District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

| | |
|---|---|
| Incident ID | |
| District RP | |
| Facility ID | |
| Application ID | |

# Release Notification

## Responsible Party

| | |
|---|---|
| Responsible Party: **Enterprise Field Services, LLC** | OGRID: **151618** |
| Contact Name: **Thomas Long** | Contact Telephone: **505-599-2286** |
| Contact email:**tjlong@eprod.com** | Incident # *(assigned by OCD)*: **NVF1825428620** |
| Contact mailing address: **614 Reilly Ave, Farmington, NM 87401** | |

pVF1831353157

## Location of Release Source

Latitude **36.55201** Longitude **-107.74465** *(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name **Lateral C-14 Pipeline** | Site Type **Natural Gas Gathering Pipeline** |
| Date Release Discovered: **8/14/2018** | Serial Number *(if applicable)*: |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| **D** | **25** | **27N** | **9W** | **San Juan** |

Surface Owner: ☐ State ☐ Federal ☒ Tribal ☐ Private (*Name:* **Navajo Nation**)

## Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Produced Water | Volume Released (bbls) | Volume Recovered (bbls) |
| | Is the concentration of dissolved chloride in the produced water >10,000 mg/l? | ☐ Yes ☐ No |
| ☒ Condensate | Volume Released (bbls): **Estimated 5-7 BBLs** | Volume Recovered (bbls): **None** |
| ☒ Natural Gas | Volume Released (Mcf): **32.01 MCF** | Volume Recovered (Mcf): **None** |
| ☐ Other (describe) | Volume/Weight Released (provide units): | Volume/Weight Recovered (provide units) |

Cause of Release Cause of Release: On August 14, 2018 an Enterprise technician discovered a release of natural gas on the Lateral C-14 pipeline. The pipeline was isolated, depressurized, locked out and tagged out. Enterprise determined this release reportable per NMOCD regulation on August 21, 2018, due the volume of impacted subsurface soil. Repairs and remediation were completed on August 24, 2018. The contaminant mass was removed by mechanical excavation. The final excavation dimensions measured approximately 17 feet long by 14 feet wide by 9.5 feet deep. Approximately 77 cubic yards of hydrocarbon impacted soil were excavated and transported to a New Mexico Oil Conservation Division approved land farm facility. A third party closure report is included with this "Final." C-141.

NMOCD
NOV 05 2018
DISTRICT III

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | |
| Facility ID | |
| Application ID | |

# Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Jon E. Fields Title: Director, Field Environmental

Signature: Jon E. Fields Date: 10/30/18

email: jefields@eprod.com Telephone: (713) 381-6684

**OCD Only**

Received by: Vanessa Fields Date: 11/5/2018

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Vanessa Fields Date: 11/9/2018

Printed Name: Vanessa Fields Title: Environmental Specialist

APEX

# CLOSURE REPORT

Property:

**Lateral C-14 Pipeline Release**
**NW 1/4, S25 T27N R9W**
**San Juan County, New Mexico**

October 12, 2018
Apex Project No. 725040112507

Prepared for:

**Enterprise Field Services, LLC**
**614 Reilly Avenue**
**Farmington, NM 87401**
**Attn: Mr. Thomas Long**



Prepared by:

Ranee Deechilly
Project Scientist

Kyle Summers, CPG
Branch Manager / Senior Geologist

## TABLE OF CONTENTS



## LIST OF APPENDICES

APEX

# CLOSURE REPORT

**Lateral C-14 Pipeline Release**
NW 1/4, S25 T27N R9W
San Juan County, New Mexico

**Apex Project No. 725040112507**

## 1.0 INTRODUCTION

### 1.1 Site Description & Background

The Lateral C-14 Pipeline Release site, referred to hereinafter as the "Site", is located within the Enterprise Field Services, LLC (Enterprise) pipeline right-of-way (ROW) in the northwest (NW) ¼ of Section 25, Township 27 North, Range 9 West, in San Juan County, New Mexico (36.55201N, 107.74465W). The Site is located on Navajo Nation allotted lands. The surrounding area is predominately rangeland that is periodically interrupted by oil and gas production and gathering facilities and occasional private residences. The closest residence is located approximately 274 feet north of the Site. The Enterprise Lateral C-14 natural gas gathering pipeline transects the area from approximately east to west.

On August 13, 2018, a release of natural gas occurred on the Lateral C-14 pipeline. Enterprise subsequently isolated and locked the line out of service. The surface expression of the release was characterized by soil discoloration of the ground surface at the release point and a flow path extending south of the release point approximately 50 feet. On August 20, 2018, Enterprise initiated excavation activities to facilitate the repair of the pipeline, and to remediate potential petroleum hydrocarbon impact resulting from the release. The pipeline was subsequently repaired and placed back in service.

A **Topographic Map** depicting the location of the Site is included as **Figure 1**, and a **Site Vicinity Map** is included as **Figure 2** in **Appendix A**.

### 1.2 Project Objective

The primary objective of the closure activities was to reduce constituent of concern (COC) concentrations in the on-Site soils to below the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) closure criteria using the New Mexico EMNRD OCD's New Mexico Administrative Code (NMAC) 19.15.29 *Releases* as guidance.

## 2.0 CLOSURE CRITERIA

The Site is subject to regulatory oversight by the Navajo Nation Environmental Protection Agency (NNEPA) and the New Mexico EMNRD OCD. In absence of published NNEPA regulatory guidance, Apex TITAN, Inc. (Apex) referenced the New Mexico ENMRD OCD's NMAC 19.15.29 *Releases*. Apex utilized the general site characteristics obtained during the implementation of corrective action activities and information available from the New Mexico Office of the State Engineer (OSE) and the New Mexico EMNRD OCD Imaging database to determine the appropriate closure criteria for the Site.

- No water wells were identified within a mile of the Site on the OSE Water Rights Reporting System (WRSS) database. However, based on the proximity to an unnamed ephemeral wash depth to groundwater at the Site is anticipated to be less than 50 feet below grade surface (bgs).
- The Site is located within 300 feet of a New Mexico ENMRD OCD-defined continuously flowing watercourse or significant. The Site is located approximately 63 feet north of an ephemeral wash that is identified as a "blue line" on the United States Geological Survey (USGS) topographic map.
- The Site is not located within 200 feet of a lakebed, sinkhole or playa lake.
- The Site is located within 300 feet from an occupied permanent residence, school, hospital, institution or church. The closest residence is located approximately 274 feet north of the Site.
- No springs or private, domestic fresh water wells used by less than five (5) households from domestic or stock water purposes were identified within 500 feet of the Site.
- No fresh water wells or springs were identified within 1,000 feet of the Site.
- The Site is not located within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3.
- The Site is not located within 300 feet of a wetland.
- Based on information identified on the New Mexico Mining and Minerals Division's GIS, Maps and Mine Data database, the Site is not located within an area overlying a subsurface mine.
- The Site is not located within an unstable area.
- The Site is not located within a 100-year floodplain.

Based on the evaluation of the site characterization, closure criteria for soils remaining in place at the Site include:

| **Closure Criteria for Soils Impacted by a Release** | | | |
|---|---|---|---|
| Minimum depth below any point within horizontal boundary of the release to groundwater less than 10,000 mg/l TDS | Constituent | Method | Limit |
| ≤ 50 feet | Chloride | EPA 300.0 or SM4500 Cl B | 600 mg/kg |
| | TPH (GRO+DRO+MRO) | EPA SW-846 Method 8015M | 100 mg/kg |
| | BTEX | EPA SW-846 Method 8021B or 8260B | 50 mg/kg |
| | Benzene | EPA SW-846 Method 8021B or 8260B | 10 mg/kg |

# 3.0 RESPONSE ACTIONS

## 3.1 Soil Excavation Activities

On August 20, 2018, Enterprise initiated excavation activities to facilitate the repair of the pipeline, and to remediate potential petroleum hydrocarbon impact resulting from the release. The pipeline was subsequently repaired and placed back in service. During the pipeline repair and earthwork activities, West States Energy Contractors Inc., provided heavy equipment and labor support, and Apex provided environmental consulting support.

The southern-most portion of the flow path was remediated by hand shoveling (outside of ROW) and heavy equipment (within ROW).

The final remediation excavation measured approximately 17 feet long by 14 feet wide. The maximum depth of the excavation measured approximately 9.5 feet bgs. The flow path measured approximately 50 feet in length.

The lithology encountered during the completion of corrective action activities consisted primarily of unconsolidated to semi-consolidated silty sand.

A total of approximately 77 cubic yards of petroleum hydrocarbon affected soils were transported to the Envirotech, Inc. (Envirotech) landfarm near Hilltop, New Mexico for disposal/remediation. The executed C-138 solid waste acceptance form is provided in **Appendix B**. The excavation was backfilled with imported fill and contoured to surrounding grade.

**Figure 3** is a map with soil sample locations that depicts the approximate dimensions of the excavation with respect to the pipeline (**Appendix A**). Photographic documentation of the field activities is included in **Appendix C**.

## 3.2 Soil Sampling Program

Apex field screened soil samples from the excavation utilizing a photoionization detector (PID) fitted with a 10.6 eV lamp and a calibrated Dexsil PetroFLAG® hydrocarbon analyzer system to guide excavation extents.

On August 20, 2018, two (2) composite soil samples (CS-1 and CS-2) were collected from the end walls of the pipe chase, prior to the planned extension of the excavation to accommodate a longer section of new pipe. On August 24, 2018, three (3) composite soil samples (CS-3 through CS-5) were collected from the remaining sidewalls and the base of the final excavation for laboratory analysis. In addition, one (1) composite soil sample (FP-1) was collected from the flow path.

A New Mexico EMNRD OCD representative was on-Site during the August 24, 2018 sampling event.

The samples were collected and placed in laboratory prepared glassware, labeled/sealed using the laboratory supplied labels and custody seals, and stored on ice in a cooler. The samples were relinquished to the courier for Hall Environmental Analysis Laboratory of Albuquerque, New Mexico, under proper chain-of-custody procedures.

## 3.3 Laboratory Analytical Methods

The composite soil samples were analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) using Environmental Protection Agency (EPA) SW-846 Method #8021/8260, total

petroleum hydrocarbon (TPH) gasoline range organics (GRO), diesel range organics (DRO), and motor oil/lube oil range organics (MRO) using EPA SW-846 Method #8015, and chlorides using EPA Method #300.0.

Laboratory analytical results are summarized in **Table 1**, included in **Appendix D**. The executed chain-of-custody form and laboratory data sheets are provided in **Appendix E**.

## 4.0 DATA EVALUATION

The Site is subject to regulatory oversight by the NNEPA and the New Mexico EMNRD OCD. In the absence of published NNEPA regulatory guidance, Apex referenced the New Mexico EMNRD OCD's NMAC 19.15.29 *Releases*. This guidance document establishes investigation and abatement action requirements for sites subject to reporting and/or corrective action.

### 4.1 Soil Samples

Apex compared the BTEX and TPH concentrations or laboratory practical quantitation limits (PQLs) associated with the composite soil samples (CS-1 through CS-5 and FP-1) to the New Mexico EMNRD OCD closure criteria.

- The laboratory analyses of the composite soil samples collected from soils remaining in place do not indicate benzene concentrations above the laboratory PQLs, which are below the New Mexico EMNRD OCD closure criteria of 10 milligrams per kilogram (mg/kg).
- The laboratory analyses of the composite soil samples collected from soils remaining in place do not indicate total BTEX concentrations above the laboratory PQLs, which are below the New Mexico EMNRD OCD closure criteria of 50 mg/kg.
- The laboratory analyses of the composite soil samples collected from soils remaining in place do not indicate combined TPH GRO/DRO/MRO concentrations above the laboratory PQLs, which are below the New Mexico EMNRD OCD closure criteria of 100 mg/kg.
- The laboratory analyses of the composite soil samples collected from soils remaining in place indicate chloride concentrations ranging from below the laboratory PQLs to 300 mg/kg (FP-1), which are below the New Mexico OCD closure criteria of 600 mg/kg.

Laboratory analytical results are summarized in **Table 1** in **Appendix D**.

## 5.0 RECLAMATION AND RE-VEGETATION

The excavation was backfilled with imported fill and contoured to the surrounding grade. The site will be re-seeded with a BLM Farmington Field Office approved seeding mixture at the beginning of the next favorable growing season.

## 6.0 FINDINGS AND RECOMMENDATIONS

The Lateral C-14 Pipeline Release Site is located within the Enterprise pipeline ROW in the NW ¼ of Section 25, Township 27 North, Range 9 West, in San Juan County, New Mexico. The Site

is located on Navajo Nation allotted lands. The surrounding area is predominately rangeland that is periodically interrupted by oil and gas production and gathering facilities and occasional private residences. The closest residence is located approximately 274 feet north of the Site. The Enterprise Lateral C-14 natural gas gathering pipeline transects the area from approximately east to west.

On August 13, 2018, a release of natural gas occurred on the Lateral C-14 pipeline. Enterprise subsequently isolated and locked the line out of service. The surface expression of the release was characterized by soil discoloration of the ground surface at the release point and a flow path extending south of the release point approximately 50 feet. On August 20, 2018, Enterprise initiated excavation activities to facilitate the repair of the pipeline, and to remediate potential petroleum hydrocarbon impact resulting from the release. The pipeline was subsequently repaired and placed back in service.

- The primary objective of the closure activities was to reduce COC concentrations in the on-Site soils to below the New Mexico EMNRD OCD closure criteria using the New Mexico EMNRD OCD's NMAC 19.15.29 *Releases* as guidance.

- The lithology encountered during the completion of corrective action activities consisted unconsolidated to semi-consolidated silty.

- The final primary excavation measured approximately 17 feet long by 14 feet wide. The maximum depth of the excavation measured approximately 9.5 feet bgs, with a flow path extending approximately 50 feet south of the release point.

- Prior to backfilling, five (5) composite soil samples were collected from the excavation and one (1) composite soil sample was collected from the flow path. Based on soil analytical results, soils remaining in place do not exhibit COC concentrations above the New Mexico EMNRD OCD closure criteria.

- A total of approximately 77 cubic yards of petroleum hydrocarbon affected soils were transported to the Envirotech landfarm near Hilltop, New Mexico for disposal/remediation. The excavation was backfilled with imported fill and contoured to surrounding grade.

**Based on field observations and laboratory analytical results, no additional investigation or corrective action appears warranted at this time.**

## 7.0 STANDARD OF CARE, LIMITATIONS, AND RELIANCE

Apex's services were performed in accordance with standards customarily provided by a firm rendering the same or similar services in the area during the same time period. Apex makes no warranties, expressed or implied, as to the services performed hereunder. Additionally, Apex does not warrant the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties). This scope of services was performed in accordance with the scope of work agreed with the client.

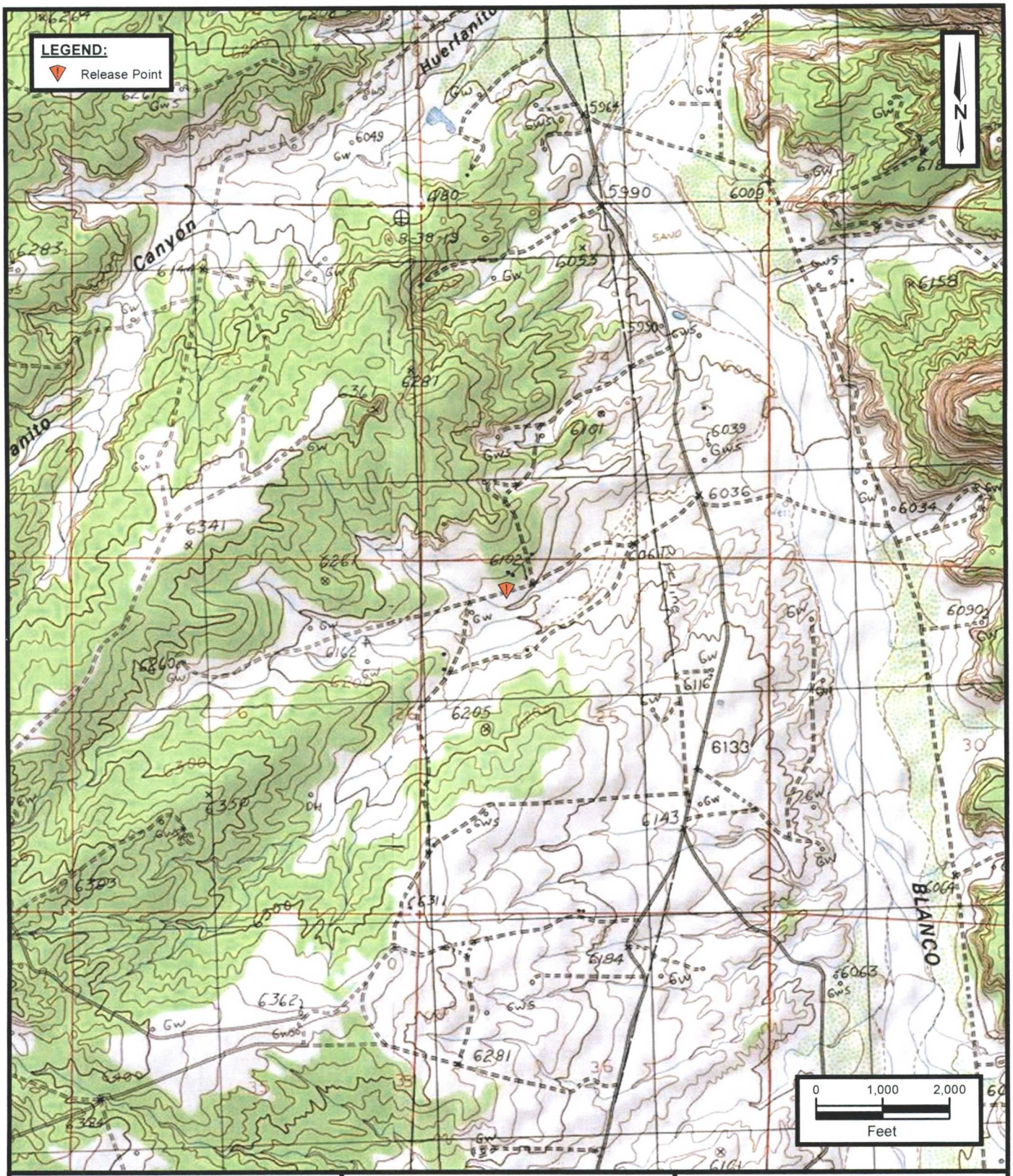
Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-Site activities and other services performed under this scope of work and it should be noted that this information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, or not present during these services, and Apex cannot represent that the Site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this scope of services. Environmental

conditions at other areas or portions of the Site may vary from those encountered at actual sample locations. Apex's findings and recommendations are based solely upon data available to Apex at the time of these services.

This report has been prepared for the exclusive use of Enterprise, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the expressed written authorization of Enterprise and Apex. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, the report, and Apex's Agreement. The limitation of liability defined in the agreement is the aggregate limit of Apex's liability to the client.

# APPENDIX A

## Figures




**Lateral C-14**
NW 1/4, S25 T27N R9W
San Juan County, New Mexico
36.55201 N, 107.74465 W

Project No. 725040112507

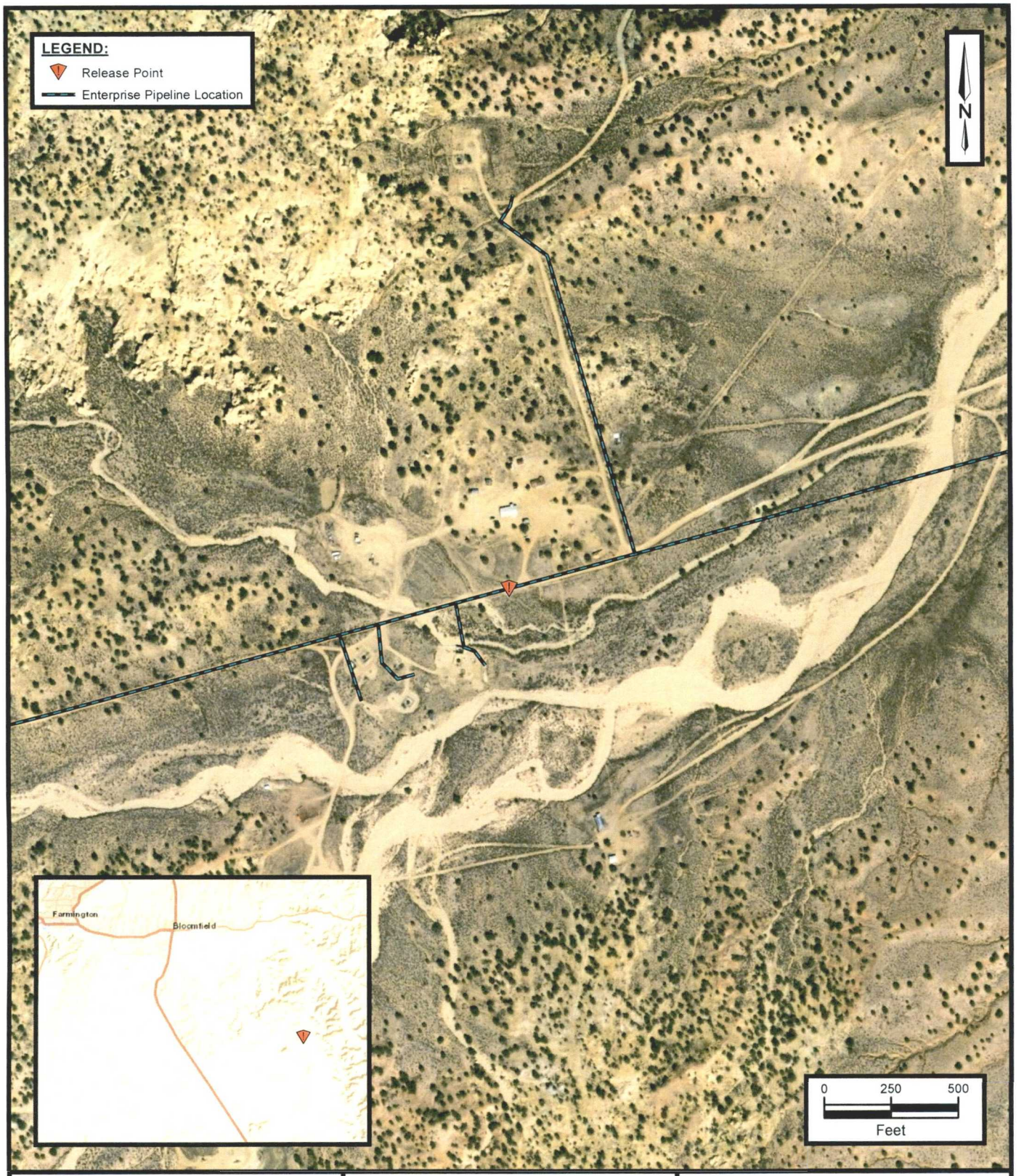
**Apex TITAN, Inc.**
606 South Rio Grande, Suite A
Aztec, New Mexico 87410
*Phone: (505) 334-5200*
www.apexcos.com
***A Subsidiary of Apex Companies, LLC***

**FIGURE 1**

**Topographic Map**



Q:\Projects\725040112507\Figure 1.mxd Modified 8/31/2018 by JSimpson NAD 1983 2011 StatePlane New Mexico West FIPS 3003 Ft US Coordinate System




**Lateral C-14**
NW 1/4, S25 T27N R9W
San Juan County, New Mexico
36.55201 N, 107.74465 W

Project No. 725040112507

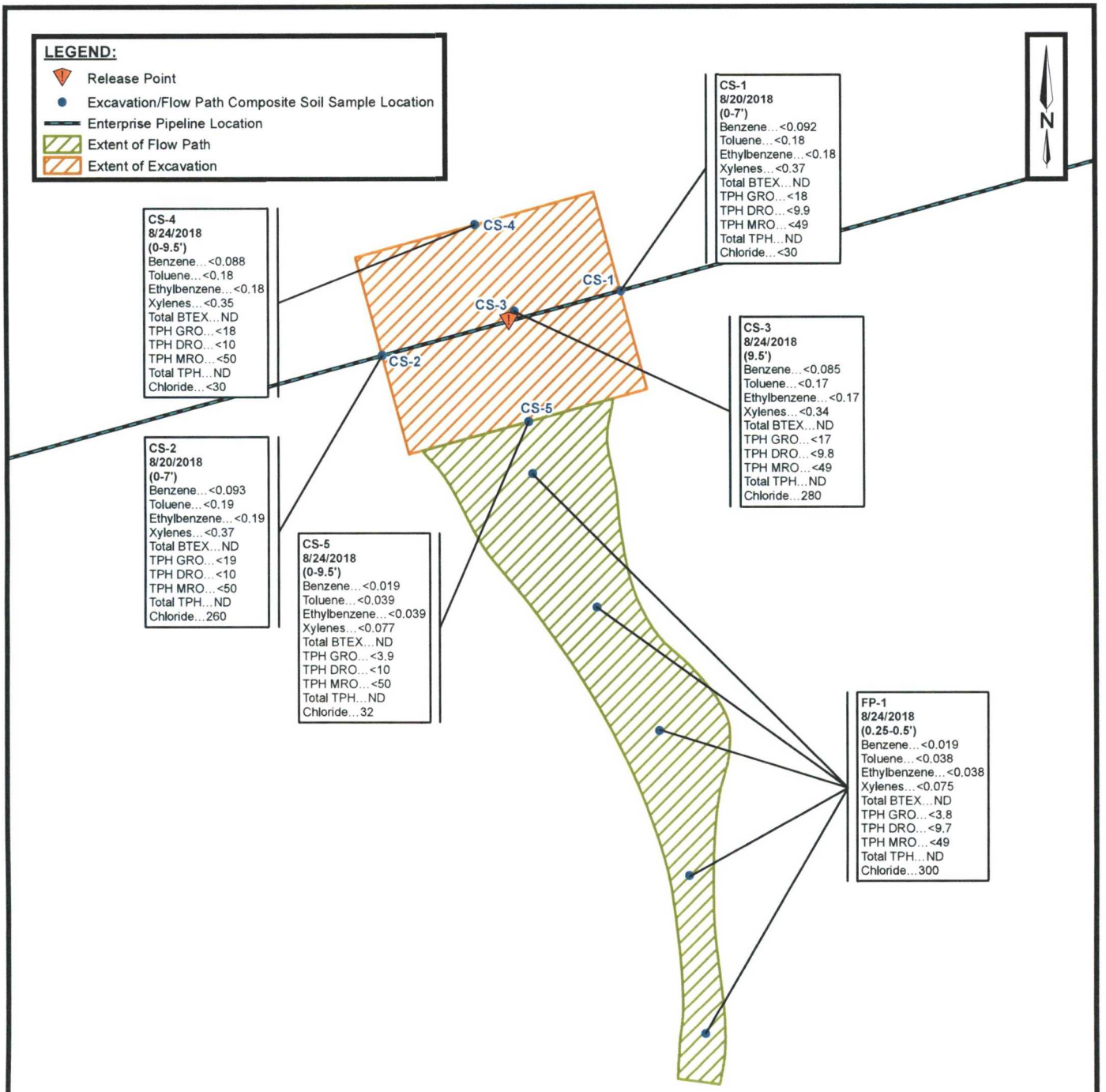
**Apex TITAN, Inc.**
606 South Rio Grande, Suite A
Aztec, New Mexico 87410
*Phone: (505) 334-5200*
www.apexcos.com
***A Subsidiary of Apex Companies, LLC***

## FIGURE 2

### Site Vicinity Map



Q:\Projects\725040112507\Figure 2.mxd Modified 8/31/2018 by JSimpson NAD 1983 2011 StatePlane New Mexico West FIPS 3003 Ft US Coordinate System




**NOTE:**
All Concentrations Are Listed in mg/Kg.

All Depths Are Listed in Feet BGS.

ND - Not Detected

**Lateral C-14**
NW 1/4, S25 T27N R9W
San Juan County, New Mexico
36.55201 N, 107.74465 W

Project No. 725040112507


**Apex TITAN, Inc.**
606 South Rio Grande, Suite A
Aztec, New Mexico 87410
*Phone: (505) 334-5200*
www.apexcos.com
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**FIGURE 3**

**Site Map with Soil Analytical Results**

Q:\Projects\725040112507\Figure 3.mxd Modified 8/31/2018 by JSimpson NAD 1983 2011 StatePlane New Mexico West FIPS 3003 Ft US Coordinate System

# APPENDIX B

## Executed C-138 Solid Waste Acceptance Form

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

97057-0940

Form C-138
Revised 08/01/11

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

# REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

**1. Generator Name and Address:**
**Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401**

**2. Originating Site:**
**Lateral C-14 Pipeline**

**Invoice Information: PM: Aaron Lucero**
**Non AFE: Pending**
**Pay Key: CM22355**

**3. Location of Material (Street Address, City, State or ULSTR):**
**UL D Section 25 T27N R9W; 36.552006, -107.745027**

August

**4. Source and Description of Waste:**
**Source:** ~~**Overtopping of a storage tank.**~~
**Description:** Hydrocarbon/Condensate impacted soil associated with the remediation of a natural gas pipeline leak.
Estimated Volume 50 (yd³) bbls Known Volume (to be entered by the operator at the end of the haul) 77 (yd³) bbls

**5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS**

I, Thomas Long Thomas Long, representative or authorized agent for Enterprise Products Operating do hereby
**Generator Signature**
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. *Operator Use Only: Waste Acceptance Frequency* ☐ *Monthly* ☐ *Weekly* ☐ *Per Load*

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☒ Process Knowledge ☐ Other (Provide description in Box 4)

**GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS**

I, Thomas Long Thomas Long 8-14-18, representative for Enterprise Products Operating authorizes Envirotech, Inc to complete
**Generator Signature**
the required testing/sign the Generator Waste Testing Certification.

I, _____, representative for Envirotech, Inc. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

**5. Transporter: West State Energy Contractors** Prado Farms, De Herrera,

**OCD Permitted Surface Waste Management Facility**

Name and Facility Permit #: **Envirotech Inc. Soil Remediation Facility * Permit #: NM 01-0011**
Address of Facility: **Hilltop, NM**
Method of Treatment and/or Disposal:
☐ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfarm ☐ Landfill ☐ Other

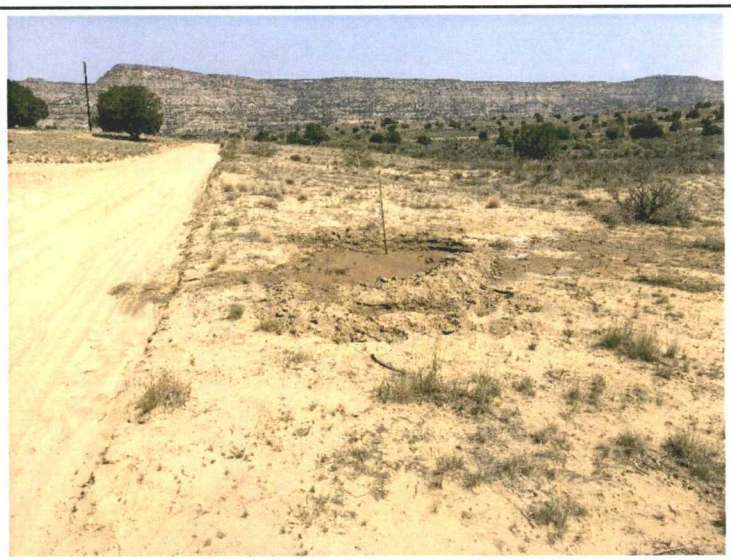
**Waste Acceptance Status:**

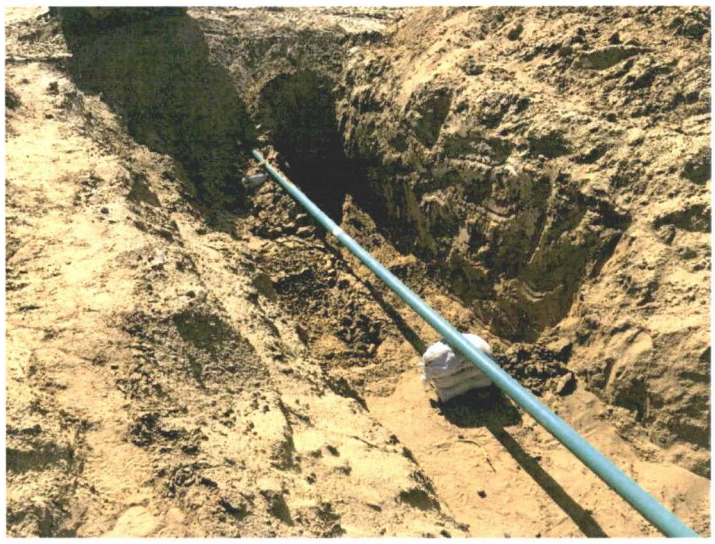
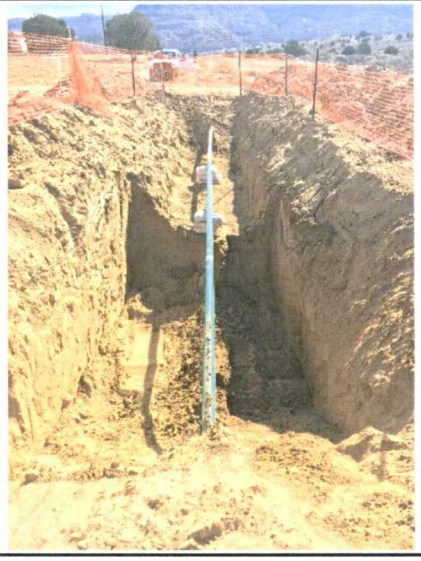
☒ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: Greg Crabtree TITLE: Environmental Manager DATE: 8/14/18
SIGNATURE: _____ TELEPHONE NO.: 505-632-0615
Surface Waste Management Facility Authorized Agent

# APPENDIX C

## Photographic Documentation

| | |
|---|---|
| **Photograph 1**<br><br>View of the release area, facing northeast. |  |
| **Photograph 2**<br><br>View of the release area and flow path, facing east. |  |
| **Photograph 3**<br><br>View of the initial excavation, facing southwest. |  |

| | |
|---|---|
| **Photograph 4**<br><br>View of in process excavation activties, facing southwest. |  |
| **Photograph 5**<br><br>View of the final excavation, facing northeast. |  |
| **Photograph 6**<br><br>View of the remediated flow path, facing northwest. |  |

| | |
|---|---|
| **Photograph 7**<br><br>View of the final excavation after initial restoration. |  |

# APPENDIX D

## Table

# TABLE 1
## Lateral C-14
### SOIL ANALYTICAL SUMMARY

| Sample I.D. | Date | Sample Type C- Composite G - Grab | Sample Depth (feet) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Xylenes (mg/kg) | Total BTEX (mg/kg) | TPH GRO (mg/kg) | TPH DRO (mg/kg) | TPH MRO (mg/kg) | Total Combined TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **New Mexico Energy, Mineral & Natural Resources Department, Oil Conservation Division, Closure Criteria** | | | | **10** | **NE** | **NE** | **NE** | **50** | | | | **100** | **600** |
| **Composite Soil Samples Collected from Flow Path** | | | | | | | | | | | | | |
| FP-1 | 08.24.18 | C | 0.25 to 0.5 | <0.019 | <0.038 | <0.038 | <0.075 | ND | <3.8 | <9.7 | <49 | ND | 300 |
| **Excavation Composite Soil Samples** | | | | | | | | | | | | | |
| CS-1 | 08.20.18 | C | 0 to 7 | <0.092 | <0.18 | <0.18 | <0.37 | ND | <18 | <9.9 | <49 | ND | <30 |
| CS-2 | 08.20.18 | C | 0 to 7 | <0.093 | <0.19 | <0.19 | <0.37 | ND | <19 | <10 | <50 | ND | 260 |
| CS-3 | 08.24.18 | C | 9.5 | <0.085 | <0.17 | <0.17 | <0.34 | ND | <17 | <9.8 | <49 | ND | 280 |
| CS-4 | 08.24.18 | C | 0 to 9.5 | <0.088 | <0.18 | <0.18 | <0.35 | ND | <18 | <10 | <50 | ND | <30 |
| CS-5 | 08.24.18 | C | 0 to 9.5 | <0.019 | <0.039 | <0.039 | <0.077 | ND | <3.9 | <10 | <50 | ND | 32 |

ND = Not Detected above the Practical Quantitation Limits
NE = Not established
mg/kg = milligram per kilogram
BTEX = benzene, toluene, ethylbenzene, and total xylenes
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
MRO = Motor Oil/Lube Oil Range Organics
TPH = Total Petroleum Hydrocarbon

# Appendix E

## Laboratory Analytical Reports & Chain of Custody Documentation

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

August 23, 2018

Kyle Summers
APEX TITAN
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (903) 821-5603
FAX

RE: Lateral C-14 OrderNo.: 1808C19

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/21/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order **1808C19**
Date Reported: **8/23/2018**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** APEX TITAN
**Project:** Lateral C-14
**Lab ID:** 1808C19-001 **Matrix:** SOIL

**Client Sample ID:** CS-1
**Collection Date:** 8/20/2018 3:30:00 PM
**Received Date:** 8/21/2018 7:00:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 30 | | mg/Kg | 20 | 8/21/2018 9:50:40 AM | 39907 |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **AG** | |
| Gasoline Range Organics (GRO) | ND | 18 | | mg/Kg | 5 | 8/21/2018 10:20:07 AM | A53589 |
| Surr: BFB | 106 | 70-130 | | %Rec | 5 | 8/21/2018 10:20:07 AM | A53589 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **lrm** | |
| Diesel Range Organics (DRO) | ND | 9.9 | | mg/Kg | 1 | 8/21/2018 10:55:17 AM | 39897 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/21/2018 10:55:17 AM | 39897 |
| Surr: DNOP | 82.9 | 50.6-138 | | %Rec | 1 | 8/21/2018 10:55:17 AM | 39897 |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **AG** | |
| Benzene | ND | 0.092 | | mg/Kg | 5 | 8/21/2018 10:20:07 AM | C53589 |
| Toluene | ND | 0.18 | | mg/Kg | 5 | 8/21/2018 10:20:07 AM | C53589 |
| Ethylbenzene | ND | 0.18 | | mg/Kg | 5 | 8/21/2018 10:20:07 AM | C53589 |
| Xylenes, Total | ND | 0.37 | | mg/Kg | 5 | 8/21/2018 10:20:07 AM | C53589 |
| Surr: 4-Bromofluorobenzene | 119 | 70-130 | | %Rec | 5 | 8/21/2018 10:20:07 AM | C53589 |
| Surr: Toluene-d8 | 94.5 | 70-130 | | %Rec | 5 | 8/21/2018 10:20:07 AM | C53589 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** APEX TITAN
**Project:** Lateral C-14
**Lab ID:** 1808C19-002 **Matrix:** SOIL

**Client Sample ID:** CS-2
**Collection Date:** 8/20/2018 3:40:00 PM
**Received Date:** 8/21/2018 7:00:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 260 | 30 | | mg/Kg | 20 | 8/21/2018 10:03:05 AM | 39907 |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **AG** | |
| Gasoline Range Organics (GRO) | ND | 19 | | mg/Kg | 5 | 8/21/2018 10:43:14 AM | A53589 |
| Surr: BFB | 108 | 70-130 | | %Rec | 5 | 8/21/2018 10:43:14 AM | A53589 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **lrm** | |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 8/21/2018 11:24:36 AM | 39897 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 8/21/2018 11:24:36 AM | 39897 |
| Surr: DNOP | 84.4 | 50.6-138 | | %Rec | 1 | 8/21/2018 11:24:36 AM | 39897 |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **AG** | |
| Benzene | ND | 0.093 | | mg/Kg | 5 | 8/21/2018 10:43:14 AM | C53589 |
| Toluene | ND | 0.19 | | mg/Kg | 5 | 8/21/2018 10:43:14 AM | C53589 |
| Ethylbenzene | ND | 0.19 | | mg/Kg | 5 | 8/21/2018 10:43:14 AM | C53589 |
| Xylenes, Total | ND | 0.37 | | mg/Kg | 5 | 8/21/2018 10:43:14 AM | C53589 |
| Surr: 4-Bromofluorobenzene | 121 | 70-130 | | %Rec | 5 | 8/21/2018 10:43:14 AM | C53589 |
| Surr: Toluene-d8 | 93.7 | 70-130 | | %Rec | 5 | 8/21/2018 10:43:14 AM | C53589 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808C19**

***23-Aug-18***

**Client:** APEX TITAN

**Project:** Lateral C-14

| Sample ID | **MB-39907** | SampType: | **mblk** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **39907** | | RunNo: | **53581** | | | | |
| Prep Date: | **8/21/2018** | Analysis Date: | **8/21/2018** | | SeqNo: | **1768275** | Units: | **mg/Kg** | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID | **LCS-39907** | SampType: | **lcs** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **39907** | | RunNo: | **53581** | | | | |
| Prep Date: | **8/21/2018** | Analysis Date: | **8/21/2018** | | SeqNo: | **1768276** | Units: | **mg/Kg** | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 93.6 | 90 | 110 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808C19**

***23-Aug-18***

**Client:** APEX TITAN

**Project:** Lateral C-14

| Sample ID **MB-39897** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **39897** | RunNo: **53552** |
| Prep Date: **8/21/2018** | Analysis Date: **8/21/2018** | SeqNo: **1766570** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 8.9 | | 10.00 | | 89.3 | 50.6 | 138 | | | |

| Sample ID **LCS-39897** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **39897** | RunNo: **53552** |
| Prep Date: **8/21/2018** | Analysis Date: **8/21/2018** | SeqNo: **1766571** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 45 | 10 | 50.00 | 0 | 90.7 | 70 | 130 | | | |
| Surr: DNOP | 3.6 | | 5.000 | | 72.2 | 50.6 | 138 | | | |

| Sample ID **MB-39889** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **39889** | RunNo: **53591** |
| Prep Date: **8/20/2018** | Analysis Date: **8/21/2018** | SeqNo: **1768073** Units: **%Rec** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 10 | | 10.00 | | 102 | 50.6 | 138 | | | |

| Sample ID **LCS-39889** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **39889** | RunNo: **53591** |
| Prep Date: **8/20/2018** | Analysis Date: **8/21/2018** | SeqNo: **1768074** Units: **%Rec** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 4.6 | | 5.000 | | 91.5 | 50.6 | 138 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808C19**

***23-Aug-18***

**Client:** APEX TITAN
**Project:** Lateral C-14

| Sample ID **100ng lcs** | SampType: **LCS4** | | | TestCode: **EPA Method 8260B: Volatiles Short List** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **BatchQC** | Batch ID: **C53589** | | | RunNo: **53589** | | | | | |
| Prep Date: | Analysis Date: **8/21/2018** | | | SeqNo: **1766968** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene | 0.98 | 0.025 | 1.000 | 0 | 98.4 | 80 | 120 | | | |
| Toluene | 1.1 | 0.050 | 1.000 | 0 | 107 | 80 | 120 | | | |
| Ethylbenzene | 1.1 | 0.050 | 1.000 | 0 | 107 | 80 | 120 | | | |
| Xylenes, Total | 3.1 | 0.10 | 3.000 | 0 | 102 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 0.53 | | 0.5000 | | 107 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.48 | | 0.5000 | | 96.6 | 70 | 130 | | | |

| Sample ID **rb** | SampType: **MBLK** | | | TestCode: **EPA Method 8260B: Volatiles Short List** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **C53589** | | | RunNo: **53589** | | | | | |
| Prep Date: | Analysis Date: **8/21/2018** | | | SeqNo: **1766978** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 0.57 | | 0.5000 | | 114 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.48 | | 0.5000 | | 95.1 | 70 | 130 | | | |

| Sample ID **1808c19-002ams** | SampType: **MS4** | | | TestCode: **EPA Method 8260B: Volatiles Short List** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **CS-2** | Batch ID: **C53589** | | | RunNo: **53589** | | | | | |
| Prep Date: | Analysis Date: **8/21/2018** | | | SeqNo: **1767888** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene | 3.8 | 0.093 | 3.701 | 0 | 102 | 80 | 120 | | | |
| Toluene | 3.9 | 0.19 | 3.701 | 0 | 105 | 80 | 120 | | | |
| Ethylbenzene | 3.9 | 0.19 | 3.701 | 0 | 106 | 82 | 121 | | | |
| Xylenes, Total | 12 | 0.37 | 11.10 | 0.07798 | 106 | 80.2 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 2.0 | | 1.851 | | 110 | 70 | 130 | | | |
| Surr: Toluene-d8 | 1.8 | | 1.851 | | 98.8 | 70 | 130 | | | |

| Sample ID **1808c19-002amsd** | SampType: **MSD4** | | | TestCode: **EPA Method 8260B: Volatiles Short List** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **CS-2** | Batch ID: **C53589** | | | RunNo: **53589** | | | | | |
| Prep Date: | Analysis Date: **8/21/2018** | | | SeqNo: **1767889** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene | 3.5 | 0.093 | 3.701 | 0 | 93.8 | 80 | 120 | 7.98 | 20 | |
| Toluene | 3.7 | 0.19 | 3.701 | 0 | 99.6 | 80 | 120 | 5.43 | 20 | |
| Ethylbenzene | 3.7 | 0.19 | 3.701 | 0 | 100 | 82 | 121 | 5.74 | 20 | |
| Xylenes, Total | 11 | 0.37 | 11.10 | 0.07798 | 101 | 80.2 | 120 | 5.39 | 20 | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808C19**

***23-Aug-18***

**Client:** APEX TITAN

**Project:** Lateral C-14

| Sample ID **1808c19-002amsd** | SampType: **MSD4** | TestCode: **EPA Method 8260B: Volatiles Short List** |
|---|---|---|
| Client ID: **CS-2** | Batch ID: **C53589** | RunNo: **53589** |
| Prep Date: | Analysis Date: **8/21/2018** | SeqNo: **1767889** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 1.9 | | 1.851 | | 105 | 70 | 130 | 0 | 0 | |
| Surr: Toluene-d8 | 1.7 | | 1.851 | | 91.5 | 70 | 130 | 0 | 0 | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808C19**

***23-Aug-18***

**Client:** APEX TITAN
**Project:** Lateral C-14

| Sample ID **2.5ug gro lcs** | SampType: **LCS** | TestCode: **EPA Method 8015D Mod: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **A53589** | RunNo: **53589** |
| Prep Date: | Analysis Date: **8/21/2018** | SeqNo: **1766965** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 25 | 5.0 | 25.00 | 0 | 101 | 70 | 130 | | | |
| Surr: BFB | 480 | | 500.0 | | 95.3 | 70 | 130 | | | |

| Sample ID **rb** | SampType: **MBLK** | TestCode: **EPA Method 8015D Mod: Gasoline Range** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **A53589** | RunNo: **53589** |
| Prep Date: | Analysis Date: **8/21/2018** | SeqNo: **1766966** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 510 | | 500.0 | | 101 | 70 | 130 | | | |

| Sample ID **1808c19-001ams** | SampType: **MS** | TestCode: **EPA Method 8015D Mod: Gasoline Range** |
|---|---|---|
| Client ID: **CS-1** | Batch ID: **A53589** | RunNo: **53589** |
| Prep Date: | Analysis Date: **8/21/2018** | SeqNo: **1767658** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 91 | 18 | 91.58 | 5.128 | 93.4 | 64.7 | 142 | | | |
| Surr: BFB | 1900 | | 1832 | | 104 | 70 | 130 | | | |

| Sample ID **1808c19-001amsd** | SampType: **MSD** | TestCode: **EPA Method 8015D Mod: Gasoline Range** |
|---|---|---|
| Client ID: **CS-1** | Batch ID: **A53589** | RunNo: **53589** |
| Prep Date: | Analysis Date: **8/21/2018** | SeqNo: **1767659** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 89 | 18 | 91.58 | 5.128 | 91.1 | 64.7 | 142 | 2.29 | 20 | |
| Surr: BFB | 2000 | | 1832 | | 107 | 70 | 130 | 0 | 0 | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

# Sample Log-In Check List

Client Name: APEX AZTEC Work Order Number: 1808C19 RcptNo: 1

Received By: Anne Thorne 8/21/2018 7:00:00 AM Anne Thorne

Completed By: Anne Thorne 8/21/2018 7:21:47 AM Anne Thorne

Reviewed By: JC 8/21/18

Labeled by AT 08/21/18

## Chain of Custody

| | | | |
|---|---|---|---|
| 1. Is Chain of Custody complete? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. How was the sample delivered? | Courier | | |

## Log In

| | | | |
|---|---|---|---|
| 3. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 4. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 5. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 6. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 7. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 8. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 9. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 10. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | |
| 12. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | |
| 13. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 14. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | |

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

## Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

| | | | |
|---|---|---|---|
| Person Notified: | | Date | |
| By Whom: | | Via: | ☐ eMail ☐ Phone ☐ Fax ☐ In Person |
| Regarding: | | | |
| Client Instructions: | | | |

16. Additional remarks:

CUSTODY SEALS INTACT ON SOIL JARS/at 8/21/18

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 1.4 | Good | Yes | | | |

# CHAIN OF CUSTODY RECORD

**APEX**

Office Location: 606 S Rio Grande Suite A, Aztec, NM 87410

Project Manager: K. Summers

Laboratory: Hall Environmental Analysis Laboratory

Address: 4901 Hawkins NE, Albuquerque, NM 87109

Contact: A. Freeman

Phone: 505-345-3975

PO/SO #: see notes

Sampler's Name: Ranee Deechilly

Sampler's Signature:

Proj. No.: 72350811 2507

Project Name: Lateral C-14

Lab use only
Due Date:

Temp. of coolers when received (C°): 1.4

Page 1 of 1

ANALYSIS REQUESTED: BTEX 8021 / TPH GRO/DRO/MRO 8015 / Chlorides

| Matrix | Date | Time | Comp | Grab | Identifying Marks of Sample(s) | Start Depth | End Depth | VOA | A/G 1 Lt | 250 ml | Glass Jar | P/O | BTEX 8021 | TPH GRO/DRO/MRO 8015 | Chlorides | Lab Sample ID (Lab Use Only) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 8/20/18 | 1530 | X | | CS-1 | | | | | | 1 | | X | X | X | 1508C19-001 |
| S | 8/20/18 | 1540 | X | | CS-2 | | | | | | 1 | | X | X | X | 002 |

NES

Turn around time: ☐ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush SAME DAY

| Relinquished by (Signature) | Date: | Time: | Received by (Signature) | Date: | Time: |
|---|---|---|---|---|---|
| | 8/20/18 | 1745 | | 8/20/18 | 1745 |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
| | 8/20/18 | 1824 | | 08/21/18 | 0700 |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |

NOTES: PM - Tom Long
Pay Key - CM 22355
NM AFE - N37795

SAME DAY

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

August 28, 2018

Kyle Summers
APEX TITAN
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (903) 821-5603
FAX

RE: Lateral C 14 OrderNo.: 1808F83

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 3 sample(s) on 8/25/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order **1808F83**
Date Reported: **8/28/2018**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** APEX TITAN
**Project:** Lateral C 14
**Lab ID:** 1808F83-001

**Client Sample ID:** CS-3
**Collection Date:** 8/24/2018 10:30:00 AM
**Matrix:** MEOH (SOIL) **Received Date:** 8/25/2018 9:45:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 280 | 30 | | mg/Kg | 20 | 8/27/2018 12:59:36 PM | 40002 |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **AG** | |
| Gasoline Range Organics (GRO) | ND | 17 | | mg/Kg | 5 | 8/27/2018 12:43:39 PM | A53722 |
| Surr: BFB | 100 | 70-130 | | %Rec | 5 | 8/27/2018 12:43:39 PM | A53722 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **lrm** | |
| Diesel Range Organics (DRO) | ND | 9.8 | | mg/Kg | 1 | 8/27/2018 10:22:32 AM | 39995 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/27/2018 10:22:32 AM | 39995 |
| Surr: DNOP | 106 | 50.6-138 | | %Rec | 1 | 8/27/2018 10:22:32 AM | 39995 |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **AG** | |
| Benzene | ND | 0.085 | | mg/Kg | 5 | 8/27/2018 12:43:39 PM | B53722 |
| Toluene | ND | 0.17 | | mg/Kg | 5 | 8/27/2018 12:43:39 PM | B53722 |
| Ethylbenzene | ND | 0.17 | | mg/Kg | 5 | 8/27/2018 12:43:39 PM | B53722 |
| Xylenes, Total | ND | 0.34 | | mg/Kg | 5 | 8/27/2018 12:43:39 PM | B53722 |
| Surr: 4-Bromofluorobenzene | 112 | 70-130 | | %Rec | 5 | 8/27/2018 12:43:39 PM | B53722 |
| Surr: Toluene-d8 | 104 | 70-130 | | %Rec | 5 | 8/27/2018 12:43:39 PM | B53722 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** APEX TITAN
**Project:** Lateral C 14
**Lab ID:** 1808F83-002

**Client Sample ID:** CS-4
**Collection Date:** 8/24/2018 10:35:00 AM
**Matrix:** MEOH (SOIL) **Received Date:** 8/25/2018 9:45:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 30 | | mg/Kg | 20 | 8/27/2018 1:12:01 PM | 40002 |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **AG** | |
| Gasoline Range Organics (GRO) | ND | 18 | | mg/Kg | 5 | 8/27/2018 1:06:44 PM | A53722 |
| Surr: BFB | 99.7 | 70-130 | | %Rec | 5 | 8/27/2018 1:06:44 PM | A53722 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **lrm** | |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 8/27/2018 10:52:13 AM | 39995 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 8/27/2018 10:52:13 AM | 39995 |
| Surr: DNOP | 108 | 50.6-138 | | %Rec | 1 | 8/27/2018 10:52:13 AM | 39995 |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **AG** | |
| Benzene | ND | 0.088 | | mg/Kg | 5 | 8/27/2018 1:06:44 PM | B53722 |
| Toluene | ND | 0.18 | | mg/Kg | 5 | 8/27/2018 1:06:44 PM | B53722 |
| Ethylbenzene | ND | 0.18 | | mg/Kg | 5 | 8/27/2018 1:06:44 PM | B53722 |
| Xylenes, Total | ND | 0.35 | | mg/Kg | 5 | 8/27/2018 1:06:44 PM | B53722 |
| Surr: 4-Bromofluorobenzene | 112 | 70-130 | | %Rec | 5 | 8/27/2018 1:06:44 PM | B53722 |
| Surr: Toluene-d8 | 101 | 70-130 | | %Rec | 5 | 8/27/2018 1:06:44 PM | B53722 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** APEX TITAN
**Client Sample ID:** CS-5
**Project:** Lateral C 14
**Collection Date:** 8/24/2018 10:40:00 AM
**Lab ID:** 1808F83-003
**Matrix:** MEOH (SOIL)
**Received Date:** 8/25/2018 9:45:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 32 | 30 | | mg/Kg | 20 | 8/27/2018 1:24:25 PM | 40002 |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **AG** | |
| Gasoline Range Organics (GRO) | ND | 3.9 | | mg/Kg | 1 | 8/27/2018 2:16:13 PM | A53722 |
| Surr: BFB | 107 | 70-130 | | %Rec | 1 | 8/27/2018 2:16:13 PM | A53722 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **lrm** | |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 8/27/2018 11:17:24 AM | 39995 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 8/27/2018 11:17:24 AM | 39995 |
| Surr: DNOP | 105 | 50.6-138 | | %Rec | 1 | 8/27/2018 11:17:24 AM | 39995 |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **AG** | |
| Benzene | ND | 0.019 | | mg/Kg | 1 | 8/27/2018 2:16:13 PM | B53722 |
| Toluene | ND | 0.039 | | mg/Kg | 1 | 8/27/2018 2:16:13 PM | B53722 |
| Ethylbenzene | ND | 0.039 | | mg/Kg | 1 | 8/27/2018 2:16:13 PM | B53722 |
| Xylenes, Total | ND | 0.077 | | mg/Kg | 1 | 8/27/2018 2:16:13 PM | B53722 |
| Surr: 4-Bromofluorobenzene | 120 | 70-130 | | %Rec | 1 | 8/27/2018 2:16:13 PM | B53722 |
| Surr: Toluene-d8 | 97.0 | 70-130 | | %Rec | 1 | 8/27/2018 2:16:13 PM | B53722 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F83**

*28-Aug-18*

**Client:** APEX TITAN
**Project:** Lateral C 14

| Sample ID | **MB-40002** | SampType: | **mblk** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **40002** | | RunNo: | **53720** | | | | |
| Prep Date: | **8/27/2018** | Analysis Date: | **8/27/2018** | | SeqNo: | **1773219** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID | **LCS-40002** | SampType: | **lcs** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **40002** | | RunNo: | **53720** | | | | |
| Prep Date: | **8/27/2018** | Analysis Date: | **8/27/2018** | | SeqNo: | **1773220** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | 14 | 1.5 | 15.00 | 0 | 93.0 | 90 | 110 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F83**

*28-Aug-18*

**Client:** APEX TITAN

**Project:** Lateral C 14

| Sample ID **MB-39995** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **39995** | RunNo: **53721** |
| Prep Date: **8/27/2018** | Analysis Date: **8/27/2018** | SeqNo: **1772205** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 12 | | 10.00 | | 115 | 50.6 | 138 | | | |

| Sample ID **LCS-39995** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **39995** | RunNo: **53721** |
| Prep Date: **8/27/2018** | Analysis Date: **8/27/2018** | SeqNo: **1772206** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 51 | 10 | 50.00 | 0 | 102 | 70 | 130 | | | |
| Surr: DNOP | 5.4 | | 5.000 | | 108 | 50.6 | 138 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F83**

***28-Aug-18***

**Client:** APEX TITAN

**Project:** Lateral C 14

| Sample ID **100ng lcs** | SampType: **LCS4** | TestCode: **EPA Method 8260B: Volatiles Short List** |
|---|---|---|
| Client ID: **BatchQC** | Batch ID: **B53722** | RunNo: **53722** |
| Prep Date: | Analysis Date: **8/27/2018** | SeqNo: **1772225** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1.0 | 0.025 | 1.000 | 0 | 102 | 80 | 120 | | | |
| Toluene | 1.1 | 0.050 | 1.000 | 0 | 112 | 80 | 120 | | | |
| Ethylbenzene | 1.1 | 0.050 | 1.000 | 0 | 111 | 80 | 120 | | | |
| Xylenes, Total | 3.2 | 0.10 | 3.000 | 0 | 106 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 0.51 | | 0.5000 | | 103 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.52 | | 0.5000 | | 104 | 70 | 130 | | | |

| Sample ID **rb** | SampType: **MBLK** | TestCode: **EPA Method 8260B: Volatiles Short List** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **B53722** | RunNo: **53722** |
| Prep Date: | Analysis Date: **8/27/2018** | SeqNo: **1772235** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 0.56 | | 0.5000 | | 112 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.51 | | 0.5000 | | 101 | 70 | 130 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F83**

***28-Aug-18***

**Client:** APEX TITAN

**Project:** Lateral C 14

| Sample ID **2.5ug gro lcs** | SampType: **LCS** | | | TestCode: **EPA Method 8015D Mod: Gasoline Range** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **A53722** | | | RunNo: **53722** | | | | | |
| Prep Date: | Analysis Date: **8/27/2018** | | | SeqNo: **1772222** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 25 | 5.0 | 25.00 | 0 | 98.0 | 70 | 130 | | | |
| Surr: BFB | 460 | | 500.0 | | 91.4 | 70 | 130 | | | |

| Sample ID **rb** | SampType: **MBLK** | | | TestCode: **EPA Method 8015D Mod: Gasoline Range** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **A53722** | | | RunNo: **53722** | | | | | |
| Prep Date: | Analysis Date: **8/27/2018** | | | SeqNo: **1772223** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 500 | | 500.0 | | 99.2 | 70 | 130 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

# Sample Log-In Check List

Client Name: APEX AZTEC  Work Order Number: 1808F83  RcptNo: 1

Received By: Jazzmine Burkhead  8/25/2018 9:45:00 AM

Completed By: Ashley Gallegos  8/27/2018 8:55:14 AM

Reviewed By: ENM 8/27/18  Labeled by: JAB 08/27/18

## Chain of Custody

| | | | |
|---|---|---|---|
| 1. Is Chain of Custody complete? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. How was the sample delivered? | Courier | | |

## Log In

| | | | |
|---|---|---|---|
| 3. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 4. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 5. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 6. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 7. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 8. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 9. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 10. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | |
| 12. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | |
| 13. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 14. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | |

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? 08/27/18
Checked by: JAB

## Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 5.1 | Good | Yes | | | |

# CHAIN OF CUSTODY RECORD

APEX

Office Location: 606 S Rio Grande Suite A, Aztec, NM 87410

Project Manager: K. Summers

Laboratory: Hall Environmental Analysis Laboratory

Address: 4901 Hawkins NE, Albuquerque, NM 87109

Contact: A. Freeman

Phone: 505-345-3975

PO/SO #: See notes

Sampler's Name: Ranee Deechilly

Sampler's Signature:

Proj. No.: 725040112507

Project Name: Lateral C-14

Lab use only
Due Date: ~

Temp. of coolers when received (C°): 5.1

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

Page 1 of 1

ANALYSIS REQUESTED: BTEX 8021 | TPH 6RO/DRO/MRO 505 | Chlorides

| Matrix | Date | Time | Comp | Grab | Identifying Marks of Sample(s) | Start Depth | End Depth | No/Type of Containers: VOA | A/G 1 Lt. | 250 ml | Glass Jar | P/O | Lab Sample ID (Lab Use Only) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 8/24/18 | 1030 | X | | CS-3 | | | | | | 1 | | 1808F83-001 |
| S | 8/24/18 | 1035 | X | | CS-4 | | | | | | 1 | | -002 |
| S | 8/24/18 | 1040 | X | | CS-5 | | | | | | 1 | | -003 |

NFS

Turn around time: ☐ Normal ☐ 25% Rush ☐ 50% Rush ☑ 100% Rush SAME DAY

| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
|---|---|---|---|---|---|
| | 8/24/18 | 1319 | | 8/24/18 | 1319 |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
| | 8/24/18 | 1820 | | 08/25/18 | 09:45 |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |

NOTES:
PM - Tom Long
Pay Key - CM 22355
Nm AFE - N37795
SAME DAY

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

August 28, 2018

Kyle Summers
APEX TITAN
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (903) 821-5603
FAX

RE: Lateral C 14 OrderNo.: 1808F84

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/25/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order **1808F84**
Date Reported: **8/28/2018**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** APEX TITAN
**Client Sample ID:** FP-1
**Project:** Lateral C 14
**Collection Date:** 8/24/2018 11:30:00 AM
**Lab ID:** 1808F84-001
**Matrix:** MEOH (SOIL)
**Received Date:** 8/25/2018 9:45:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 300 | 30 | | mg/Kg | 20 | 8/27/2018 1:36:49 PM | 40002 |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **AG** | |
| Gasoline Range Organics (GRO) | ND | 3.8 | | mg/Kg | 1 | 8/27/2018 1:52:59 PM | A53722 |
| Surr: BFB | 105 | 70-130 | | %Rec | 1 | 8/27/2018 1:52:59 PM | A53722 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **lrm** | |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 8/27/2018 11:49:46 AM | 39995 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/27/2018 11:49:46 AM | 39995 |
| Surr: DNOP | 98.7 | 50.6-138 | | %Rec | 1 | 8/27/2018 11:49:46 AM | 39995 |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **AG** | |
| Benzene | ND | 0.019 | | mg/Kg | 1 | 8/27/2018 1:52:59 PM | B53722 |
| Toluene | ND | 0.038 | | mg/Kg | 1 | 8/27/2018 1:52:59 PM | B53722 |
| Ethylbenzene | ND | 0.038 | | mg/Kg | 1 | 8/27/2018 1:52:59 PM | B53722 |
| Xylenes, Total | ND | 0.075 | | mg/Kg | 1 | 8/27/2018 1:52:59 PM | B53722 |
| Surr: 4-Bromofluorobenzene | 118 | 70-130 | | %Rec | 1 | 8/27/2018 1:52:59 PM | B53722 |
| Surr: Toluene-d8 | 96.8 | 70-130 | | %Rec | 1 | 8/27/2018 1:52:59 PM | B53722 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F84**

*28-Aug-18*

**Client:** APEX TITAN

**Project:** Lateral C 14

| Sample ID | **MB-40002** | SampType: | **mblk** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **40002** | | RunNo: | **53720** | | | | |
| Prep Date: | **8/27/2018** | Analysis Date: | **8/27/2018** | | SeqNo: | **1773219** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID | **LCS-40002** | SampType: | **lcs** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **40002** | | RunNo: | **53720** | | | | |
| Prep Date: | **8/27/2018** | Analysis Date: | **8/27/2018** | | SeqNo: | **1773220** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | 14 | 1.5 | 15.00 | 0 | 93.0 | 90 | 110 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F84**

***28-Aug-18***

**Client:** APEX TITAN

**Project:** Lateral C 14

| Sample ID **MB-39995** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **39995** | RunNo: **53721** |
| Prep Date: **8/27/2018** | Analysis Date: **8/27/2018** | SeqNo: **1772205** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 12 | | 10.00 | | 115 | 50.6 | 138 | | | |

| Sample ID **LCS-39995** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **39995** | RunNo: **53721** |
| Prep Date: **8/27/2018** | Analysis Date: **8/27/2018** | SeqNo: **1772206** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 51 | 10 | 50.00 | 0 | 102 | 70 | 130 | | | |
| Surr: DNOP | 5.4 | | 5.000 | | 108 | 50.6 | 138 | | | |

| Sample ID **1808F84-001AMS** | SampType: **MS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **FP-1** | Batch ID: **39995** | RunNo: **53723** |
| Prep Date: **8/27/2018** | Analysis Date: **8/27/2018** | SeqNo: **1772265** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 47 | 10 | 50.00 | 0 | 93.1 | 53.5 | 126 | | | |
| Surr: DNOP | 4.9 | | 5.000 | | 98.0 | 50.6 | 138 | | | |

| Sample ID **1808F84-001AMSD** | SampType: **MSD** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **FP-1** | Batch ID: **39995** | RunNo: **53723** |
| Prep Date: **8/27/2018** | Analysis Date: **8/27/2018** | SeqNo: **1772266** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 49 | 10 | 49.95 | 0 | 97.1 | 53.5 | 126 | 4.08 | 21.7 | |
| Surr: DNOP | 5.1 | | 4.995 | | 102 | 50.6 | 138 | 0 | 0 | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F84**

*28-Aug-18*

**Client:** APEX TITAN

**Project:** Lateral C 14

| Sample ID **100ng lcs** | SampType: **LCS4** | TestCode: **EPA Method 8260B: Volatiles Short List** |
|---|---|---|
| Client ID: **BatchQC** | Batch ID: **B53722** | RunNo: **53722** |
| Prep Date: | Analysis Date: **8/27/2018** | SeqNo: **1772225** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1.0 | 0.025 | 1.000 | 0 | 102 | 80 | 120 | | | |
| Toluene | 1.1 | 0.050 | 1.000 | 0 | 112 | 80 | 120 | | | |
| Ethylbenzene | 1.1 | 0.050 | 1.000 | 0 | 111 | 80 | 120 | | | |
| Xylenes, Total | 3.2 | 0.10 | 3.000 | 0 | 106 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 0.51 | | 0.5000 | | 103 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.52 | | 0.5000 | | 104 | 70 | 130 | | | |

| Sample ID **rb** | SampType: **MBLK** | TestCode: **EPA Method 8260B: Volatiles Short List** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **B53722** | RunNo: **53722** |
| Prep Date: | Analysis Date: **8/27/2018** | SeqNo: **1772235** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 0.56 | | 0.5000 | | 112 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.51 | | 0.5000 | | 101 | 70 | 130 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F84**

***28-Aug-18***

**Client:** APEX TITAN

**Project:** Lateral C 14

| Sample ID **2.5ug gro lcs** | SampType: **LCS** | | | TestCode: **EPA Method 8015D Mod: Gasoline Range** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **A53722** | | | RunNo: **53722** | | | | | |
| Prep Date: | Analysis Date: **8/27/2018** | | | SeqNo: **1772222** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 25 | 5.0 | 25.00 | 0 | 98.0 | 70 | 130 | | | |
| Surr: BFB | 460 | | 500.0 | | 91.4 | 70 | 130 | | | |

| Sample ID **rb** | SampType: **MBLK** | | | TestCode: **EPA Method 8015D Mod: Gasoline Range** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **A53722** | | | RunNo: **53722** | | | | | |
| Prep Date: | Analysis Date: **8/27/2018** | | | SeqNo: **1772223** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 500 | | 500.0 | | 99.2 | 70 | 130 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit | RL | Reporting Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

# Sample Log-In Check List

Client Name: APEX AZTEC  Work Order Number: 1808F84  RcptNo: 1

Received By: Jazzmine Burkhead  8/25/2018 9:45:00 AM

Completed By: Ashley Gallegos  8/27/2018 8:59:38 AM

Reviewed By: ENM 8/27/18  labeled by: JAB 08/27/18

## Chain of Custody

| | | | |
|---|---|---|---|
| 1. Is Chain of Custody complete? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. How was the sample delivered? | Courier | | |

## Log In

| | | | |
|---|---|---|---|
| 3. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 4. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 5. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 6. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 7. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 8. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 9. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 10. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | |
| 12. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | |
| 13. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 14. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | |

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? JAB

Checked by: _____

08/27/18

## Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 5.1 | Good | Yes | | | |

# CHAIN OF CUSTODY RECORD

**APEX**

Office Location: 606 S. Rio Grande Suite A, Aztec, NM 87410

Project Manager: K Summers

Laboratory: Hall Environmental Analysis Laboratory

Address: 4901 Hawkins NE, Albuquerque, NM 87109

Contact: A. Freeman

Phone: 505-345-3975

PO/SO #: see notes

Sampler's Name: Ranee Deechilly

Sampler's Signature:

Proj. No.: 72504012507

Project Name: Lateral C-14

Lab use only
Due Date:

Temp. of coolers when received (C°): 5.1

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

Page 1 of 1

| Matrix | Date | Time | Comp | Grab | Identifying Marks of Sample(s) | Start Depth | End Depth | No/Type of Containers: VOA | A/G 1 Lt. | 250 ml | Glass Jar | P/O | ANALYSIS REQUESTED: BTEX 8021 | TPH 602/8021/MRO 5015 | chlorides | Lab Sample ID (Lab Use Only) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 8/24/18 | 1130 | X | | FP-1 | | | | | | 1 | | X | X | X | 1808F84-001 |

N/S

Turn around time: ☐ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush SAME DAY

| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
|---|---|---|---|---|---|
| | 8/24/18 | 1319 | | 8/24/18 | 1319 |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
| | 8/24/18 | 1820 | | 08/24/18 | 09:45 |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |
| Relinquished by (Signature) | Date: | Time: | Received by: (Signature) | Date: | Time: |

NOTES:
PM - Tom Long
Courier
Day Key - CM 22355
Non AFE - N37795
SAME DAY

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other