

3R-1029

**Release Report/ General
Correspondence**

**Soil Final C-141
Lateral K-7 2-18-15
Date: 2015**

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

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

OIL CONS. DIV DIST. 3

JUN 25 2015

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office
in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Enterprise Field Services LLC	Contact: Thomas Long
Address: 614 Reilly Ave, Farmington, NM 87401	Telephone No. 505-599-2286
Facility Name: Lateral K-7	Facility Type: Natural Gas Gathering Pipeline

Surface Owner: BLM	Mineral Owner: BLM	API No.
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LOCATION OF RELEASE

Unit Letter N	Section 27	Township 26N	Range 7W	Feet from the 225	North/South Line	Feet from the 2086	East/West Line	County Rio Arriba
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Latitude 36.45361 Longitude -107.56488

NATURE OF RELEASE

Type of Release: Natural Gas and Natural Gas Liquids	Volume of Release 119.26 MCF Gas; 3-5 BBLs Fluids	Volume Recovered: None
Source of Release: Internal Corrosion	Date and Hour of Occurrence: 2/18/2015 @ 3:12 p.m.	Date and Hour of Discovery: 2/18/2015 @ 7:00 p.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? Courtesy Notification – Cory Smith – NMOCD; Shari Ketcham - BLM	
By Whom?	Date and	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action: On February 18, 2015, Enterprise discovered a leak on the Lateral K-7 pipeline. The pipeline was isolated, blown down, locked out and tagged out. The release was a result of internal corrosion. The pipeline was repaired and soil remediation was completed on April 1, 2015.

Describe Area Affected and Cleanup Action: The contaminant mass was removed by mechanical excavation. The final excavation measured approximately 44 feet long by 22 feet wide by 18 feet deep where groundwater was encountered. Approximately 400 cubic yards of hydrocarbon impacted soil was excavated and transported to a New Mexico Oil Conservation approved land farm facility. Analytical results from the excavation water sample indicate benzene concentrations exceed New Mexico Water Quality Control Commission standards. A third party corrective action report is included with this "Final Soils" C-141. Additional groundwater delineation is required.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: <i>Jon Fields</i>	OIL CONSERVATION DIVISION	
Printed Name: Jon Fields	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: Director, Environmental	Approval Date: 8/5/15	Expiration Date:
E-mail Address: jefields@eprod.com	Conditions of Approval: Additional Gw Remediation Req Submit work plan /C-141 to Santa Fe	Attached <input type="checkbox"/>
Date: 6-15-2015	Phone: (713)381-6684	

* Attach Additional Sheets If Necessary

#NCS 1507252901 Assigned 3RP-1029

49



OIL CONS. DIV DIST. 3

JUN 25 2015

CORRECTIVE ACTION REPORT

Property:

**Lateral K-7 (2/18/2015) Pipeline Release
SW 1/4, S27 T26N R7W
Rio Arriba County, New Mexico**

June 4, 2015

Apex Project No. 7250415005

Prepared for:

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

Prepared by:

A handwritten signature in blue ink, reading 'Rane Deechilly', written over a horizontal line.

Ranee Deechilly
Environmental Scientist

A handwritten signature in blue ink, reading 'Elizabeth Scaggs', written over a horizontal line.

Elizabeth Scaggs, P.G.
Division Manager

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CORRECTIVE ACTION REPORT

Lateral K-7 (2/18/2015) Pipeline Release

SW 1/4, S27 T26N R7W
Rio Arriba County, New Mexico

Apex Project No. 7250415005

1.0 INTRODUCTION

1.1 Site Description & Background

The Lateral K-7 (2/18/2015) Pipeline Release Site is located within the Enterprise Field Services, LLC (Enterprise) pipeline right-of-way (ROW) in the southwest (SW) ¼ of Section 27 in Township 26 North and Range 7 West in rural Rio Arriba County, New Mexico (36.45361N, 107.56488W), referred to hereinafter as the "Site" or "subject Site". The Site is located on land managed by United States Bureau of Land Management (BLM). The Site is surrounded by native vegetation rangeland periodically interrupted by oil and gas production and gathering facilities, including the Enterprise natural gas gathering pipeline which traverses the area from approximately north to south.

A release was discovered at the Site on February 18, 2015, identified by a release of natural gas at the ground surface. On February 24, 2015 Enterprise initiated excavation activities to facilitate the location and repair of the subsurface leak, and to remediate potential hydrocarbon impact. The leak was subsequently repaired by replacing approximately 44 feet of the pipeline. Natural gas and pipeline liquids were released from the pipeline as a result of internal corrosion.

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 corrective actions was to reduce the concentration of constituents of concern (COCs) in the on-Site soils to below the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) *Remediation Action Levels* (RALs) using the New Mexico EMNRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.

2.0 SITE RANKING

In accordance with the New Mexico ENMRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases*, Apex TITAN, Inc. (Apex) utilized the general site characteristics obtained during the completion of corrective action activities and information available from the Office of the New Mexico Office of the State Engineer (OSE) to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the following table:



Ranking Criteria			Ranking Score
Depth to Groundwater	<50 feet	20	20
	50 to 99 feet	10	
	>100 feet	0	
Wellhead Protection Area • <1,000 feet from a water source, or; <200 feet from private domestic water source.	Yes	20	0
	No	0	
Distance to Surface Water Body	<200 feet	20	10
	200 to 1,000 feet	10	
	>1,000 feet	0	
Total Ranking Score			30

Based on Apex's evaluation of the scoring criteria, the Site would earn a maximum Total Ranking Score of "30". This ranking is based on the following:

- Possible groundwater was encountered during excavation activities at approximately 18 feet below grade surface (bgs), resulting in a ranking of "20" for depth to groundwater.
- No water source wells (municipal/community wells) were identified within 1,000 feet of the Site. No private domestic water sources were identified within 200 feet of the Site. These proximities result in a wellhead protection area ranking of "0".
- The release point is located approximately 740 feet from the Palluche Canyon Wash and approximately 450 feet from a small ephemeral wash that drains to the Palluche Canyon Wash, resulting in a distance to surface water ranking of "10".

3.0 RESPONSE ACTIONS

3.1 Soil Excavation Activities

On February 24, 2015, Enterprise initiated excavation activities at the Site to locate and repair the subsurface leak and remediate potential hydrocarbon impact. The leak was repaired by replacing approximately 44 feet of pipeline. Natural gas and pipeline liquids were released from the pipeline as a result of internal corrosion. The leak was identified by a release of natural gas at the ground surface. During the corrective action activities, Crossfire, LLC, provided heavy equipment and labor support, and Heather Woods and Rane Deechilly, Apex environmental professionals, provided environmental support.

Excavation activities to expose the pipeline were completed on February 26, 2015, resulting in an initial excavation approximately 31 feet long by 10 feet wide, with a depth of approximately four (4) feet deep bgs. On March 13, 2015 a hand auger soil boring was advanced near the release point and a photoionization detector (PID) was utilized to field-screen the soil cuttings for the presence of volatile organic compounds (VOCs). The resulting PID readings indicated that hydrocarbon affected soils apparently remained in place at the Site.

Corrective action excavation activities resumed at the Site on March 24, 2015 and were completed on March 31, 2015. The excavation was extended in all four (4) cardinal directions from the initial release point. The surface expression of the final remedial action excavation measured approximately 44 feet long by 22 feet wide at the maximum width, with a total depth of approximately 18 feet bgs. Approximately three (3) inches of apparent groundwater accumulated overnight in the east portion of the excavation floor. Confirmation soil samples C-1 through C-15 were collected from the sidewalls and floors of the excavation and one (1) water sample was collected from the accumulated water in the east excavation base for laboratory analysis.

The overall surface expression of the final excavation measured approximately 44 feet long by 22 feet wide, with a total depth of approximately 18 feet bgs.

The lithology encountered during the completion of corrective action activities consisted primarily of unconsolidated silt and silty sand with minor clays.

A total of approximately 400 cubic yards of hydrocarbon affected soils were transported to the Envirotech Inc. (Envirotech) landfarm near Hilltop, New Mexico for disposal/remediation. The executed C-138 form is provided in Appendix B. The excavation was backfilled with clean imported fill and contoured to surrounding grade.

Figure 3 is a site map that indicates the approximate location of the excavated area in relation to pertinent land features (Appendix A). Photographic documentation of the field activities is included in Appendix C.

3.2 Soil and Water Sampling Program

Apex screened head-space samples of Site soils with a PID fitted with a 10.6 eV lamp to evaluate VOCs and aid in determining the excavation limits.

Advance notification of the sampling schedule was provided to the local BLM and OCD district offices, however, no representatives were present during the sampling activity.

Apex's soil sampling program included the collection of a total of fifteen (15) confirmation samples (C-1 through C-15) from the resulting excavation for laboratory analysis. Figure 3 depicts the approximate location of the excavated area and shows the final confirmation sample locations in relation to the final excavation dimensions (Appendix A).

A water sample was collected from the open excavation utilizing a bailer, and was subsequently submitted for laboratory analysis to evaluate the potential for groundwater impact at the Site.

The samples were collected and placed in laboratory prepared glassware, labeled/sealed using the laboratory supplied labels, and placed on ice in a cooler, which was secured with a custody seal. The sample cooler and completed chain-of-custody form were relinquished to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analysis.

3.3 Laboratory Analytical Methods

The water sample and confirmation soil samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) utilizing Environmental Protection Agency (EPA) SW-846 Method #8021. The soil samples were also analyzed for total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO) utilizing EPA SW-846 Method #8015.

Laboratory results are summarized in Table 1 and Table 2, 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 New Mexico EMNRD OCD. To address activities related to condensate releases, the New Mexico EMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically New Mexico Administrative Code 19.15.29 *Release Notification*. These guidance documents

establish investigation and abatement action requirements for release sites subject to reporting and/or corrective action.

4.1 Confirmation Soil Samples

Apex compared the BTEX and TPH concentrations or laboratory reporting limits associated with the final confirmation samples to the OCD *RALs* for sites having a total ranking score of "30".

- The laboratory analyses of confirmation samples collected from soils remaining in place indicate benzene concentrations ranging from below the laboratory reporting limits to 0.11 milligrams per kilogram (mg/kg), which are below the OCD *RAL*.
- The laboratory analyses of the confirmation samples collected from soils remaining in place indicate total BTEX concentrations ranging from below the laboratory reporting limits to 0.41 mg/kg, which are below the OCD *RAL*.
- The laboratory analyses of the confirmation samples collected from soils remaining in place indicate combined TPH GRO/DRO concentrations ranging from below the laboratory reporting limits to 11 mg/kg, which are below the OCD *RAL* for a Site ranking of "30".

The stockpiled soils resulting from the excavation were transported to the Envirotech landfarm near Hilltop, New Mexico for disposal/remediation.

Confirmation sample results are provided in Table 1 in Appendix D.

4.2 Water Sample

Apex compared BTEX concentrations associated with the water sample collected from the open excavation area to the New Mexico Water Quality Control Commission (WQCC) Groundwater Quality Standards (GQSs).

- The laboratory analysis of the water sample (W-1) indicates a benzene concentration of 20 micrograms per liter (µg/L), which exceeds the WQCC GQS of 10 µg/L.
- The laboratory analysis of W-1 indicates a toluene concentration of 42 µg/L, which is below the WQCC GQS of 750 µg/L.
- The laboratory analysis of W-1 indicates an ethylbenzene concentration of 6.9 µg/L, which is below the WQCC GQS of 750 µg/L.
- The laboratory analysis of W-1 indicates a total xylenes concentration of 120 µg/L, which is below the WQCC GQS of 620 µg/L.

It should be noted that due to the potential of "mixing/blending" with overburden soils during excavation activities, open excavation water sample analyses are not always indicative of actual groundwater concentrations in the area.

Confirmation sample results are provided in Table 2 in Appendix D.

5.0 FINDINGS AND RECOMMENDATIONS

The Lateral K-7 (2/18/2015) Pipeline Release Site is located within the Enterprise ROW in the SW ¼ of Section 27 in Township 26 North and Range 7 West in rural Rio Arriba County, New Mexico. The Site is located on land managed by the BLM. The Site is surrounded by native vegetation rangeland periodically interrupted by oil and gas production and gathering facilities, including the Enterprise natural gas gathering pipeline which traverses the area from approximately north to south.

A release was discovered at the Site on February 18, 2015, identified by a release of natural gas at the ground surface. On February 24, 2015 Enterprise initiated excavation activities to facilitate the location and repair of the subsurface leak, and to remediate potential hydrocarbon impact. The leak was subsequently repaired by replacing approximately 44 feet of the pipeline. Natural gas and pipeline liquids were released from the pipeline as a result of internal corrosion.

- The primary objective of the corrective actions was to reduce the concentration of COCs in the on-Site soils to below the New Mexico EMNRD OCD *RALs* using the New Mexico EMNRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.
- The lithology encountered during the completion of corrective action activities consisted primarily of unconsolidated silt and silty sand with minor clays.
- The surface expression of the final remedial action excavation measured approximately 44 feet long by 22 feet wide at the maximum width, with a total depth of approximately 18 feet bgs.
- Fifteen (15) confirmation samples were collected from the resulting excavation for laboratory analyses. Based on analytical results, soils remaining in place do not exhibit COC concentrations above the OCD *RALs* for a Site ranking of "30".
- One (1) water sample was collected from the accumulated water in the east excavation base for laboratory analysis. **The laboratory analysis of the water sample indicates a benzene concentration of 20 µg/L, which exceeds the WQCC GQS of 10 µg/L.**
- A total of approximately 400 cubic yards of hydrocarbon affected soils were transported to the Envirotech landfarm near Hilltop, New Mexico for disposal/remediation. The excavation was backfilled with clean imported fill and contoured to surrounding grade.

Based on field observations and laboratory analytical results, no additional investigation or corrective action with respect to soil impact appears warranted at this time. Potential groundwater impact should be evaluated in the vicinity of the release.

6.0 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

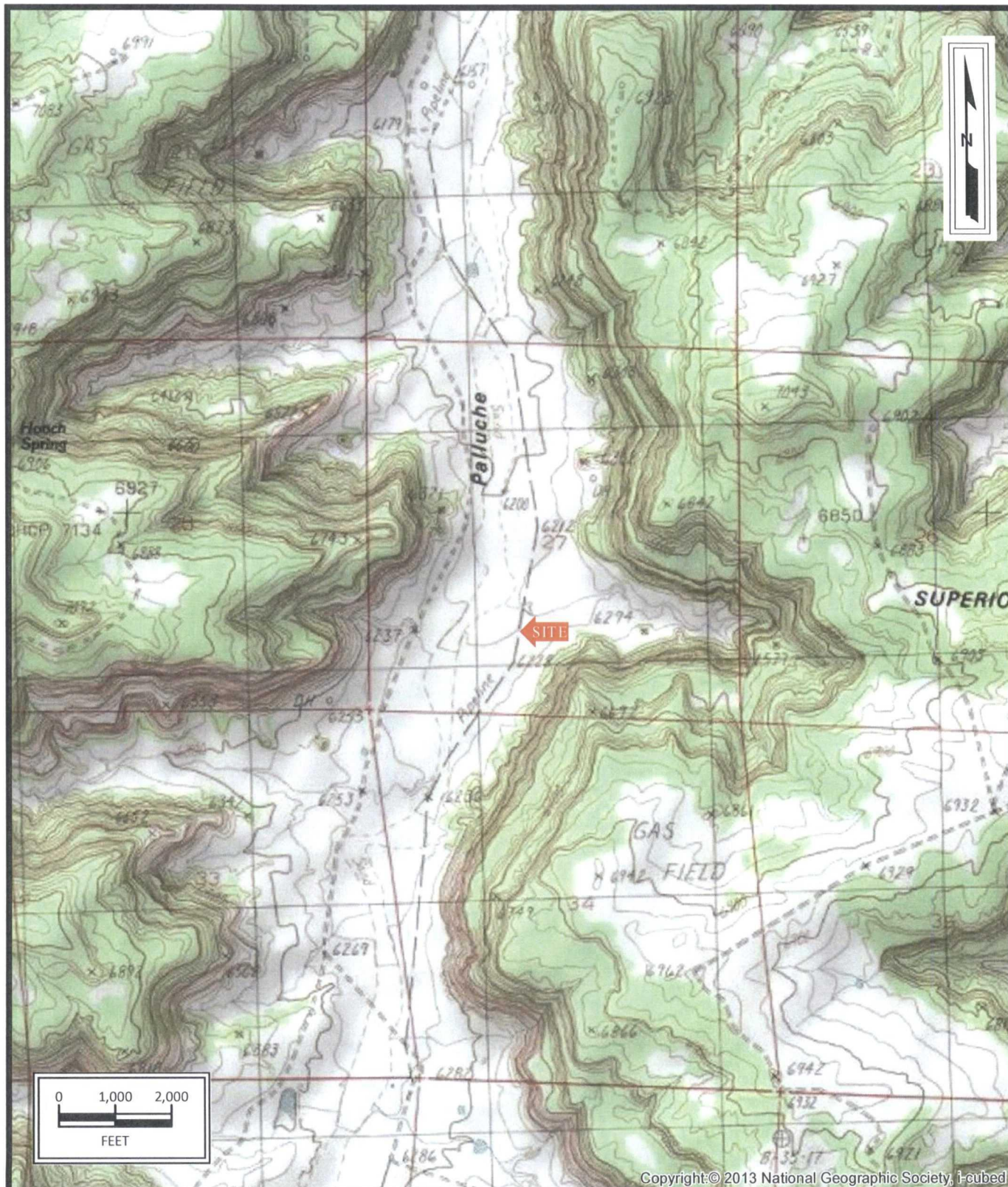


work and it should be noted that this information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, or not present during these services, and Apex cannot represent that 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 K-7 (2/18/2015)
Pipeline Release
 SW1/4 Sec27 T26N R7W
 Rural Rio Arriba County, New Mexico
 36.45361N, 107.56488W

Project No. 7250415005



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

FIGURE 1
Topographic Map
 Smouse Mesa, NM Quadrangle
 1985



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Lateral K-7 (2/18/2015)
Pipeline Release
SW1/4 Sec27 T26N R7W
Rural Rio Arriba County, New Mexico
36.45361N, 107.56488W

Project No. 7250415005



Apex TITAN, Inc.

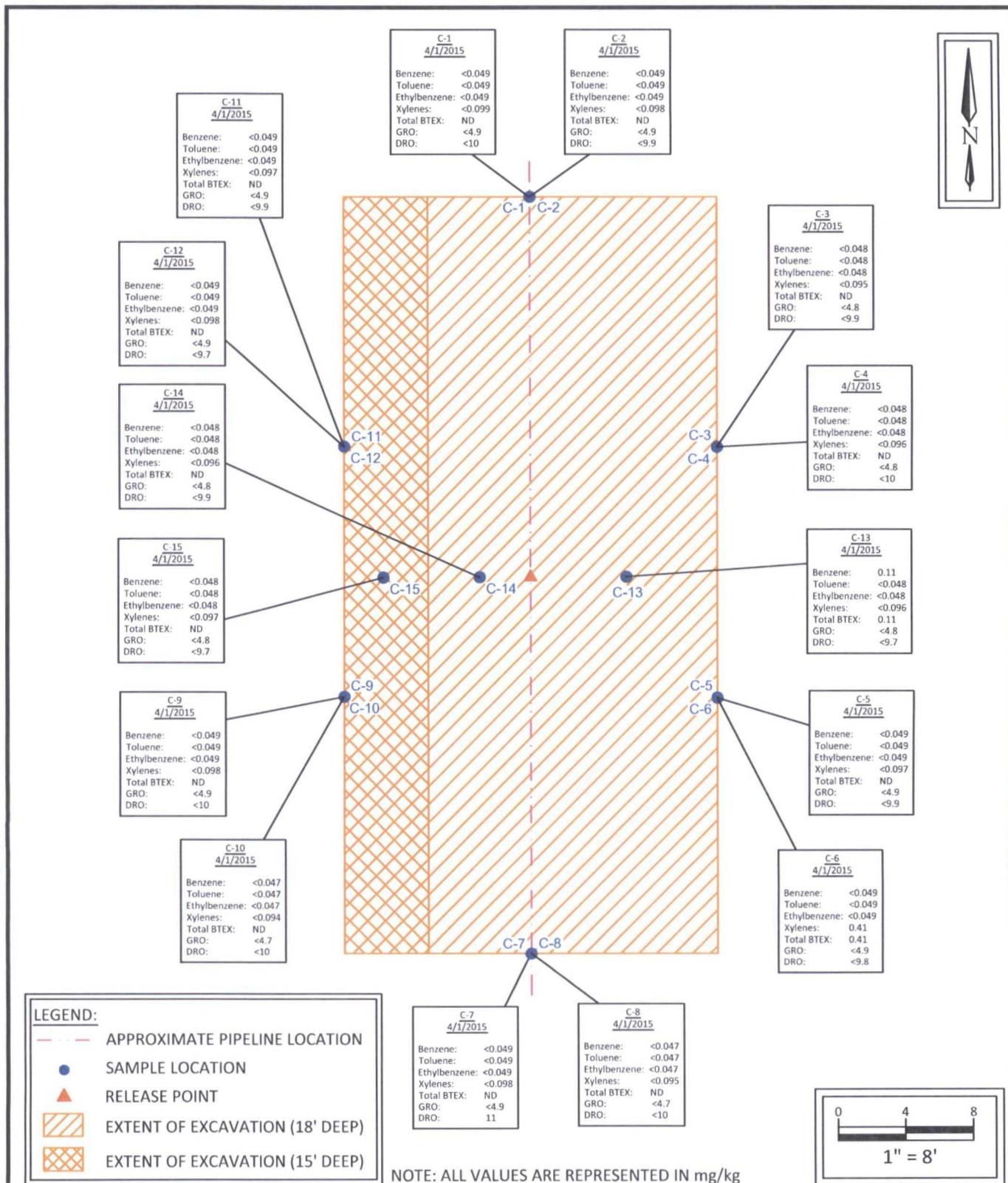
606 South Rio Grande, Suite A
Aztec, NM 87410

Phone: (505) 334-5200

www.apexcos.com

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FIGURE 2
Site Vicinity Map



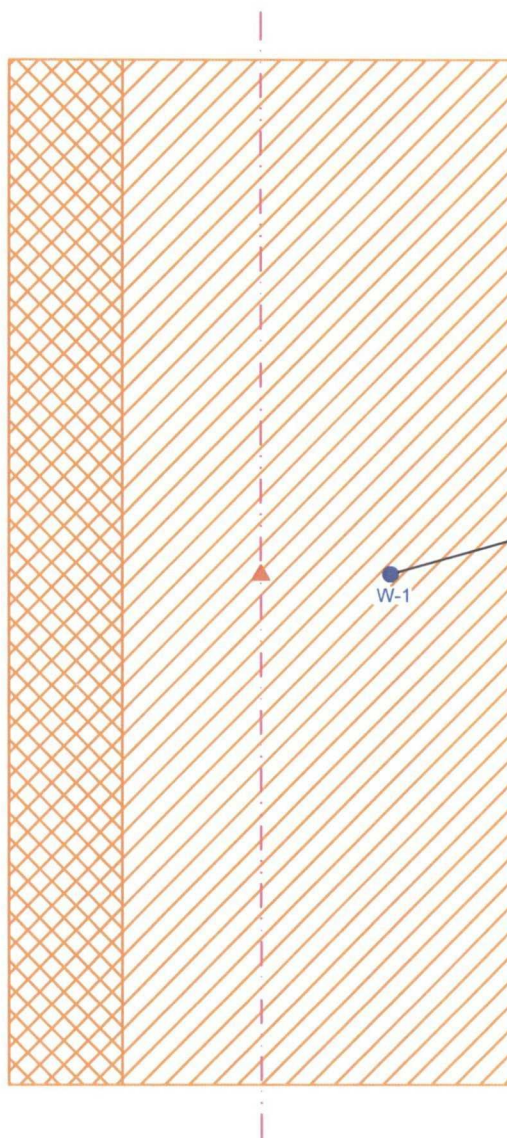
Lateral K-7 (2/18/2015)
Pipeline Release
 SW1/4 Sec27 T26N R7W
 Rural Rio Arriba County, New Mexico
 36.45361N, 107.56488W

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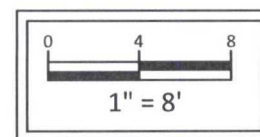
FIGURE 3
Soil Sample Location
and Results



W-1	
4/1/2015	
Benzene:	20
Toluene:	42
Ethylbenzene:	6.9
Xylenes:	120

LEGEND:	
	APPROXIMATE PIPELINE LOCATION
	SAMPLE LOCATION
	RELEASE POINT
	EXTENT OF EXCAVATION (18' DEEP)
	EXTENT OF EXCAVATION (15' DEEP)

NOTE: ALL VALUES ARE REPRESENTED IN ug/L;
CONCENTRATIONS IN BOLD EXCEED THE
APPLICABLE WQCC GQS



Lateral K-7 (2/18/2015)
Pipeline Release
SW1/4 Sec27 T26N R7W
Rural Rio Arriba County, New Mexico
36.45361N, 107.56488W

Project No. 7250415005



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FIGURE 4
Water Sample Location
and Results

APPENDIX B

Executed C-138 Solid Waste Acceptance Forms

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

97057-0696

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 K-7 Pipeline Release <i>April 2015</i>
3. Location of Material (Street Address, City, State or ULSTR): Unit Letter N Section 27 Township 26 North Range 7 West; 36.46422, -107.56505; Rio Arriba County
4. Source and Description of Waste: Source: Natural Gas Gathering Line Description: Hydrocarbon impacted soil associated with a pipeline release. Estimated Volume <u>100</u> yd ³ / bbls Known Volume (to be entered by the operator at the end of the haul) <u>400</u> yd ³ / bbls
5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS I, Thomas Long <i>Thomas Long</i> , 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) <input checked="" type="checkbox"/> RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non- exempt waste. <u>Operator Use Only: Waste Acceptance Frequency</u> <input type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Per Load <input type="checkbox"/> 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) <input type="checkbox"/> MSDS Information <input type="checkbox"/> RCRA Hazardous Waste Analysis <input checked="" type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description in Box 4) GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS I, Thomas Long <i>Thomas Long</i> 3-19-15, representative for Enterprise Products Operating authorize to complete Generator Signature the required testing/sign the Generator Waste Testing Certification. <i>Kendra Runnig</i> representative for <u>Envirotech, Inc.</u> 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: To Be Determined, <i>Kyle K. Baileys, Crossfire</i>

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: Kendra Runnig

SIGNATURE: *Kendra Runnig*

TITLE: Waste Coordinator

TELEPHONE NO.: 505-632-0615

DATE: 4/1/15

Surface Waste Management Facility Authorized Agent

APPENDIX C

Photographic Documentation

Photograph 1

View of the final excavation, facing north.

**Photograph 2**

View of the final excavation, facing southeast.

**Photograph 3**

View of the repaired pipeline, facing north.



APPENDIX D

Tables

TABLE 1
Lateral K-7 (2/18/2015) Pipeline Release
SOIL ANALYTICAL SUMMARY

Sample I.D.	Date	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)
New Mexico Energy, Mineral & Natural Resources Department, Oil Conservation Division, Remediation Action Level			10	NE	NE	NE	50	100	
Excavation Confirmation Samples									
C-1	4/1/2015	1 to 9	<0.049	<0.049	<0.049	<0.099	ND	<4.9	<10
C-2	4/1/2015	9 to 18	<0.049	<0.049	<0.049	<0.098	ND	<4.9	<9.9
C-3	4/1/2015	1 to 9	<0.048	<0.048	<0.048	<0.095	ND	<4.8	<9.9
C-4	4/1/2015	9 to 18	<0.048	<0.048	<0.048	<0.096	ND	<4.8	<10
C-5	4/1/2015	1 to 9	<0.049	<0.049	<0.049	<0.097	ND	<4.9	<9.9
C-6	4/1/2015	9 to 18	<0.049	<0.049	<0.049	0.41	0.41	<4.9	<9.8
C-7	4/1/2015	1 to 9	<0.049	<0.049	<0.049	<0.098	ND	<4.9	11
C-8	4/1/2015	9 to 18	<0.047	<0.047	<0.047	<0.095	ND	<4.7	<10
C-9	4/1/2015	1 to 9	<0.049	<0.049	<0.049	<0.098	ND	<4.9	<10
C-10	4/1/2015	9 to 18	<0.047	<0.047	<0.047	<0.094	ND	<4.7	<10
C-11	4/1/2015	1 to 9	<0.049	<0.049	<0.049	<0.097	ND	<4.9	<9.9
C-12	4/1/2015	9 to 18	<0.049	<0.049	<0.049	<0.098	ND	<4.9	<9.7
C-13	4/1/2015	18	0.11	<0.048	<0.048	<0.096	0.11	<4.8	<9.7
C-14	4/1/2015	18	<0.048	<0.048	<0.048	<0.096	ND	<4.8	<9.9
C-15	4/1/2015	15	<0.048	<0.048	<0.048	<0.097	ND	<4.8	<9.7

Note: Concentrations in **bold** and yellow exceed the applicable OCD Remediation Action Level

ND = Not Detected above the Laboratory Reporting Limits

NA = Not analyzed

NE = Not established



TABLE 2
Lateral K-7 (2/18/2015) Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
New Mexico Water Quality Control Commission Groundwater Quality Standards		10	750	750	620
W-1	4/1/2015	20	42	6.9	120

Note: Concentrations in **bold** and yellow exceed the applicable WQCC GQS

NA = Not Analyzed

<1.0 = the numeral (in this case "1.0") identifies the laboratory PQL

APPENDIX E

Laboratory Analytical Reports & Chain of Custody Documentation



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

April 06, 2015

Heather Woods
APEX TITAN
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (505) 716-2787
FAX

RE: Lateral K-7 Feb 2015

OrderNo.: 1504072

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 15 sample(s) on 4/2/2015 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-1

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:13:00 AM

Lab ID: 1504072-001

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/3/2015 3:40:28 PM	18480
Surr: DNOP	98.6	63.5-128		%REC	1	4/3/2015 3:40:28 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 1:31:14 PM	18491
Surr: BFB	92.6	80-120		%REC	1	4/3/2015 1:31:14 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 1:31:14 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 1:31:14 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 1:31:14 PM	18491
Xylenes, Total	ND	0.099		mg/Kg	1	4/3/2015 1:31:14 PM	18491
Surr: 4-Bromofluorobenzene	107	80-120		%REC	1	4/3/2015 1:31:14 PM	18491

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-2

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:12:00 AM

Lab ID: 1504072-002

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/3/2015 4:01:54 PM	18480
Surr: DNOP	102	63.5-128		%REC	1	4/3/2015 4:01:54 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 3:26:10 PM	18491
Surr: BFB	95.3	80-120		%REC	1	4/3/2015 3:26:10 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 3:26:10 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 3:26:10 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 3:26:10 PM	18491
Xylenes, Total	ND	0.098		mg/Kg	1	4/3/2015 3:26:10 PM	18491
Surr: 4-Bromofluorobenzene	110	80-120		%REC	1	4/3/2015 3:26:10 PM	18491

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	Page 2 of 19
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-3

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:06:00 AM

Lab ID: 1504072-003

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/3/2015 4:23:13 PM	18480
Surr: DNOP	87.4	63.5-128		%REC	1	4/3/2015 4:23:13 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/3/2015 4:52:24 PM	18491
Surr: BFB	92.1	80-120		%REC	1	4/3/2015 4:52:24 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	4/3/2015 4:52:24 PM	18491
Toluene	ND	0.048		mg/Kg	1	4/3/2015 4:52:24 PM	18491
Ethylbenzene	ND	0.048		mg/Kg	1	4/3/2015 4:52:24 PM	18491
Xylenes, Total	ND	0.095		mg/Kg	1	4/3/2015 4:52:24 PM	18491
Surr: 4-Bromofluorobenzene	107	80-120		%REC	1	4/3/2015 4:52:24 PM	18491

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-4

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:10:00 AM

Lab ID: 1504072-004

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/3/2015 4:44:40 PM	18480
Surr: DNOP	72.6	63.5-128		%REC	1	4/3/2015 4:44:40 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/3/2015 5:21:11 PM	18491
Surr: BFB	93.6	80-120		%REC	1	4/3/2015 5:21:11 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	4/3/2015 5:21:11 PM	18491
Toluene	ND	0.048		mg/Kg	1	4/3/2015 5:21:11 PM	18491
Ethylbenzene	ND	0.048		mg/Kg	1	4/3/2015 5:21:11 PM	18491
Xylenes, Total	ND	0.096		mg/Kg	1	4/3/2015 5:21:11 PM	18491
Surr: 4-Bromofluorobenzene	106	80-120		%REC	1	4/3/2015 5:21:11 PM	18491

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-5

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:27:00 AM

Lab ID: 1504072-005

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/3/2015 5:05:58 PM	18480
Surr: DNOP	104	63.5-128		%REC	1	4/3/2015 5:05:58 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 5:49:55 PM	18491
Surr: BFB	94.0	80-120		%REC	1	4/3/2015 5:49:55 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 5:49:55 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 5:49:55 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 5:49:55 PM	18491
Xylenes, Total	ND	0.097		mg/Kg	1	4/3/2015 5:49:55 PM	18491
Surr: 4-Bromofluorobenzene	108	80-120		%REC	1	4/3/2015 5:49:55 PM	18491

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** APEX TITAN**Client Sample ID:** C-6**Project:** Lateral K-7 Feb 2015**Collection Date:** 4/1/2015 11:26:00 AM**Lab ID:** 1504072-006**Matrix:** SOIL**Received Date:** 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/3/2015 5:27:14 PM	18480
Surr: DNOP	87.2	63.5-128		%REC	1	4/3/2015 5:27:14 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 6:18:44 PM	18491
Surr: BFB	96.1	80-120		%REC	1	4/3/2015 6:18:44 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 6:18:44 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 6:18:44 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 6:18:44 PM	18491
Xylenes, Total	0.41	0.099		mg/Kg	1	4/3/2015 6:18:44 PM	18491
Surr: 4-Bromofluorobenzene	109	80-120		%REC	1	4/3/2015 6:18:44 PM	18491

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** APEX TITAN**Client Sample ID:** C-7**Project:** Lateral K-7 Feb 2015**Collection Date:** 4/1/2015 11:30:00 AM**Lab ID:** 1504072-007**Matrix:** SOIL**Received Date:** 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	11	9.8		mg/Kg	1	4/3/2015 5:48:32 PM	18480
Surr: DNOP	97.3	63.5-128		%REC	1	4/3/2015 5:48:32 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 8:42:05 PM	18491
Surr: BFB	94.6	80-120		%REC	1	4/3/2015 8:42:05 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 8:42:05 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 8:42:05 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 8:42:05 PM	18491
Xylenes, Total	ND	0.098		mg/Kg	1	4/3/2015 8:42:05 PM	18491
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	4/3/2015 8:42:05 PM	18491

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** APEX TITAN**Client Sample ID:** C-8**Project:** Lateral K-7 Feb 2015**Collection Date:** 4/1/2015 11:29:00 AM**Lab ID:** 1504072-008**Matrix:** SOIL**Received Date:** 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/3/2015 6:09:54 PM	18480
Surr: DNOP	89.1	63.5-128		%REC	1	4/3/2015 6:09:54 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/3/2015 9:10:50 PM	18491
Surr: BFB	94.5	80-120		%REC	1	4/3/2015 9:10:50 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.047		mg/Kg	1	4/3/2015 9:10:50 PM	18491
Toluene	ND	0.047		mg/Kg	1	4/3/2015 9:10:50 PM	18491
Ethylbenzene	ND	0.047		mg/Kg	1	4/3/2015 9:10:50 PM	18491
Xylenes, Total	ND	0.095		mg/Kg	1	4/3/2015 9:10:50 PM	18491
Surr: 4-Bromofluorobenzene	105	80-120		%REC	1	4/3/2015 9:10:50 PM	18491

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	Page 8 of 19
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

CLIENT: APEX TITAN

Client Sample ID: C-9

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:36:00 AM

Lab ID: 1504072-009

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/3/2015 6:31:12 PM	18480
Surr: DNOP	99.2	63.5-128		%REC	1	4/3/2015 6:31:12 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 9:39:36 PM	18491
Surr: BFB	90.3	80-120		%REC	1	4/3/2015 9:39:36 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 9:39:36 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 9:39:36 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 9:39:36 PM	18491
Xylenes, Total	ND	0.098		mg/Kg	1	4/3/2015 9:39:36 PM	18491
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	4/3/2015 9:39:36 PM	18491

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	Page 9 of 19
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

CLIENT: APEX TITAN

Client Sample ID: C-10

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:33:00 AM

Lab ID: 1504072-010

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/3/2015 6:52:38 PM	18480
Surr: DNOP	95.3	63.5-128		%REC	1	4/3/2015 6:52:38 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/3/2015 10:08:17 PM	18491
Surr: BFB	92.4	80-120		%REC	1	4/3/2015 10:08:17 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.047		mg/Kg	1	4/3/2015 10:08:17 PM	18491
Toluene	ND	0.047		mg/Kg	1	4/3/2015 10:08:17 PM	18491
Ethylbenzene	ND	0.047		mg/Kg	1	4/3/2015 10:08:17 PM	18491
Xylenes, Total	ND	0.094		mg/Kg	1	4/3/2015 10:08:17 PM	18491
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	4/3/2015 10:08:17 PM	18491

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-11

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:23:00 AM

Lab ID: 1504072-011

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/3/2015 7:13:53 PM	18480
Surr: DNOP	93.5	63.5-128		%REC	1	4/3/2015 7:13:53 PM	18480
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 10:37:00 PM	18491
Surr: BFB	96.3	80-120		%REC	1	4/3/2015 10:37:00 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 10:37:00 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 10:37:00 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 10:37:00 PM	18491
Xylenes, Total	ND	0.097		mg/Kg	1	4/3/2015 10:37:00 PM	18491
Surr: 4-Bromofluorobenzene	106	80-120		%REC	1	4/3/2015 10:37:00 PM	18491

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** APEX TITAN**Client Sample ID:** C-12**Project:** Lateral K-7 Feb 2015**Collection Date:** 4/1/2015 11:22:00 AM**Lab ID:** 1504072-012**Matrix:** SOIL**Received Date:** 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/3/2015 7:56:34 PM	18483
Surr: DNOP	96.1	63.5-128		%REC	1	4/3/2015 7:56:34 PM	18483
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/3/2015 11:05:44 PM	18491
Surr: BFB	93.6	80-120		%REC	1	4/3/2015 11:05:44 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	4/3/2015 11:05:44 PM	18491
Toluene	ND	0.049		mg/Kg	1	4/3/2015 11:05:44 PM	18491
Ethylbenzene	ND	0.049		mg/Kg	1	4/3/2015 11:05:44 PM	18491
Xylenes, Total	ND	0.098		mg/Kg	1	4/3/2015 11:05:44 PM	18491
Surr: 4-Bromofluorobenzene	105	80-120		%REC	1	4/3/2015 11:05:44 PM	18491

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-13

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:02:00 AM

Lab ID: 1504072-013

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/3/2015 9:00:42 PM	18483
Surr: DNOP	97.7	63.5-128		%REC	1	4/3/2015 9:00:42 PM	18483
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/3/2015 11:34:25 PM	18491
Surr: BFB	90.3	80-120		%REC	1	4/3/2015 11:34:25 PM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	0.11	0.048		mg/Kg	1	4/3/2015 11:34:25 PM	18491
Toluene	ND	0.048		mg/Kg	1	4/3/2015 11:34:25 PM	18491
Ethylbenzene	ND	0.048		mg/Kg	1	4/3/2015 11:34:25 PM	18491
Xylenes, Total	ND	0.096		mg/Kg	1	4/3/2015 11:34:25 PM	18491
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	4/3/2015 11:34:25 PM	18491

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	Page 13 of 19
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-14

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:08:00 AM

Lab ID: 1504072-014

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/3/2015 9:22:04 PM	18483
Surr: DNOP	96.0	63.5-128		%REC	1	4/3/2015 9:22:04 PM	18483
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/4/2015 12:03:03 AM	18491
Surr: BFB	89.0	80-120		%REC	1	4/4/2015 12:03:03 AM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	4/4/2015 12:03:03 AM	18491
Toluene	ND	0.048		mg/Kg	1	4/4/2015 12:03:03 AM	18491
Ethylbenzene	ND	0.048		mg/Kg	1	4/4/2015 12:03:03 AM	18491
Xylenes, Total	ND	0.096		mg/Kg	1	4/4/2015 12:03:03 AM	18491
Surr: 4-Bromofluorobenzene	99.4	80-120		%REC	1	4/4/2015 12:03:03 AM	18491

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	Page 14 of 19
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Analytical Report

Lab Order 1504072

Date Reported: 4/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN

Client Sample ID: C-15

Project: Lateral K-7 Feb 2015

Collection Date: 4/1/2015 11:20:00 AM

Lab ID: 1504072-015

Matrix: SOIL

Received Date: 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/3/2015 9:43:31 PM	18483
Surr: DNOP	136	63.5-128	S	%REC	1	4/3/2015 9:43:31 PM	18483
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/4/2015 12:31:43 AM	18491
Surr: BFB	91.4	80-120		%REC	1	4/4/2015 12:31:43 AM	18491
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	4/4/2015 12:31:43 AM	18491
Toluene	ND	0.048		mg/Kg	1	4/4/2015 12:31:43 AM	18491
Ethylbenzene	ND	0.048		mg/Kg	1	4/4/2015 12:31:43 AM	18491
Xylenes, Total	ND	0.097		mg/Kg	1	4/4/2015 12:31:43 AM	18491
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	4/4/2015 12:31:43 AM	18491

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	Page 15 of 19
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504072

06-Apr-15

Client: APEX TITAN

Project: Lateral K-7 Feb 2015

Sample ID	MB-18504		SampType:	MBLK		TestCode:	EPA Method 8015D: Diesel Range Organics			
Client ID:	PBS		Batch ID:	18504		RunNo:	25271			
Prep Date:	4/3/2015		Analysis Date:	4/3/2015		SeqNo:	747345		Units: %REC	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		97.8	63.5	128			

Sample ID	LCS-18504		SampType:	LCS		TestCode:	EPA Method 8015D: Diesel Range Organics			
Client ID:	LCSS		Batch ID:	18504		RunNo:	25271			
Prep Date:	4/3/2015		Analysis Date:	4/3/2015		SeqNo:	747346		Units: %REC	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.1	63.5	128			

Sample ID	MB-18480		SampType:	MBLK		TestCode:	EPA Method 8015D: Diesel Range Organics			
Client ID:	PBS		Batch ID:	18480		RunNo:	25271			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	747704		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	8.9		10.00		88.9	63.5	128			

Sample ID	LCS-18483		SampType:	LCS		TestCode:	EPA Method 8015D: Diesel Range Organics			
Client ID:	LCSS		Batch ID:	18483		RunNo:	25271			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	748608		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.7	67.8	130			
Surr: DNOP	5.1		5.000		102	63.5	128			

Sample ID	LCS-18480		SampType:	LCS		TestCode:	EPA Method 8015D: Diesel Range Organics			
Client ID:	LCSS		Batch ID:	18480		RunNo:	25271			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	748609		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.2	67.8	130			
Surr: DNOP	5.3		5.000		106	63.5	128			

Sample ID	MB-18483		SampType:	MBLK		TestCode:	EPA Method 8015D: Diesel Range Organics			
Client ID:	PBS		Batch ID:	18483		RunNo:	25271			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	748610		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	10		10.00		100	63.5	128			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504072

06-Apr-15

Client: APEX TITAN

Project: Lateral K-7 Feb 2015

Sample ID	1504072-012AMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range Organics					
Client ID:	C-12	Batch ID:	18483	RunNo:	25271					
Prep Date:	4/2/2015	Analysis Date:	4/3/2015	SeqNo:	748625	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	9.7	48.69	6.917	87.9	29.2	176			
Surr: DNOP	4.7		4.869		96.3	63.5	128			

Sample ID	1504072-012AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range Organics					
Client ID:	C-12	Batch ID:	18483	RunNo:	25271					
Prep Date:	4/2/2015	Analysis Date:	4/3/2015	SeqNo:	748626	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.9	49.65	6.917	85.4	29.2	176	0.789	23	
Surr: DNOP	4.9		4.965		99.4	63.5	128	0	0	

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| 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 |
| O RSD is greater than RSDlimit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504072

06-Apr-15

Client: APEX TITAN

Project: Lateral K-7 Feb 2015

Sample ID	MB-18491	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	18491	RunNo:	25280					
Prep Date:	4/2/2015	Analysis Date:	4/3/2015	SeqNo:	747586	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

890

1000

89.4

80

120

Sample ID	1504072-001AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	C-1	Batch ID:	18491	RunNo:	25280					
Prep Date:	4/2/2015	Analysis Date:	4/3/2015	SeqNo:	748003	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

27

4.9

24.65

0

110

47.9

144

Surr: BFB

990

986.2

101

80

120

Sample ID	1504072-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	C-1	Batch ID:	18491	RunNo:	25280					
Prep Date:	4/2/2015	Analysis Date:	4/3/2015	SeqNo:	748004	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

28

4.9

24.65

0

113

47.9

144

3.26

29.9

Surr: BFB

1000

986.2

101

80

120

0

0

Sample ID	LCS-18491	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	18491	RunNo:	25280					
Prep Date:	4/2/2015	Analysis Date:	4/3/2015	SeqNo:	748019	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

26

5.0

25.00

0

102

64

130

Surr: BFB

980

1000

97.9

80

120

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504072

06-Apr-15

Client: APEX TITAN

Project: Lateral K-7 Feb 2015

Sample ID	MB-18491		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	PBS		Batch ID:	18491		RunNo:	25280			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	747612		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID	1504072-002AMS		SampType:	MS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	C-2		Batch ID:	18491		RunNo:	25280			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	748029		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.3	0.049	0.9852	0	128	69.2	126			S
Toluene	1.2	0.049	0.9852	0.009577	122	65.6	128			
Ethylbenzene	1.2	0.049	0.9852	0.01011	120	65.5	138			
Xylenes, Total	3.6	0.099	2.956	0.04111	119	63	139			
Surr: 4-Bromofluorobenzene	1.1		0.9852		116	80	120			

Sample ID	1504072-002AMSD		SampType:	MSD		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	C-2		Batch ID:	18491		RunNo:	25280			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	748030		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.4	0.049	0.9862	0	138	69.2	126	7.62	18.5	S
Toluene	1.3	0.049	0.9862	0.009577	135	65.6	128	9.80	20.6	S
Ethylbenzene	1.3	0.049	0.9862	0.01011	133	65.5	138	10.3	20.1	
Xylenes, Total	4.0	0.099	2.959	0.04111	133	63	139	10.8	21.1	
Surr: 4-Bromofluorobenzene	1.1		0.9862		115	80	120	0	0	

Sample ID	LCS-18491		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSS		Batch ID:	18491		RunNo:	25280			
Prep Date:	4/2/2015		Analysis Date:	4/3/2015		SeqNo:	748045		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.050	1.000	0	120	76.6	128			
Toluene	1.1	0.050	1.000	0	111	75	124			
Ethylbenzene	1.1	0.050	1.000	0	108	79.5	126			
Xylenes, Total	3.3	0.10	3.000	0	108	78.8	124			
Surr: 4-Bromofluorobenzene	1.1		1.000		114	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit



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: 1504072

RcptNo: 1

Received by/date:

AT

04/02/15

Logged By: Lindsay Mangin

4/2/2015 7:00:00 AM

Lindsay Mangin

Completed By: Lindsay Mangin

4/2/2015 8:06:27 AM

Lindsay Mangin

Reviewed By:

CS

04/02/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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: _____

17. Additional remarks:

18. Cooler Information


Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

CHAIN OF CUSTODY RECORD

 APEX Office Location <u>Aztec, NM</u>		Laboratory: <u>Hall Environmental</u> Address: <u>Albuquerque, NM</u> Contact: <u>Andy Freeman</u> Phone: _____ Project Manager <u>Heather Woods</u> PO/SO #: <u>Direct bill to Enterprise</u>		ANALYSIS REQUESTED <div style="transform: rotate(-45deg); position: absolute; left: 50%; top: 50%; font-weight: bold;"> BOD21 BTX BOLS T4H GRO/DEO </div>										Lab use only Due Date: _____ Temp. of coolers when received (C°): <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> </table> Page <u>1</u> of <u>2</u>					1	2	3	4	5				
		1	2											3	4	5											
Project Name <u>Lateral K-7 Feb 2015</u>		No/Type of Containers _____																									
Sampler's Name <u>Heather Woods</u>		Sampler's Signature <u>Heather M. Woods</u>		<div style="position: relative; height: 100px;"> 1.0 </div>																							
Proj. No. <u>7250415005</u>		Identifying Marks of Sample(s) _____																									
Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1L	250 ml	Glass Jar	P/O	Lab Sample ID (Lab Use Only)														
S	4/1/15	1113			C-1						1		X X	15041072-001													
S	4/1/15	1112			C-2						1		X X	-002													
S	4/1/15	1106			C-3						1		X X	-003													
S	4/1/15	1110			C-4						1		X X	-004													
S	4/1/15	1127			C-5						1		X X	-005													
S	4/1/15	1126			C-6						1		X X	-006													
S	4/1/15	1130			C-7						1		X X	-007													
S	4/1/15	1129			C-8						1		X X	-008													
S	4/1/15	1136			C-9						1		X X	-009													
S	4/1/15	1133			C-10						1		X X	-010													
Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush															NOTES: Direct bill to Enterprise Non-AFE N20591 Attn: Tom Long / Johnny Sandoval												
Relinquished by (Signature)					Date:		Time:		Received by (Signature)					Date:											Time:		
<u>Heather M. Woods</u>					4/1/15		1817		<u>Maarti White</u>					4/1/15											1817		
Relinquished by (Signature)					Date:		Time:		Received by (Signature)					Date:											Time:		
<u>Maarti White</u>					4/1/15		1825		<u>Chen</u>					04/02/15											0700		
Relinquished by (Signature)					Date:		Time:		Received by (Signature)					Date:		Time:											
Relinquished by (Signature)					Date:		Time:		Received by (Signature)					Date:		Time:											

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

CHAIN OF CUSTODY RECORD

 APEX Office Location <u>Aztec, NM</u>		Laboratory: <u>Hall Environmental</u> Address: <u>Albuquerque, NM</u> Contact: <u>Andy Freeman</u> Phone: _____ PO/SO #: <u>Direct bill to Enterprise</u>		ANALYSIS REQUESTED <div style="transform: rotate(-45deg); display: inline-block;">8021 BTEX</div> <div style="transform: rotate(-45deg); display: inline-block;">8015 TPH GRO/DRO</div>										Lab use only Due Date: _____ Temp. of coolers when received (C°): <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> </tr> </table>		1	2	3	4	5
		1	2											3	4	5				
Project Manager <u>Heather Woods</u> Sampler's Name <u>Heather Woods</u> Project No. <u>7250415005</u> Project Name <u>Lateral K-7 Feb 2015</u> No/Type of Containers _____		Sampler's Signature <u>Heather Woods</u>		Page <u>2</u> of <u>2</u>																

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 L	250 ml	Glass Jar	P/O	Lab Sample ID (Lab Use Only) <div style="font-size: 1.2em;">1504072 -011</div> <div style="font-size: 1.2em;">-012</div> <div style="font-size: 1.2em;">-013</div> <div style="font-size: 1.2em;">-014</div> <div style="font-size: 1.2em;">-015</div>	
S	4/1/15	1123			C-11						1			
S	4/1/15	1122			C-12						1		X	X
S	4/1/15	1102			C-13						1		X	X
S	4/1/15	1108			C-14						1		X	X
S	4/1/15	1120			C-15						1		X	X
<div style="transform: rotate(-30deg); display: inline-block; opacity: 0.5;">1015 #62</div>														

Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush					
Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
<u>Heather M. Woods</u>	<u>4/1/15</u>	<u>1817</u>	<u>Chris Wale</u>	<u>4/1/15</u>	<u>1817</u>
Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
<u>Chris Wale</u>	<u>4/1/15</u>	<u>1825</u>	<u>Chris Wale</u>	<u>04/02/15</u>	<u>1500</u>
Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time

Matrix Container WW - Wastewater W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Charcoal tube SL - sludge O - Oil VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other	
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NOTES: Direct bill to Enterprise
 Non-AFE N20591
 Attn: Tom Long / Johnny Sandoval



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

April 06, 2015

Heather Woods
APEX TITAN
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (505) 716-2787
FAX

RE: Lateral K-7 Feb 2015

OrderNo.: 1504069

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/2/2015 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical ReportLab Order **1504069**Date Reported: **4/6/2015****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** APEX TITAN**Client Sample ID:** W-1**Project:** Lateral K-7 Feb 2015**Collection Date:** 4/1/2015 9:00:00 AM**Lab ID:** 1504069-001**Matrix:** AQUEOUS**Received Date:** 4/2/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	20	1.0		µg/L	1	4/3/2015 9:27:37 PM	R25296
Toluene	42	1.0		µg/L	1	4/3/2015 9:27:37 PM	R25296
Ethylbenzene	6.9	1.0		µg/L	1	4/3/2015 9:27:37 PM	R25296
Xylenes, Total	120	2.0		µg/L	1	4/3/2015 9:27:37 PM	R25296
Surr: 4-Bromofluorobenzene	114	80-120		%REC	1	4/3/2015 9:27:37 PM	R25296

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504069

06-Apr-15

Client: APEX TITAN

Project: Lateral K-7 Feb 2015

Sample ID	100NG BTEX LCS	SampType: LCS			TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID: R25296			RunNo: 25296					
Prep Date:		Analysis Date: 4/3/2015			SeqNo: 748080		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	80	120			
Toluene	21	1.0	20.00	0	107	80	120			
Ethylbenzene	21	1.0	20.00	0	103	80	120			
Xylenes, Total	62	2.0	60.00	0	103	80	120			
Surr: 4-Bromofluorobenzene	24		20.00		118	80	120			

Sample ID	5ML-RB	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID: R25296			RunNo: 25296					
Prep Date:		Analysis Date: 4/3/2015			SeqNo: 748095		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	18		20.00		89.7	80	120			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| 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 |
| O RSD is greater than RSDlimit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |



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: 1504069

RcptNo. 1

Received by/date: AT 01/02/15

Logged By: Lindsay Mangin

4/2/2015 7:00:00 AM

Completed By: Lindsay Mangin

4/2/2015 7:48:42 AM

Reviewed By: JN 04/02/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

CHAIN OF CUSTODY RECORD

 APEX Office Location <u>Aztec, NM</u>		Laboratory: <u>Hall Environmental</u> Address: <u>Albuquerque, NM</u>		ANALYSIS REQUESTED										Lab use only Due Date:				
		Contact: <u>Andy Freeman</u> Phone:												Temp. of coolers when received (C°):				
Project Manager <u>Heather Woods</u>		PO/SO #: <u>Direct bill to Enterprise</u>		<div style="writing-mode: vertical-rl; transform: rotate(180deg);">8021 BTEX</div>										1 2 3 4 5				
Sampler's Name <u>Heather Woods</u>		Sampler's Signature <u>Heather M. Woods</u>												Page <u>1</u> of <u>1</u>				
Proj. No. <u>7250415005</u>		Project Name <u>Lateral K-7 Feb 2015</u>		No/Type of Containers										Lab Sample ID (Lab Use Only) <u>1504069-001</u>				
Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	AG 1 Lt.	250 ml	Glass Jar	P/O						
W	4/1/15	0900			W-1			3										
NFS HW																		
Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush																		
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:	NOTES: <u>Direct bill to Enterprise</u> <u>Non-APE N20591</u> <u>Attn: Tom Long / Johnny Sandoval</u>										
<u>Heather M. Woods</u>		<u>4/1/15</u>	<u>1817</u>	<u>Must Waeke</u>		<u>4/1/15</u>	<u>1817</u>											
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:											
<u>Must Waeke</u>		<u>4/1/15</u>	<u>1825</u>	<u>Must Waeke</u>		<u>4/1/15</u>	<u>0700</u>											
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:											
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:											

Matrix
ContainerWW - Wastewater
VOA - 40 ml vialW - Water
A/G - Amber / Or Glass 1 LiterS - Soil
SD - Solid
L - Liquid
250 ml - Glass wide mouthA - Air Bag
C - Charcoal tube
P/O - Plastic or other

SL - sludge

O - Oil