | JAB     | TAL NSH |
| Total/NA  | Analysis   | Moisture      |     | 1          |                |              | 373746       | 05/16/17 10:30       | PAH     | TAL DEN |

**Client Sample ID: SUSAN 33-21 BOTTOM OF PIT**

**Date Collected: 05/10/17 08:54**

**Date Received: 05/13/17 10:15**

**Lab Sample ID: 280-97127-2**

**Matrix: Solid**

**Percent Solids: 74.9**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA  | Prep       | 5030A        |     |            | 4.679 g        | 5 mL         | 374199       | 05/18/17 19:30       | ADD     | TAL DEN |
| Total/NA  | Analysis   | 8260B        |     | 1          | 5 g            | 5 mL         | 374173       | 05/18/17 20:10       | ADD     | TAL DEN |
| Total/NA  | Prep       | 5030A        |     |            | 5.11 g         | 5 mL         | 373969       | 05/17/17 14:00       | KDK     | TAL DEN |
| Total/NA  | Analysis   | 8015B        |     | 1          | 0.1 mL         | 5 mL         | 373974       | 05/17/17 18:38       | KDK     | TAL DEN |
| Total/NA  | Prep       | 3546         |     |            | 31.3 g         | 1 mL         | 374071       | 05/18/17 10:30       | DFB1    | TAL DEN |
| Total/NA  | Analysis   | 8015B        |     | 1          |                |              | 374589       | 05/23/17 00:53       | TEM     | TAL DEN |
| Total/NA  | Prep       | 3050B        |     |            | 1.029 g        | 100 mL       | 373580       | 05/18/17 13:15       | MLS     | TAL DEN |
| Total/NA  | Analysis   | 6010B        |     | 1          |                |              | 374533       | 05/22/17 10:16       | CRR     | TAL DEN |
| Total/NA  | Prep       | 3050B        |     |            | 1.439 g        | 100 mL       | 373579       | 05/16/17 12:40       | SEJ     | TAL DEN |
| Total/NA  | Analysis   | 6020         |     | 1          |                |              | 373874       | 05/17/17 05:27       | LMT     | TAL DEN |
| Total/NA  | Prep       | 7471A        |     |            | 0.58 g         | 50 mL        | 373783       | 05/17/17 12:05       | CDH     | TAL DEN |
| Total/NA  | Analysis   | 7471A        |     | 1          |                |              | 374070       | 05/17/17 16:53       | CDH     | TAL DEN |

## 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

TestAmerica Denver



## Chain of Custody Record

|   |  |  |  |
|---|--|--|--|
| <b>Client Information</b><br>Client Contact: Bill Ward<br>Company: Norwest Corporation<br>Address: 950 South Cherry Street Suite 800<br>City: Denver<br>State: CO 80246<br>Phone: [blank]<br>Email: wward@norwestcorp.com<br>Project Name: Pioneer Natural Resources<br>Site: Colorado  |  | Lab PM: Harrington, Danielle M<br>E-Mail: danielle.harrington@testamericainc.com<br>Carrier Tracking No(s):<br>Lab No: 280-34119-4609-1<br>Page: Page 1 of 1<br>Job #:   |  |
| Due Date Requested:<br>TAT Requested (days): 5/15 days<br>PO #: [blank]<br>WO #: [blank]<br>Project #: 28001998<br>SSOW #: [blank]  |  | Barcode: 280-97127 Chain of Custody<br>  |  |
| <b>Sample Identification</b><br>Sample ID: Susan 33-21 Top of PT<br>Sample ID: Susan 33-21 Bottom of PT<br>Sample ID: King 152 401SPF<br>Sample ID: Lorencito 10-2<br>Sample ID: Lorencito 8-2<br>Sample ID: Lorencito 1-2  |  | Field Filtered Sample (Yes or No) [X]<br>Perform MS/MSD (Yes or No) [X]<br>Matrix (Weir, Solid, Open, Soil, Air) [blank]<br>Sample Type (C=Comp, G=Grab) [blank]<br>Sample Time [blank]<br>Sample Date [blank]<br>Preservation Code: [blank]   |  |
| Special Instructions/Note:<br>Login: see special instructions   |  | Preservation Codes:<br>A - HCL<br>B - NaOH<br>C - Zn Acetate<br>D - Nitric Acid<br>E - NaHSO4<br>F - MeOH<br>G - Amchlor<br>H - Ascorbic Acid<br>I - Ice<br>J - DI Water<br>K - EDTA<br>L - EDA<br>Other: [blank]<br>M - Hexane<br>N - None<br>O - AsNaO2<br>P - Na2OAS<br>Q - Na2SO3<br>R - Na2S2O3<br>S - H2SO4<br>T - TSP Dodecahydrate<br>U - Acetone<br>V - MCAA<br>W - pH 4-5<br>Z - other (specify) |  |
| Total Number of containers: 1<br>Special Instructions/Note: [blank]   |  | Total Number of containers: 4<br>Special Instructions/Note: [blank]  |  |
| Possible Hazard Identification<br><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<br>Deliverable Requested: I, II, III, IV, Other (specify) [blank] |  | Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)<br><input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For [blank] Months   |  |
| Empty Kit Relinquished by: [Signature]<br>Relinquished by: [Signature]<br>Relinquished by: [Signature]  |  | Special Instructions/QC Requirements: SAMPLER please circle all that apply: pH, Nitrate by IC, Nitrite by IC, Potentially Dissolved Metals<br>Date: 5/12/17 1800<br>Date: 5/13-17 1018<br>Date: [blank]  |  |
| Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Custody Seal No.: [blank]   |  | Copier Temperature(s) °C and Other Remarks: 2.0 TR#7 0-0 Transfer RP S-13-17   |  |

## COOLER RECEIPT FORM



280-97127 Chain of Custody

Cooler Received/Opened On 5/16/2017 @ 0930

Time Samples Removed From Cooler 1150 Time Samples Placed In Storage \_\_\_\_\_ (2 Hour Window)

1. Tracking # 1329 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960357 pH Strip Lot \_\_\_\_\_ Chlorine Strip Lot \_\_\_\_\_

2. Temperature of rep. sample or temp blank when opened: 1.2 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler?

If yes, how many and where: \_\_\_\_\_

5. Were the seals intact, signed, and dated correctly?

6. Were custody papers inside cooler?

I certify that I opened the cooler and answered questions 1-6 (initial) \_\_\_\_\_

7. Were custody seals on containers:

YES NO

and Intact

YES...NO...NA

Were these signed and dated correctly?

YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)?

YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)?

YES...NO...NA

12. Did all container labels and tags agree with custody papers?

YES...NO...NA

13a. Were VOA vials received?

YES...NO...NA

b. Was there any observable headspace present in any VOA vial?

YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # \_\_\_\_\_

I certify that I unloaded the cooler and answered questions 7-14 (initial) \_\_\_\_\_

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used

YES...NO...NA

16. Was residual chlorine present?

YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) \_\_\_\_\_

17. Were custody papers properly filled out (ink, signed, etc)?

YES...NO...NA

18. Did you sign the custody papers in the appropriate place?

YES...NO...NA

19. Were correct containers used for the analysis requested?

YES...NO...NA

20. Was sufficient amount of sample sent in each container?

YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) \_\_\_\_\_

I certify that I attached a label with the unique LIMS number to each container (initial) \_\_\_\_\_

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...# \_\_\_\_\_



TestAmerica

5/31/2017