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APEX

ANNUAL GROUNDWATER MONITORING REPORT
(May and December 2017 Sampling Events)
OCD RP: 3R-446 (Formerly 3R-206)

Property:

Lateral K-51 Pipeline Release (2010)
Sections 34 and 35, T26N R6W
Rio Arriba County, New Mexico

July 11, 2018
Apex Project No. 725040112227

Prepared for:

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Annual Groundwater Monitoring Report
(May and December 2017 Sampling Events)
Lateral K-51 Pipeline Release (2010)
Executive Summary

During May and December 2017, Apex TITAN, Inc. (Apex) conducted semi-annual groundwater monitoring events at the Lateral K-51 Pipeline Release (2010) site, referred to hereinafter as the "Site". The Site is located within the Enterprise Field Services, LLC (Enterprise) pipeline right-of-way (ROW) in Sections 34 and 35, Township 26 North, Range 6 West, in Rio Arriba County, New Mexico. The Site is located on public land managed by the United States Bureau of Land Management (BLM), and private land owned by Russell and Connie Luna. The surrounding area is predominately rangeland, periodically interrupted by oil and gas production and gathering facilities, including the Enterprise natural gas gathering pipeline which traverses the area from approximately southeast to northwest.

Following the release of approximately ten (10) barrels of natural gas condensate on April 13, 2010, Enterprise initiated excavation activities to identify and remediate potential hydrocarbon impact. Souder, Miller & Associates (SMA) collected confirmation soil samples and one (1) groundwater sample from the resulting excavation. The excavation was subsequently backfilled with imported fill. During June 2010, LT Environmental (LTE) advanced eight (8) soil borings (BH-1 through BH-8) in the vicinity of the release and four of the soil borings were completed as groundwater monitoring wells (MW-1 through MW-4). Samples collected from the soil borings exhibited concentrations of constituents of concern (COCs) above New Mexico Energy, Minerals, and Natural Resources Department (EMNRD) Oil Conservation Division (OCD) *Remediation Action Levels (RALs)* in soils, and above the New Mexico Water Quality Control Commission (WQCC) *Groundwater Quality Standards (GQSs)* in groundwater.

During April 2011 and March 2012, Apex (formerly Southwest Geoscience (SWG)), installed nine (9) additional groundwater monitoring wells (MW-11 through MW-14, and MW-16 through MW-20), and 15 injection points. During May 2011, in-situ chemical oxidation (ISCO) was performed in the pipeline release source area.

The objectives of the 2017 groundwater monitoring events were to further evaluate the concentrations of COCs in groundwater over time, and to monitor the generally declining COC concentrations at the Site. Findings and recommendations based on these activities are as follows:

- During the completion of the May and December 2017 sampling events, one (1) groundwater sample was collected from each monitoring well utilizing low-flow sampling techniques. Monitoring well MW-18 appeared to be silted in or clogged with roots and was not sampled during either sampling event.

- The groundwater flow direction at the Site is generally towards the west-northwest, with an approximate average gradient of 0.01 feet per foot (ft/ft) across the Site.

- The groundwater samples collected from monitoring well MW-19 (during the May and December 2017 sampling events) exhibited benzene concentrations of 270 micrograms per liter (µg/L) and 180 µg/L, which exceed the WQCC GQS of 10 µg/L. In addition, the groundwater sample collected from monitoring well MW-19 (during May 2017 sampling event) exhibited a total xylenes concentration of 640 µg/L, which exceeds the WQCC GQS of 620 µg/L. Groundwater samples from all other monitor wells during these events indicated non-detectable concentrations or concentrations below the WQCC *GQSs* for all COCs.

- With the exception of monitoring well MW-19, results from the sampling events at the Site demonstrate generally declining COC concentrations in groundwater.

Apex offers the following recommendations:

- Report the groundwater monitoring results to the New Mexico EMNRD OCD;
- Continue semi-annual groundwater monitoring at the Site to monitor natural attenuation of COCs in groundwater;
- Execute supplemental corrective action by installing a shallow recovery well upgradient of monitoring well MW-19 to facilitate enhanced total fluids recovery in the immediate vicinity of the highest observed groundwater COC concentrations; and,
- Repair or replace monitoring well MW-18.

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1.0 INTRODUCTION

1.1 Site Description & Background

The Lateral K-51 Pipeline Release (2010) site, referred to hereinafter as the "Site", is located at the boundary of Sections 34 and 35, Township 26 North, Range 6 West, in Rio Arriba County, New Mexico (36.4465N, 107.4461W). The Site is located on public land managed by the United States Bureau of Land Management (BLM), and private land owned by Russell and Connie Luna. The Site is surrounded by rangeland that is periodically interrupted by oil and gas production and gathering facilities, including the Enterprise Field Services, LLC (Enterprise) natural gas gathering pipeline which traverses the area from approximately southeast to northwest.

On April 13, 2010, an estimated ten (10) barrels of natural gas condensate was released from the Enterprise natural gas gathering pipeline at the Site. Subsequent to the completion of excavation activities and off-site disposal of hydrocarbon affected soils, confirmation soil samples were collected from the excavation by Souder, Miller and Associates (SMA). In addition, one (1) groundwater sample was collected from the excavation. The excavation was then backfilled with unaffected soils. During June 2010, eight (8) soil borings (BH-1 through BH-8) were advanced on-Site by LT Environmental (LTE). Subsequent to advancement, four (4) of the soil borings were completed as groundwater monitoring wells (MW-1 through MW-4) (*Subsurface Investigation Report, dated August 9, 2010 – LTE*). Analytical results from the soil and groundwater sampling activities indicated constituent of concern (COC) concentrations were present in soil (SB-1, immediately adjacent to the release and near the groundwater interface) above the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) Oil Conservation Division (OCD) *Remediation Action Levels* (RALs), and in groundwater (monitoring wells MW-1 through MW-4) above the New Mexico Water Quality Control Commission (WQCC) *Groundwater Quality Standards (GQSs).*

During April 2011, nine (9) soil borings/monitoring wells (SB-9, SB-10, MW-11 through MW-14, SB-15, MW-16, and MW-17) were advanced by Apex TITAN, Inc. (Apex) (formerly Southwest Geoscience (SWG)) in and around the former K-51 release area to further evaluate the extent of dissolved phase COCs in groundwater. Additionally, 15 injection points were installed to allow in-situ chemical oxidation (ISCO) of the COCs. ISCO activities were performed during May 2011 (*Supplemental Site Investigation and Corrective Action Report, dated October 5, 2011 - SWG*).

Based on the distribution of COCs in groundwater, it appears that a former drip valve, tank, or pit may have been an additional historic source of petroleum hydrocarbon impact to groundwater (New Mexico EMNRD OCD reference 3R-446, *El Paso Natural Gas, Final Pit Closure*) in the vicinity of monitoring well MW-14. During March 2012, three (3) additional soil borings/monitoring wells (MW-18, MW-19 and MW-20) were advanced near and downgradient of the historic release

area to further evaluate the extent of COCs in groundwater (*Supplemental Site Investigation & Corrective Action Work Plan, dated April 23, 2012 – SWG*). Soil boring/monitoring well MW-18 was advanced to the west of the historic release, and soil borings/monitoring wells MW-19 and MW-20 were advanced to the north and northwest of the historic release.

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD. To address activities related to crude oil/condensate releases, the New Mexico EMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the New Mexico EMNROD OCD rules, specifically New Mexico Administrative Code (NMAC) 19.15.29 *Release Notification*. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

The Site location is depicted on **Figure 1** of **Appendix A** which was reproduced from a portion of a United States Geological Survey (USGS) 7.5-minute series topographic map. A **Site Vicinity Map**, created from an aerial photograph, is provided as **Figure 2**, and a **Site Map**, which indicates the approximate locations of the monitoring wells and previous soil boring locations in relation to pertinent structures and general Site boundaries, is included as **Figure 3** of **Appendix A**.

1.2 Objective

The objective of the groundwater monitoring events was to further evaluate the concentrations of COCs in groundwater over time, and to monitor the generally declining COC concentrations at the Site.

2.0 GROUNDWATER MONITORING

2.1 Groundwater Sampling Program

Semi-annual groundwater sampling events were conducted during May and December 2017 by Apex.

Apex's groundwater sampling program consisted of the following:

Prior to sample collection, Apex gauged the depth to fluids in each monitoring well using an interface probe capable of detecting non-aqueous phase liquids (NAPL).

Monitoring well MW-18 is silted in, blocked by roots, or collapsed, and was not sampled during the 2017 events.

Each monitoring well was sampled utilizing micro-purge low-flow sampling techniques. Subsequent to the completion of the micro-purge process, one (1) groundwater sample was collected from each monitoring well.

Low-flow refers to the velocity with which groundwater enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface which can be affected by flow regulators or restrictions. Water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective is to pump in a manner that minimizes stress (drawdown) to the system, to the extent practical, taking into account established Site sampling objectives. Flow rates on the order of 0.1 to 0.5 liters per minute (L/min) are maintained during sampling activities, using dedicated or decontaminated sampling equipment.

The pump intake is placed within the screened interval such that the groundwater recovered is drawn in directly from the formation with little mixing of casing water or disturbance to the sampling zone.

The groundwater samples are collected from each monitoring well once produced groundwater is consistent in color, clarity, pH, temperature, and conductivity. Measurements are taken every three to five minutes while purging. Purging is considered complete once key parameters (especially pH and conductivity) have stabilized for three successive readings.

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

2.2 Groundwater Laboratory Analytical Program

The groundwater samples collected from the monitoring wells during the 2017 groundwater sampling events were analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) utilizing Environmental Protection Agency (EPA) method SW-846 #8021/8260. The containers were pre-preserved with mercuric chloride ($HgCl_2$).

A summary of the per-event analytes, sample matrix, sample frequency and EPA-approved methods are presented on the following table.

Analytes	Sample Matrix	No. of Samples (per event)	EPA Method
BTEX	Groundwater	12	SW-846 8021/8260

Laboratory results are summarized in **Table 1** included in **Appendix B**. The laboratory data sheets and executed chain-of-custody form are provided in **Appendix C**.

2.3 Groundwater Flow Direction

Each of the monitoring wells has been surveyed to determine top-of-casing (TOC) elevations. Prior to sample collection, Apex gauged the depth to fluids in each monitoring well using an interface probe capable of detecting NAPL. NAPL was not observed in any monitoring well during the 2017 sampling events. The groundwater flow direction (gradient) at the Site is generally toward the west-northwest. The observed gradient during the May and December 2017 monitoring events averages approximately 0.01 feet per foot (ft/ft) across the Site.

Groundwater measurements collected during the May and December 2017 gauging events are presented with TOC elevations in **Table 2** (**Appendix B**). Groundwater gradient maps for the May and December 2017 gauging events are included as **Figure 4A** and **4B** (**Appendix A**).

2.4 Groundwater Data Evaluation

Apex compared BTEX concentrations or laboratory practical quantitation limits (PQLs) associated with the groundwater samples collected from monitoring wells during the May and December 2017 sampling events to the New Mexico WQCC *GQSs*. The results of the groundwater sample analyses are summarized in **Table 1** of **Appendix B**. Groundwater Quality Standards Exceedance Zone maps are provided as **Figures 5A** and **5B** of **Appendix A**.

May 2017 Sample Results:

The groundwater sample collected from monitoring well MW-19 exhibited a benzene concentration of 270 micrograms per liter (µg/L), which exceeds the WQCC GQS of 10 µg/L. The groundwater samples collected from monitoring wells MW-1 and MW-16 exhibited benzene concentrations of 4.1 µg/L and 2.1 µg/L, respectively, which are below the WQCC GQS of 10 µg/L. The groundwater samples collected from the remaining monitoring wells did not exhibit benzene concentrations above the laboratory PQLs, which are below the WQCC GQS of 10 µg/L.

The groundwater samples collected from the monitoring wells did not exhibit toluene concentrations above the laboratory PQLs, which are below the WQCC GQS of 750 µg/L.

The groundwater samples collected from monitoring wells MW-4 and MW-19 exhibited ethylbenzene concentrations of 3.9 µg/L and 88 µg/L, respectively, which are below the WQCC GQS of 750 µg/L. The groundwater samples collected from the remaining monitoring wells did not exhibit ethylbenzene concentrations above the laboratory PQLs, which are below the WQCC GQS of 750 µg/L.

The groundwater sample collected from monitoring well MW-19 exhibited a total xylenes concentration of 640 µg/L, which exceeds the WQCC GQS of 620 µg/L. The groundwater samples collected from the remaining monitoring wells did not exhibit total xylenes concentrations above the laboratory PQLs, which are below the WQCC GQS of 620 µg/L.

No data qualifier flags were associated with the May 2017 analytical results.

December 2017 Sample Results:

The groundwater sample collected from monitoring well MW-19 exhibited a benzene concentration of 180 µg/L, which exceeds the WQCC GQS of 10 µg/L. The groundwater sample collected from monitoring well MW-1 exhibited a benzene concentration of 2.8 µg/L, which is below the WQCC GQS of 10 µg/L. The groundwater samples collected from the remaining monitoring wells did not exhibit benzene concentrations above the laboratory PQLs, which are below the WQCC GQS of 10 µg/L.

The groundwater samples collected from the monitoring wells did not exhibit toluene concentrations above the laboratory PQLs, which are below the WQCC GQS of 750 µg/L.

The groundwater samples collected from monitoring wells MW-1 and MW-19 exhibited ethylbenzene concentrations of 2.0 µg/L and 70 µg/L, respectively, which are below the WQCC GQS of 750 µg/L. The groundwater samples collected from the remaining monitoring wells did not exhibit ethylbenzene concentrations above the laboratory PQLs, which are below the WQCC GQS of 750 µg/L.

The groundwater sample collected from monitoring well MW-19 exhibited a total xylenes concentration of 150 µg/L, which is below the WQCC GQS of 620 µg/L. The groundwater samples collected from the remaining monitoring wells did not exhibit total xylenes concentrations above the laboratory PQLs, which are below the WQCC GQS of 620 µg/L.

Data Qualifier Flags

Sample ID	Data Qualifier Flag	Comments/Reactions
MW-19 (collected 12/7/2017)	Sample Diluted Due to Matrix.	The sample was diluted due to matrix interference. The result is usable as an estimated value.

3.0 FINDINGS

Apex conducted semi-annual groundwater monitoring events at the Lateral K-51 Pipeline Release Site during May and December 2017. The objective of the groundwater monitoring events was to monitor the generally declining COC concentrations at the Site.

- Prior to sample collection, Apex gauged the depth to fluids in each monitoring well using an interface probe capable of detecting NAPL.

- During the completion of the sampling event, one (1) groundwater sample was collected from each monitoring well utilizing low-flow sampling techniques. Monitoring well MW-18 appears to be silted in, clogged with roots, or collapsed, and was not sampled during the 2017 events. Monitoring well MW-18 has historically not exhibited detectable concentrations of COCs but has not been sampled since 2012. This monitoring well will be replaced if it cannot be reconditioned.

- The groundwater flow direction at the Site is generally towards the west-northwest, with an approximate gradient of 0.01 ft/ft across the Site.

- The groundwater samples collected from monitoring well MW-19 (during the May and December 2017 sampling events) exhibited benzene concentrations of 270 µg/L and 180 µg/L, which exceed the WQCC GQS of 10 µg/L. In addition, the groundwater sample collected from monitoring well MW-19 (during May 2017 sampling event) exhibited a total xylenes concentration of 640 µg/L, which exceeds the WQCC GQS of 620 µg/L. Groundwater samples from all other monitor wells during these events indicated non-detectable concentrations or concentrations below the WQCC *GQS*s for all COCs.

- With the exception of monitoring well MW-19, results from the sampling events at the Site demonstrate generally declining COC concentrations in groundwater.

4.0 RECOMMENDATIONS

Based on the results of groundwater monitoring activities, Apex has the following recommendations:

- Report the groundwater monitoring results to the New Mexico EMNRD OCD;

- Continue semi-annual groundwater monitoring at the Site to monitor natural attenuation of COCs in groundwater;

- Repair or replace monitoring well MW-18; and,

- Execute supplemental corrective action by installing a shallow recovery well upgradient of monitoring well MW-19 to facilitate enhanced total fluids recovery in the immediate vicinity of the highest observed groundwater COC concentrations.

5.0 STANDARD OF CARE, LIMITATIONS & RELIANCE

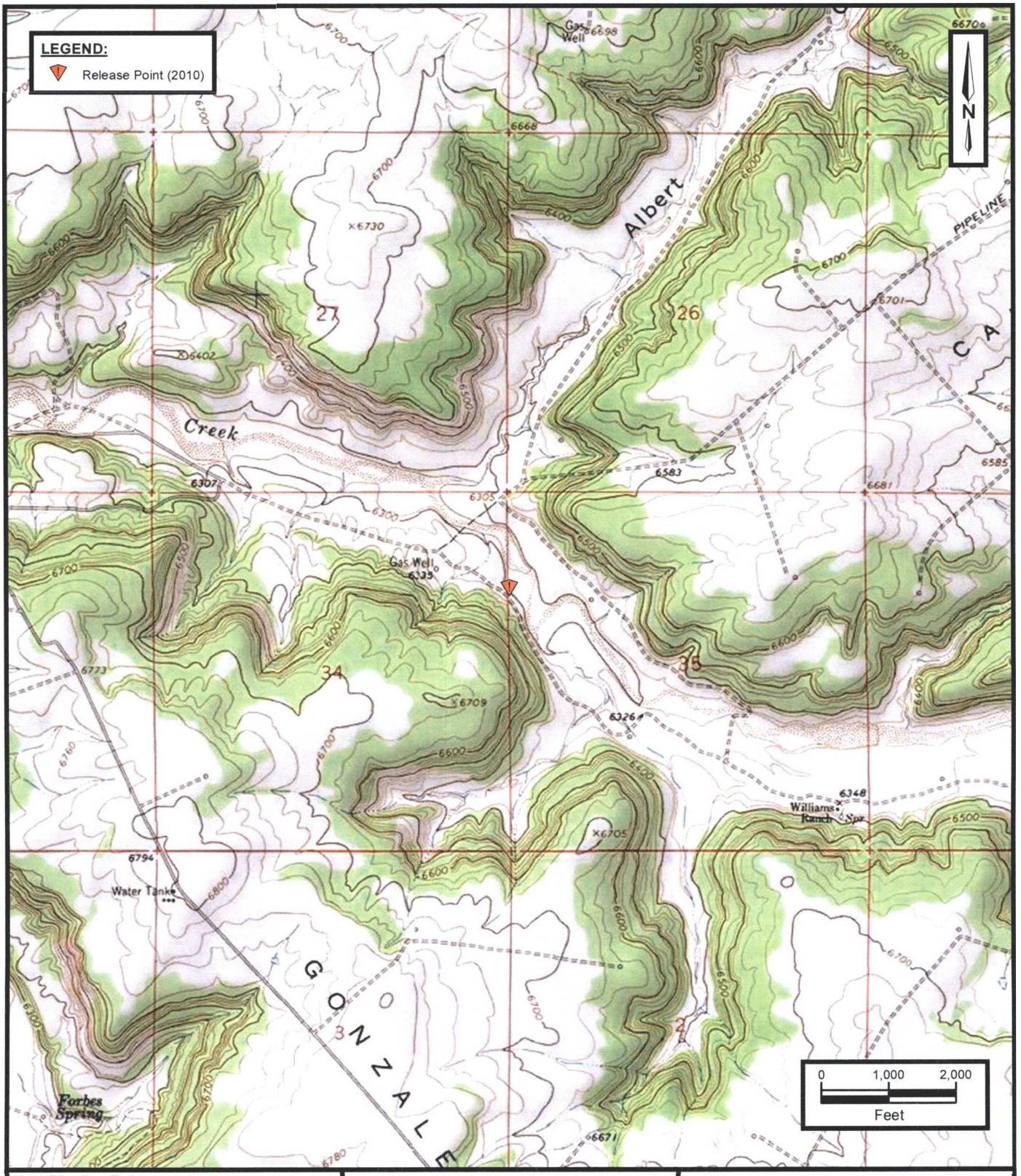
Apex's services were performed in accordance with standards customarily provided by a firm rendering the same or similar services in the area during the same time period. Apex makes no warranties, expressed or implied, as to the services performed hereunder. Additionally, Apex does not warrant the work 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



K-51 Pipeline Release
Section 34 and 35 T26N R6W
Rio Arriba County, New Mexico
36.4465 N, 107.4461 W

Project No. 725040112227

Apex TITAN, Inc.
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Phone: (505) 334-5200
www.apexcos.com
A Subsidiary of Apex Companies, LLC

FIGURE 1

Topographic Map

Z:\Dallas South\Drafting\2016\725040112227\Figure 1.mxd Modified 1/20/2017 by JSimpson NAD 1983 2011 StatePlane New Mexico Central FIPS 3002 Ft US Coordinate System

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FIGURE 2

Site Vicinity Map

Service Layer Credits:
Aerial Photograph March 2016

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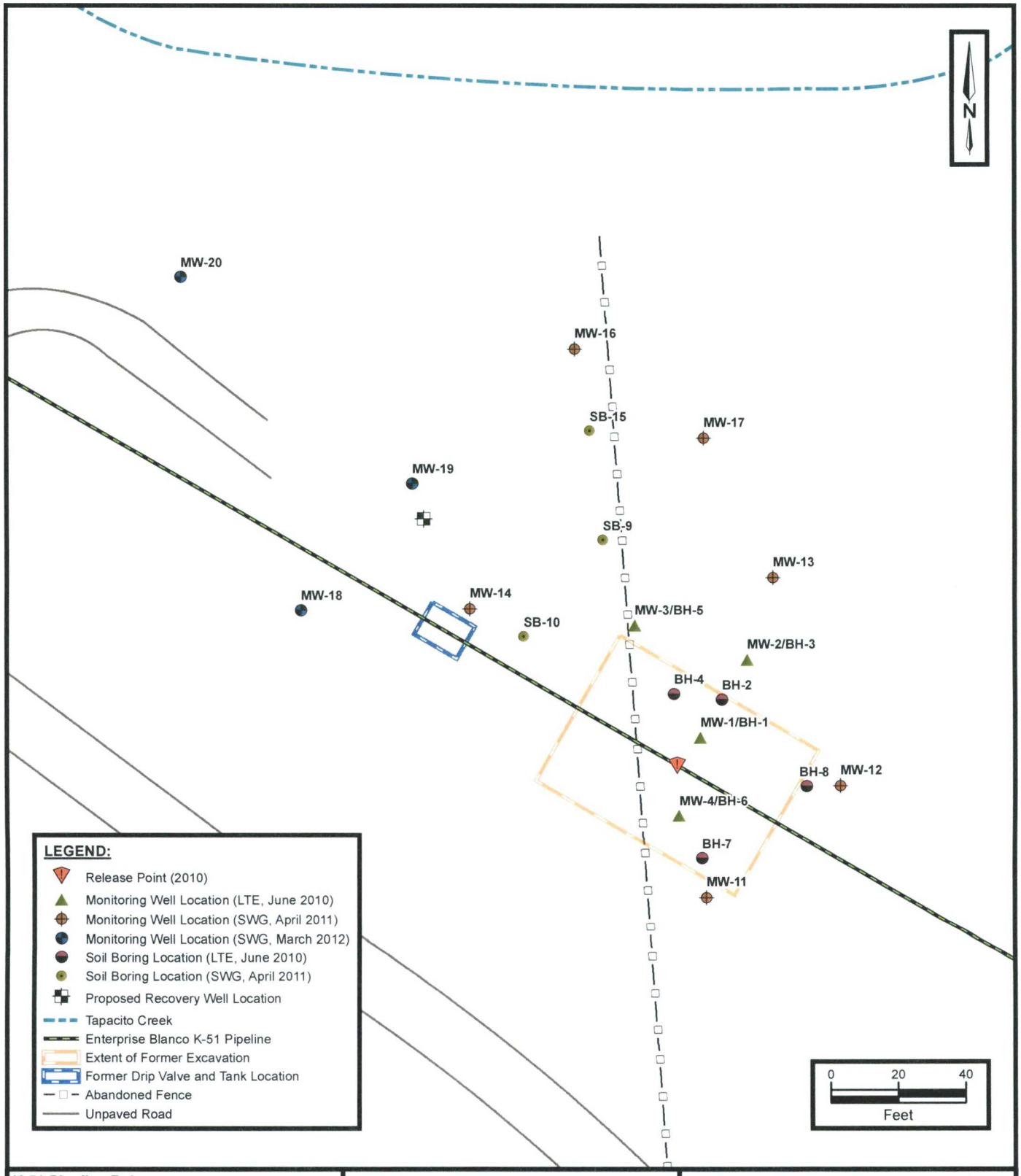

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FIGURE 3

Site Map

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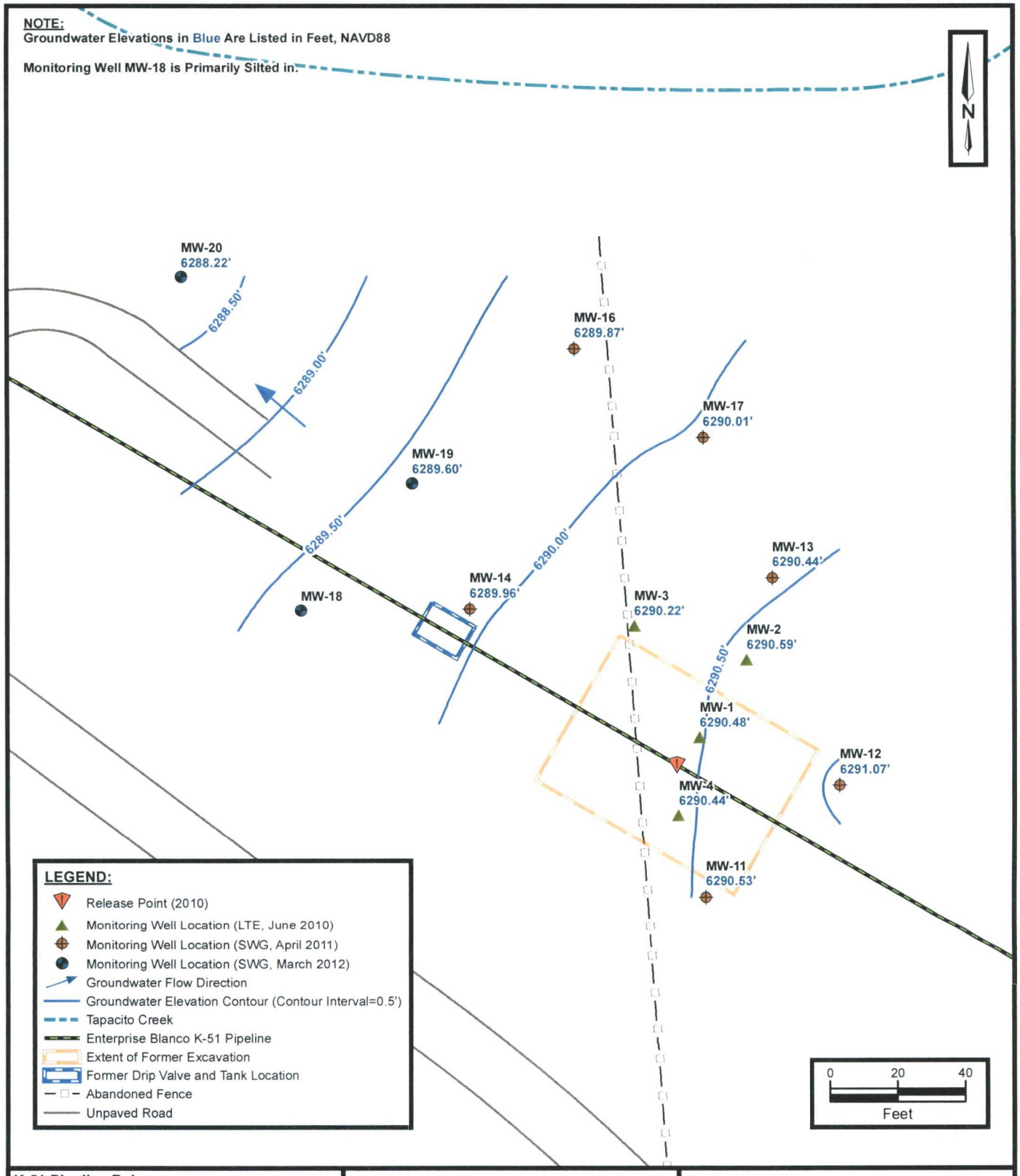

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FIGURE 4A

Groundwater Gradient Map
May 2017

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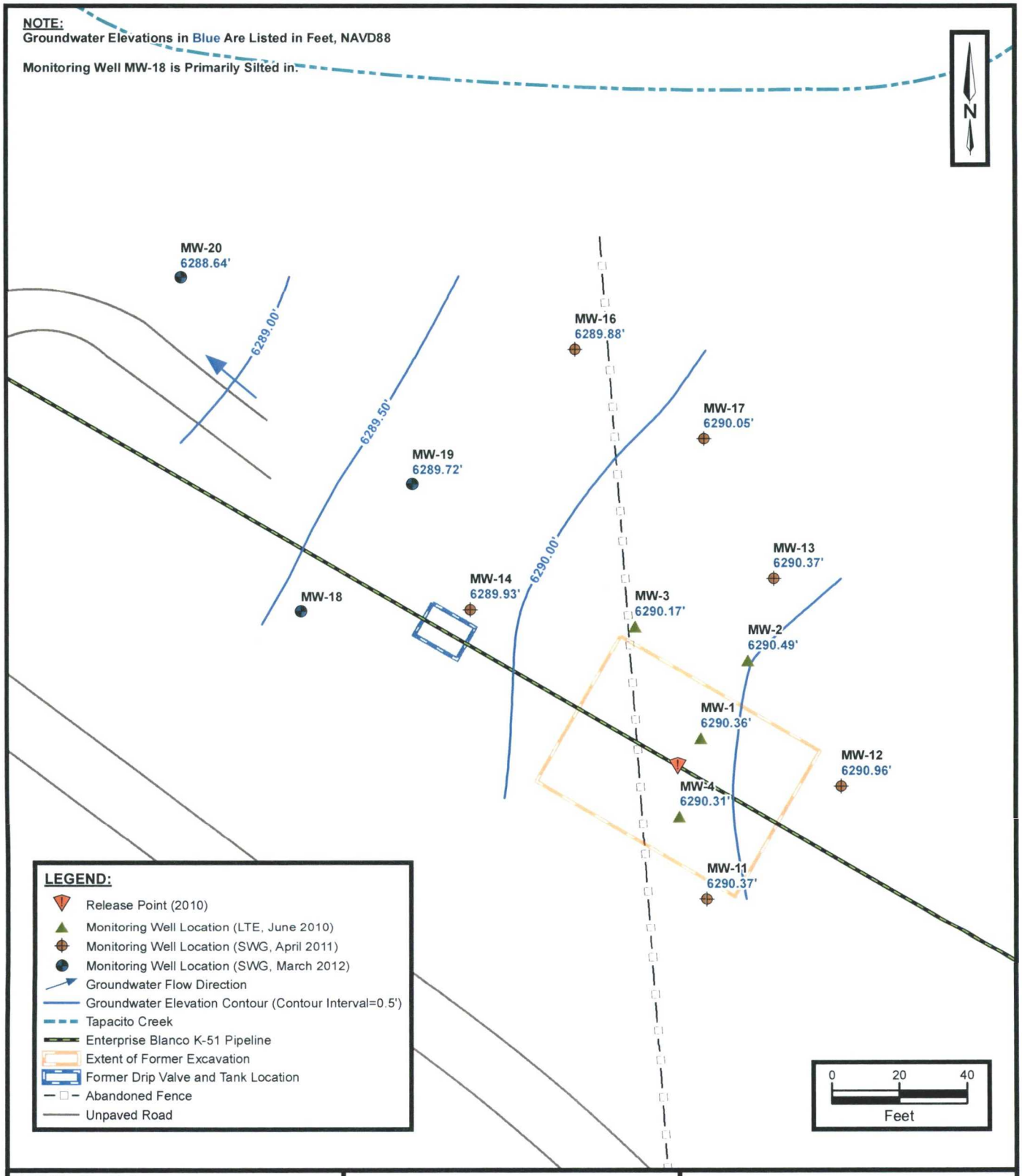

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FIGURE 4B

Groundwater Gradient Map
December 2017

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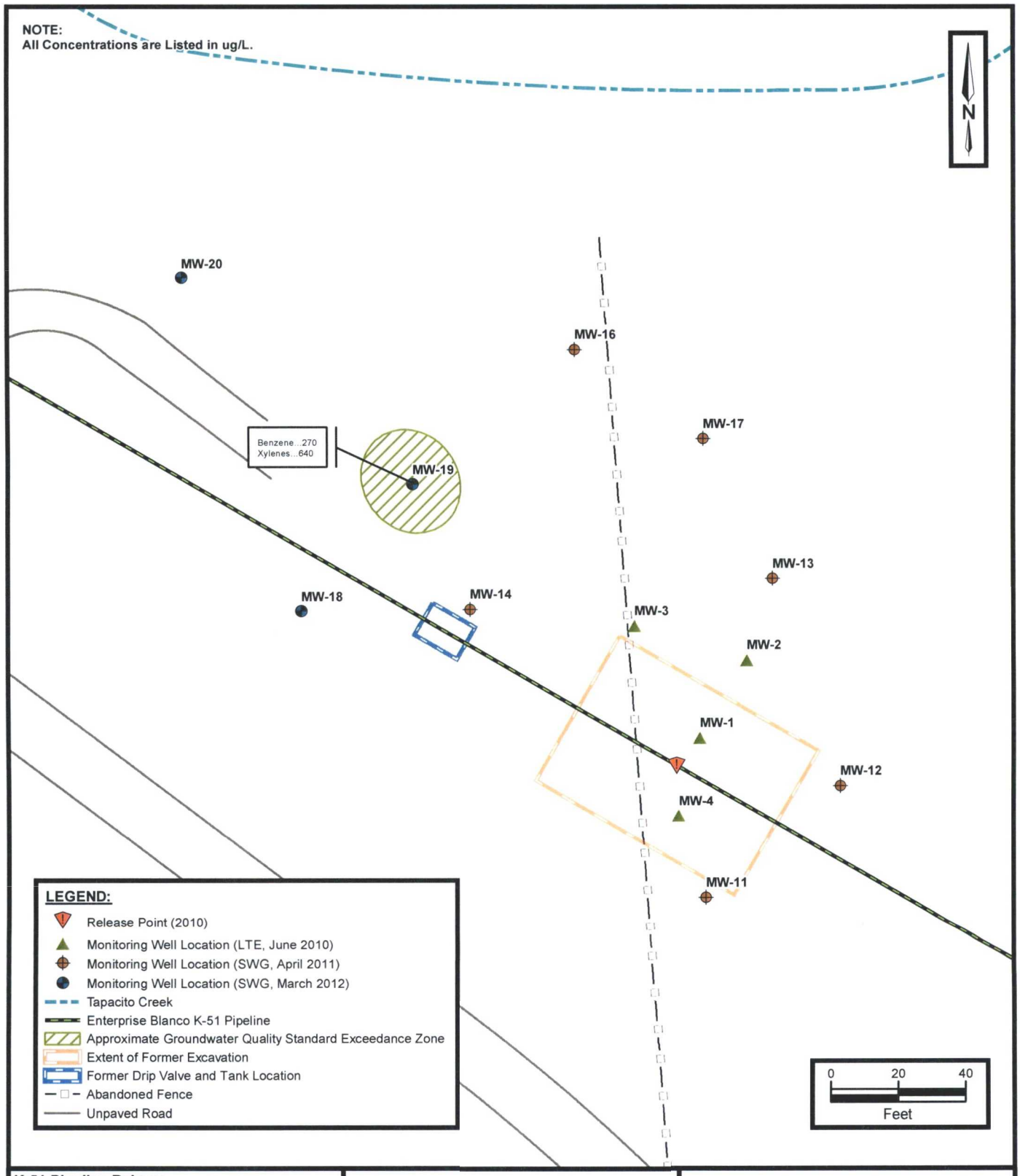

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FIGURE 5A

Grounwater Quality Standard Exceedance Zone Map May 2017

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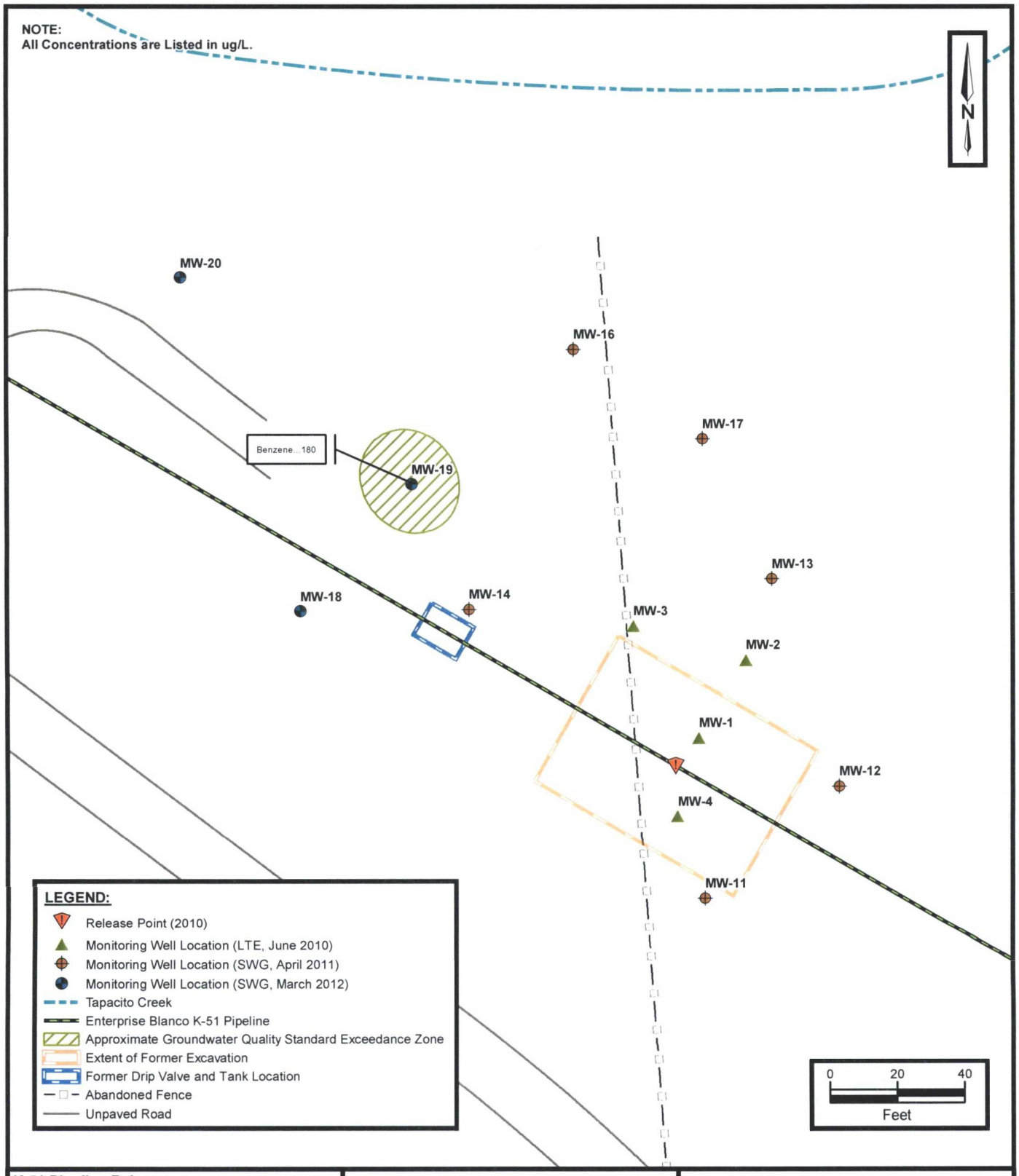

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FIGURE 5B

Grounwater Quality Standard Exceedance Zone Map December 2017

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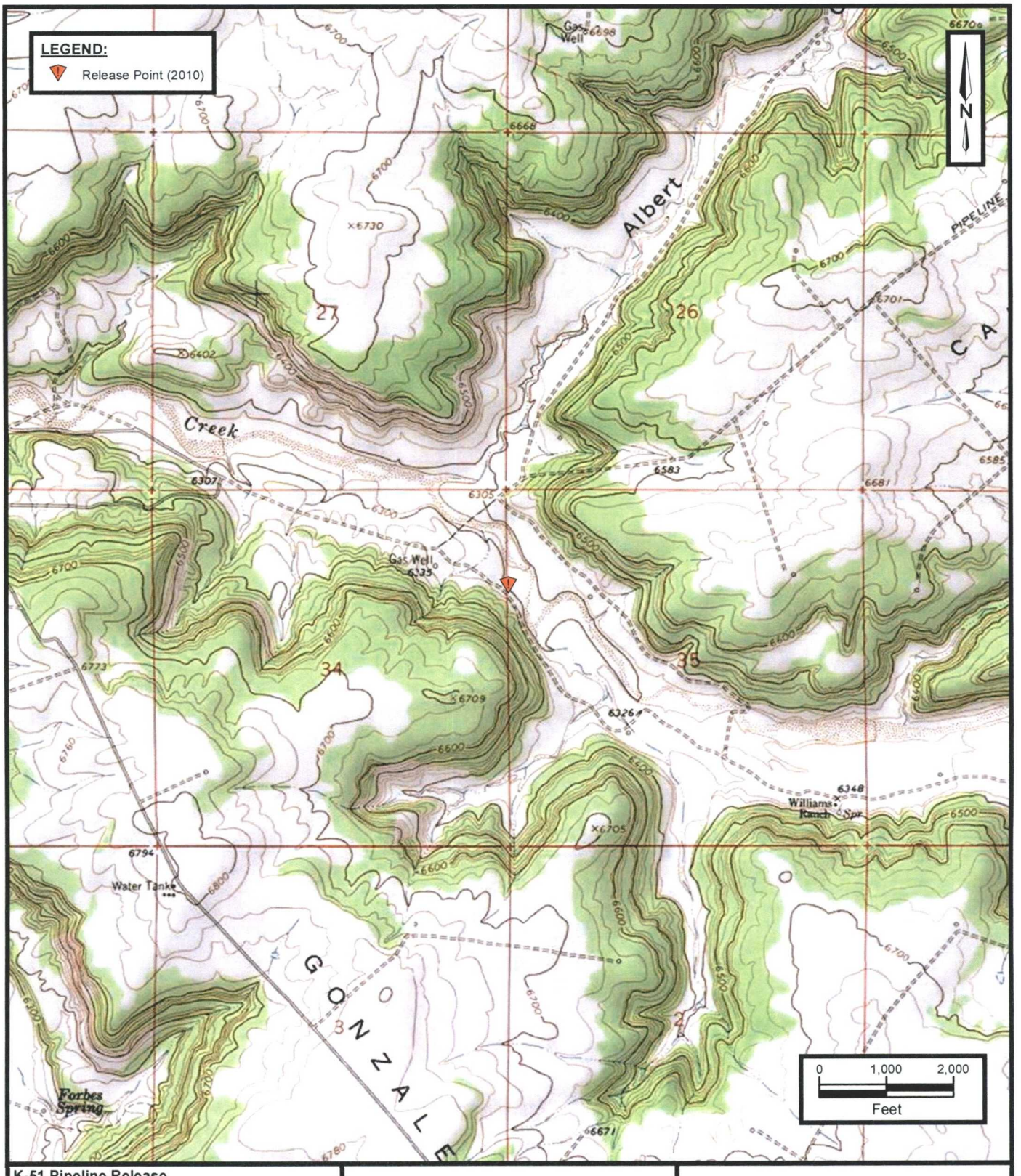

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FIGURE 1

Topographic Map

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APPENDIX B

Tables

TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
SMA Sample - Open Excavation							
Excavation	4.21.10	**7,000**	**13,000**	540	**5,200**	NA	NA
Monitoring Wells							
MW-1	6.21.10	**8,400**	**1,300**	560	**4,200**	NA	NA
	9.24.10	**2,300**	28	200	520	8.4	<1.0
	4.21.11	**430**	<20	120	60	2.1	<1.0
	6.21.11	**820**	370	33	140	5.1	130
	9.22.11	**690**	**1,200**	120	**1,200**	8.9	30
	12.13.11	**260**	250	54	**650**	3.4	<1.0
	3.20.12	**280**	230	94	550	3.5	<1.0
	6.19.12	**300**	<5.0	81	96	1.7	<1.0
	9.20.12*	**45**	3.4	15	23	0.45	<1.0
	12.17.12	**34**	<1.0	11	16	0.19	<1.0
	3.25.13	**41**	<1.0	19	32	0.27	<1.0
	6.27.13	**24**	<1.0	<1.0	36	0.22	<1.0
	10.22.13	**39**	<1.0	24	13	0.23	<1.0
	12.16.13	**10**	<1.0	14	11	0.18	<1.0
	4.18.14	**23**	<1.0	28	86	0.38	1.1
	11.6.14	**32**	<1.0	27	61	NA	NA
	5.29.15	**11**	<1.0	21	55	NA	NA
	12.1.15	5.3	<1.0	4.0	6.2	NA	NA
	5.26.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.08.16	**17**	<1.0	1.6	2.4	NA	NA
	5.30.17	4.1	<1.0	<1.0	<1.5	NA	NA
	12.07.17	2.8	<1.0	2.0	<1.5	NA	NA
MW-2	6.21.10	**200**	53	14	96	NA	NA
	9.24.10	2.3	<1.0	<1.0	<2.0	<0.050	<1.0
	4.21.11	3.3	<1.0	<1.0	<2.0	0.065	<1.0
	6.21.11	2.2	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.21.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.28.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	12.1.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.25.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.08.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA

TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
MW-3	6.21.10	**640**	57	72	**1,000**	NA	NA
	9.24.10	**150**	<1.0	16	28	0.48	<1.0
	4.21.11	**52**	<1.0	17	10	0.25	<1.0
	6.21.11	**62**	14	13	160	0.67	<1.0
	9.22.11	3	<1.0	8.7	<2.0	0.066	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	1.3	<1.0	1.9	<2.0	<0.050	<1.0
	6.19.12	3.1	<1.0	1.4	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.21.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.28.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	12.1.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.08.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.30.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.07.17	<1.0	<1.0	<1.0	<1.5	NA	NA
MW-4	6.21.10	**3,600**	**10,000**	600	**6,600**	NA	NA
	9.24.10	**870**	**870**	260	**1,600**	12	1
	4.21.11	**670**	<20	520	**790**	6.3	<1.0
	6.21.11	**17**	22	36	77	0.64	1.1
	9.22.11	**62**	140	220	**820**	3.8	1.2
	12.13.11	**84**	<20	430	490	2.6	<1.0
	3.20.12	**36**	<20	**1,100**	**1,400**	6.5	<1.0
	6.19.12	**37**	<5.0	250	350	2.2	<1.0
	9.19.12	9.4	1.4	74	97	0.84	<1.0
	12.17.12	<1.0	<1.0	6.2	9.7	0.12	<1.0
	3.25.13	3.2	<1.0	51	55	1.0	<1.0
	6.27.13	3.9	<1.0	61	60	1.3	<1.0
	10.22.13	<1.0	<1.0	12	3.8	0.13	<1.0
	12.13.13	<1.0	<1.0	16	6.2	0.4	<1.0
	4.17.14	<1.0	<1.0	76	14	0.78	<1.0
	11.6.14	<1.0	<1.0	11	2.9	NA	NA
	5.29.15	<1.0	<1.0	24	6.1	NA	NA
	12.1.15	<1.0	<1.0	2.5	2.1	NA	NA
	5.25.16	<1.0	<1.0	7.4	<2.0	NA	NA
	11.08.16	2.4	<1.0	4.8	2.1	NA	NA
	5.26.17	<1.0	<1.0	3.9	<1.5	NA	NA
	12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA

TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
MW-11	4.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.21.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.29.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.30.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.25.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.08.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA
MW-12	4.21.11	1.9	<1.0	<1.0	<2.0	<0.050	<1.0
	6.21.11	4.6	<1.0	<1.0	<2.0	0.063	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	1.7	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.21.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.29.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.30.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.25.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.08.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA

TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
MW-13	4.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.20.12	NS	NS	NS	NS	NS	NS
	12.17.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.21.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.12.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.28.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.30.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.25.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.08.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA
MW-14	4.21.11	**2,800**	<100	280	**720**	8.7	<1.0
	6.21.11	**470**	<10	37	210	1.9	<1.0
	9.22.11	**540**	<10	100	36	1.7	<1.0
	12.13.11	**220**	<10	110	<20	1.0	<1.0
	3.20.12	**660**	<5.0	240	15	2.9	<1.0
	6.19.12	**660**	<5.0	300	100	3.4	<1.0
	9.20.12*	7.3	<1.0	<1.0	<2.0	0.1	<1.0
	12.17.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13	<1.0	<1.0	1.6	<2.0	<0.050	<1.0
	6.27.13	**34**	4.4	30	130	0.56	1.4
	10.22.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.16.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.18.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.28.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.30.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.07.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA

TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
MW-16	4.21.11	4.4	<2.0	<2.0	<4.0	<0.10	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	0.065	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	0.12	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	3.1	<1.0	2.1	14	0.19	<1.0
	3.25.13	<1.0	<1.0	<1.0	<1.0	<0.050	<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.21.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.12.13	1	<1.0	<1.0	<2.0	<0.050	<1.0
	4.17.14	1.4	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	1.2	<1.0	<1.0	<2.0	NA	NA
	5.29.15	3.0	<1.0	<1.0	<2.0	NA	NA
	12.1.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.25.16	2.2	<1.0	<1.0	<2.0	NA	NA
	11.07.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.30.17	2.1	<1.0	<1.0	<1.5	NA	NA
	12.07.17	<1.0	<1.0	<1.0	<1.5	NA	NA
MW-17	4.21.11	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	6.21.11	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.21.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.12.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.28.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	12.1.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.25.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.07.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.07.17	<1.0	<1.0	<1.0	<1.5	NA	NA

TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
MW-18	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.20.12*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	3.25.13	NS	NS	NS	NS	NS	NS
	6.27.13	NS	NS	NS	NS	NS	NS
	10.21.13	NS	NS	NS	NS	NS	NS
	12.12.13	NS	NS	NS	NS	NS	NS
	4.17.14	NS	NS	NS	NS	NS	NS
	11.6.14	NS	NS	NS	NS	NS	NS
	5.29.15	NS	NS	NS	NS	NS	NS
	11.30.15	NS	NS	NS	NS	NS	NS
	5.25.16	NS	NS	NS	NS	NS	NS
	11.07.16	NS	NS	NS	NS	NS	NS
	5.26.17	NS	NS	NS	NS	NS	NS
	12.07.17	NS	NS	NS	NS	NS	NS
MW-19	3.20.12	**250**	56	310	**3,900**	16	5.3
	6.19.12	**NAPL**	**NAPL**	**NAPL**	**NAPL**	NA	NA
	9.19.12	**NAPL**	**NAPL**	**NAPL**	**NAPL**	NA	NA
	12.17.12	**180**	<5.0	5.4	23	2.2	2.6
	3.25.13	**160**	<5.0	17	<10	1.5	1.4
	6.27.13	**390**	<1.0	79	66	2.7	5.9
	10.22.13	**140**	<1.0	<1.0	<2.0	0.51	2.1
	12.16.13	**160**	<1.0	37	12	1.4	4.2
	4.18.14	**230**	<1.0	41	53	2.2	10
	11.6.14	**260**	<1.0	75	42	NA	NA
	5.29.15	**190**	<1.0	7.2	81	NA	NA
	12.1.15	**210**	<1.0	75	23	NA	NA
	5.26.16	**260**	<1.0	86	340	NA	NA
	11.08.16	**270**	<1.0	80	190	NA	NA
	5.30.17	**270**	<2.5	88	**640**	NA	NA
	12.07.17	**180**	<5.0	70	150	NA	NA
MW-20	3.20.12	**35**	<1.0	1.1	3.3	0.14	<1.0
	6.19.12	3.4	<1.0	<1.0	<2.0	<0.050	<1.0
	9.20.12*	4.7	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.22.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.16.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.18.14*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14*	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.29.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	12.1.15	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.26.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	11.07.16	<1.0	<1.0	<1.0	<2.0	NA	NA
	5.30.17	<1.0	<1.0	<1.0	<1.5	NA	NA
	12.07.17	<1.0	<1.0	<1.0	<1.5	NA	NA

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

* = Monitoring well purged/sampled utilizing disposable bailer during this event

µg/L= micrograms per liter

mg/L= milligrams per liter

NA = Not Analyzed

NS = Not Sampled

NE = Not Established

NAPL = Non-aqueous phase liquid

APEX

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-1	4.21.11	ND	11.80	ND	6300.89	6289.09
	6.21.11	ND	12.16	ND		6288.73
	9.22.11	ND	12.92	ND		6287.97
	12.13.11	ND	12.45	ND		6288.44
	3.20.12	ND	12.13	ND		6288.76
	6.19.12	ND	12.76	ND		6288.13
	9.19.12	ND	13.10	ND		6287.79
	12.17.12	ND	12.33	ND		6288.56
	3.15.13	ND	11.88	ND		6289.01
	6.27.13	ND	12.61	ND		6288.28
	10.22.13	ND	11.71	ND		6289.18
	12.12.13	ND	11.35	ND		6289.54
	4.18.14	ND	11.04	ND		6289.85
	11.6.14	ND	11.56	ND		6289.33
	5.28.15	ND	10.86	ND		6290.03
	11.30.15	ND	10.90	ND		6289.99
	5.25.16	ND	10.52	ND		6290.37
	11.07.16	ND	11.42	ND		6289.47
	5.26.17	ND	10.41	ND		6290.48
	12.06.17	ND	10.53	ND		6290.36
MW-2	4.21.11	ND	10.55	ND	6299.82	6289.27
	6.21.11	ND	11.87	ND		6287.95
	9.22.11	ND	11.86	ND		6287.96
	12.13.11	ND	11.38	ND		6288.44
	3.20.12	ND	10.95	ND		6288.87
	6.19.12	ND	11.64	ND		6288.18
	9.19.12	ND	12.10	ND		6287.72
	12.17.12	ND	11.23	ND		6288.59
	3.15.13	ND	10.65	ND		6289.17
	6.27.13	ND	11.44	ND		6288.38
	10.21.13	ND	10.44	ND		6289.38
	12.12.13	ND	10.09	ND		6289.73
	4.17.14	ND	9.73	ND		6290.09
	11.6.14	ND	10.33	ND		6289.49
	5.28.15	ND	9.61	ND		6290.21
	11.30.15	ND	9.67	ND		6290.15
	5.25.16	ND	9.34	ND		6290.48
	11.07.16	ND	10.24	ND		6289.58
	5.26.17	ND	9.23	ND		6290.59
	12.06.17	ND	9.33	ND		6290.49
MW-3	4.21.11	ND	11.30	ND	6300.22	6288.92
	6.21.11	ND	11.64	ND		6288.58
	9.22.11	ND	12.45	ND		6287.77
	12.13.11	ND	11.89	ND		6288.33
	3.20.12	ND	11.60	ND		6288.62
	6.19.12	ND	12.22	ND		6288.00
	9.19.12	ND	12.53	ND		6287.69
	12.17.12	ND	11.75	ND		6288.47
	3.15.13	ND	11.37	ND		6288.85
	6.27.13	ND	12.06	ND		6288.16
	10.21.13	ND	11.12	ND		6289.10
	12.12.13	ND	10.84	ND		6289.38
	4.17.14	ND	10.55	ND		6289.67
	11.6.14	ND	11.02	ND		6289.20
	5.28.15	ND	10.37	ND		6289.85
	11.30.15	ND	10.40	ND		6289.82
	5.25.16	ND	10.10	ND		6290.12
	11.07.16	ND	10.90	ND		6289.32
	5.26.17	ND	10.00	ND		6290.22
	12.06.17	ND	10.05	ND		6290.17

APEX

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-4	4.21.11	ND	11.90	ND	6300.91	6289.01
	6.21.11	ND	12.18	ND		6288.73
	9.22.11	ND	12.90	ND		6288.01
	12.13.11	ND	12.41	ND		6288.50
	3.20.12	ND	12.45	ND		6288.46
	6.19.12	ND	12.72	ND		6288.19
	9.19.12	ND	13.09	ND		6287.82
	12.17.12	ND	12.33	ND		6288.58
	3.15.13	ND	11.85	ND		6289.06
	6.27.13	ND	12.60	ND		6288.31
	10.22.13	ND	11.74	ND		6289.17
	12.12.13	ND	11.37	ND		6289.54
	4.17.14	ND	11.05	ND		6289.86
	11.6.14	ND	11.58	ND		6289.33
	5.28.15	ND	10.91	ND		6290.00
	11.30.15	ND	10.94	ND		6289.97
	5.25.16	ND	10.59	ND		6290.32
	11.07.16	ND	11.43	ND		6289.48
	5.26.17	ND	10.47	ND		6290.44
	12.06.17	ND	10.60	ND		6290.31
MW-11	4.21.11	ND	11.98	ND	6301.19	6289.21
	6.21.11	ND	12.40	ND		6288.79
	9.22.11	ND	13.07	ND		6288.12
	12.13.11	ND	12.55	ND		6288.64
	3.20.12	ND	12.26	ND		6288.93
	6.19.12	ND	12.93	ND		6288.26
	9.19.12	ND	13.27	ND		6287.92
	12.17.12	ND	12.51	ND		6288.68
	3.15.13	ND	12.05	ND		6289.14
	6.27.13	ND	12.82	ND		6288.37
	10.21.13	ND	11.94	ND		6289.25
	12.12.13	ND	11.61	ND		6289.58
	4.17.14	ND	11.25	ND		6289.94
	11.6.14	ND	11.80	ND		6289.39
	5.28.15	ND	11.12	ND		6290.07
	11.30.15	ND	11.18	ND		6290.01
	5.25.16	ND	10.79	ND		6290.40
	11.07.16	ND	11.66	ND		6289.53
	5.26.17	ND	10.66	ND		6290.53
	12.06.17	ND	10.82	ND		6290.37
MW-12	4.21.11	ND	8.96	ND	6299.08	6290.12
	6.21.11	ND	9.42	ND		6289.66
	9.22.11	ND	10.82	ND		6288.26
	12.13.11	ND	10.13	ND		6288.95
	3.20.12	ND	9.41	ND		6289.67
	6.19.12	ND	10.09	ND		6288.99
	9.19.12	ND	11.03	ND		6288.05
	12.17.12	ND	10.21	ND		6288.87
	3.15.13	ND	9.26	ND		6289.82
	6.27.13	ND	9.99	ND		6289.09
	10.21.13	ND	9.09	ND		6289.99
	12.12.13	ND	8.78	ND		6290.30
	4.17.14	ND	8.44	ND		6290.64
	11.6.14	ND	9.05	ND		6290.03
	5.28.15	ND	8.34	ND		6290.74
	11.30.15	ND	8.44	ND		6290.64
	5.25.16	ND	8.11	ND		6290.97
	11.07.16	ND	8.87	ND		6290.21
	5.26.17	ND	8.01	ND		6291.07
	12.06.17	ND	8.12	ND		6290.96

APEX

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-13	4.21.11	ND	9.07	ND	6298.27	6289.20
	6.21.11	ND	9.51	ND		6288.76
	9.22.11	ND	10.15	ND		6288.12
	12.13.11	ND	9.59	ND		6288.68
	3.20.12	ND	9.35	ND		6288.92
	6.19.12	ND	10.09	ND		6288.18
	9.19.12	ND	10.29	ND		6287.98
	12.17.12	ND	9.47	ND		6288.80
	3.15.13	ND	9.11	ND		6289.16
	6.27.13	ND	9.94	ND		6288.33
	10.21.13	ND	8.91	ND		6289.36
	12.12.13	ND	8.57	ND		6289.70
	4.17.14	ND	8.39	ND		6289.88
	11.6.14	ND	8.83	ND		6289.44
	5.28.15	ND	8.32	ND		6289.95
	11.30.15	ND	8.21	ND		6290.06
	5.25.16	ND	8.01	ND		6290.26
	11.07.16	ND	8.67	ND		6289.60
	5.26.17	ND	7.83	ND		6290.44
	12.06.17	ND	7.90	ND		6290.37
MW-14	4.21.11	ND	12.54	ND	6301.20	6288.66
	6.21.11	ND	12.88	ND		6288.32
	9.22.11	ND	13.53	ND		6287.67
	12.13.11	ND	13.11	ND		6288.09
	3.20.12	ND	12.80	ND		6288.40
	6.19.12	ND	13.42	ND		6287.78
	9.19.12	ND	13.70	ND		6287.50
	12.17.12	ND	12.93	ND		6288.27
	3.15.13	ND	12.55	ND		6288.65
	6.27.13	ND	13.26	ND		6287.94
	10.22.13	ND	12.39	ND		6288.81
	12.12.13	ND	12.06	ND		6289.14
	4.18.14	ND	11.79	ND		6289.41
	11.6.14	ND	12.23	ND		6288.97
	5.28.15	ND	11.67	ND		6289.53
	11.30.15	ND	11.62	ND		6289.58
	5.25.16	ND	11.35	ND		6289.85
	11.07.16	ND	12.09	ND		6289.11
	5.26.17	ND	11.24	ND		6289.96
	12.06.17	ND	11.27	ND		6289.93
MW-16	4.21.11	ND	12.06	ND	6299.89	6287.83
	6.21.11	ND	12.26	ND		6287.63
	9.22.11	ND	12.57	ND		6287.32
	12.13.11	ND	12.28	ND		6287.61
	3.20.12	ND	12.24	ND		6287.65
	6.19.12	ND	12.71	ND		6287.18
	9.19.12	ND	12.80	ND		6287.09
	12.17.12	ND	11.90	ND		6287.99
	3.15.13	ND	11.80	ND		6288.09
	6.27.13	ND	12.37	ND		6287.52
	10.21.13	ND	11.32	ND		6288.57
	12.12.13	ND	10.92	ND		6288.97
	4.17.14	ND	10.76	ND		6289.13
	11.6.14	ND	10.99	ND		6288.90
	5.28.15	ND	10.56	ND		6289.33
	11.30.15	ND	10.39	ND		6289.50
	5.25.16	ND	10.10	ND		6289.79
	11.07.16	ND	10.86	ND		6289.03
	5.26.17	ND	10.02	ND		6289.87
	12.06.17	ND	10.01	ND		6289.88

APEX

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-17	4.21.11	ND	9.90	ND	6298.57	6288.67
	6.21.11	ND	9.56	ND		6289.01
	9.22.11	ND	10.83	ND		6287.74
	12.13.11	ND	10.31	ND		6288.26
	3.20.12	ND	10.12	ND		6288.45
	6.19.12	ND	10.81	ND		6287.76
	9.19.12	ND	10.95	ND		6287.62
	12.17.12	ND	10.13	ND		6288.44
	3.15.13	ND	9.85	ND		6288.72
	6.27.13	ND	10.62	ND		6287.95
	10.21.13	ND	9.61	ND		6288.96
	12.12.13	ND	9.28	ND		6289.29
	4.17.14	ND	9.13	ND		6289.44
	11.6.14	ND	9.47	ND		6289.10
	5.28.15	ND	9.00	ND		6289.57
	11.30.15	ND	8.87	ND		6289.70
	5.25.16	ND	8.65	ND		6289.92
	11.07.16	ND	9.32	ND		6289.25
	5.26.17	ND	8.56	ND		6290.01
	12.06.17	ND	8.52	ND		6290.05
MW-18	3.20.12	ND	16.60	ND	6304.77	6288.17
	6.19.12	ND	17.42	ND		6287.35
	9.19.12	ND	17.45	ND		6287.32
	12.17.12	ND	16.73	ND		6288.04
	3.15.13	Blockage	Blockage	Blockage		Blockage
	6.27.13	Blockage	Blockage	Blockage		Blockage
	10.22.13	Blockage	Blockage	Blockage		Blockage
	12.12.13	Blockage	Blockage	Blockage		Blockage
	4.17.14	Blockage	Blockage	Blockage		Blockage
	11.6.14	Blockage	Blockage	Blockage		Blockage
	5.28.15	Blockage	Blockage	Blockage		Blockage
	11.30.15	Blockage	Blockage	Blockage		Blockage
	5.25.16	Blockage	Blockage	Blockage		Blockage
	11.07.16	Blockage	Blockage	Blockage		Blockage
	5.26.17	Blockage	Blockage	Blockage		Blockage
	12.06.17	Blockage	Blockage	Blockage		Blockage
MW-19	3.20.12	ND	15.69	ND	6303.80	6288.11
	6.19.12	16.25	16.32	0.07**		6287.52
	9.19.12	16.47	16.49	0.02**		6287.32
	12.17.12	ND	15.91	ND		6287.89
	3.15.13	ND	15.38	ND		6288.42
	6.27.13	ND	16.19	ND		6287.61
	10.22.13	ND	15.13	ND		6288.67
	12.12.13	ND	14.78	ND		6289.02
	4.18.14	ND	14.68	ND		6289.12
	11.6.14	ND	14.99	ND		6288.81
	5.28.15	ND	14.60	ND		6289.20
	11.30.15	ND	14.38	ND		6289.42
	5.25.16	ND	14.28	ND		6289.52
	11.07.16	ND	14.83	ND		6288.97
	5.26.17	ND	14.20	ND		6289.60
	12.06.17	ND	14.08	ND		6289.72

APEX

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-20	3.20.12	ND	25.82	ND	6312.59	6286.77
	6.19.12	ND	26.30	ND		6286.29
	9.19.12	ND	26.31	ND		6286.28
	12.17.12	ND	25.42	ND		6287.17
	3.15.13	ND	25.38	ND		6287.21
	6.27.13	ND	26.11	ND		6286.48
	10.22.13	ND	24.98	ND		6287.61
	12.12.13	ND	24.57	ND		6288.02
	4.17.14	ND	24.66	ND		6287.93
	11.6.14	ND	24.81	ND		6287.78
	5.28.15	ND	24.80	ND		6287.79
	11.30.15	ND	24.15	ND		6288.44
	5.25.16	ND	24.28	ND		6288.31
	11.07.16	ND	24.48	ND		6288.11
	5.26.17	ND	24.37	ND		6288.22
	12.06.17	ND	23.95	ND		6288.64

BTOC - below top of casing

AMSL - above mean sea level (North American Vertical Datum 1988)

TOC - top of casing

* - corrected for presence of phase-sepated hydrocarbon using a site-specific density correction factor of 0.63

** - No visual verification. May not be hydrocarbon.

ND - Not Detected

APPENDIX C

Laboratory Data Sheets & 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

June 02, 2017

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

RE: Lateral K-51 OrderNo.: 1705E49

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 7 sample(s) on 5/27/2017 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1705E49**
Date Reported: **6/2/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN
Project: Lateral K-51
Lab ID: 1705E49-001
Matrix: AQUEOUS
Client Sample ID: MW-14
Collection Date: 5/26/2017 9:50:00 AM
Received Date: 5/27/2017 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/31/2017 7:19:25 PM	SL43178
Toluene	ND	1.0		µg/L	1	5/31/2017 7:19:25 PM	SL43178
Ethylbenzene	ND	1.0		µg/L	1	5/31/2017 7:19:25 PM	SL43178
Xylenes, Total	ND	1.5		µg/L	1	5/31/2017 7:19:25 PM	SL43178
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%Rec	1	5/31/2017 7:19:25 PM	SL43178
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	5/31/2017 7:19:25 PM	SL43178
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	5/31/2017 7:19:25 PM	SL43178
Surr: Toluene-d8	104	70-130		%Rec	1	5/31/2017 7:19:25 PM	SL43178

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
R	RPD outside accepted recovery limits	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: MW-11
Project: Lateral K-51
Collection Date: 5/26/2017 10:45:00 AM
Lab ID: 1705E49-002
Matrix: AQUEOUS
Received Date: 5/27/2017 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/31/2017 8:45:00 PM	SL43178
Toluene	ND	1.0		µg/L	1	5/31/2017 8:45:00 PM	SL43178
Ethylbenzene	ND	1.0		µg/L	1	5/31/2017 8:45:00 PM	SL43178
Xylenes, Total	ND	1.5		µg/L	1	5/31/2017 8:45:00 PM	SL43178
Surr: 1,2-Dichloroethane-d4	94.7	70-130		%Rec	1	5/31/2017 8:45:00 PM	SL43178
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	5/31/2017 8:45:00 PM	SL43178
Surr: Dibromofluoromethane	96.6	70-130		%Rec	1	5/31/2017 8:45:00 PM	SL43178
Surr: Toluene-d8	102	70-130		%Rec	1	5/31/2017 8:45:00 PM	SL43178

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
R	RPD outside accepted recovery limits	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 K-51
Lab ID: 1705E49-003
Matrix: AQUEOUS
Client Sample ID: MW-4
Collection Date: 5/26/2017 11:30:00 AM
Received Date: 5/27/2017 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/31/2017 10:38:59 PM	SL43178
Toluene	ND	1.0		µg/L	1	5/31/2017 10:38:59 PM	SL43178
Ethylbenzene	3.9	1.0		µg/L	1	5/31/2017 10:38:59 PM	SL43178
Xylenes, Total	ND	1.5		µg/L	1	5/31/2017 10:38:59 PM	SL43178
Surr: 1,2-Dichloroethane-d4	96.6	70-130		%Rec	1	5/31/2017 10:38:59 PM	SL43178
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	5/31/2017 10:38:59 PM	SL43178
Surr: Dibromofluoromethane	95.2	70-130		%Rec	1	5/31/2017 10:38:59 PM	SL43178
Surr: Toluene-d8	102	70-130		%Rec	1	5/31/2017 10:38:59 PM	SL43178

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
R	RPD outside accepted recovery limits	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 K-51
Lab ID: 1705E49-004
Matrix: AQUEOUS
Client Sample ID: MW-12
Collection Date: 5/26/2017 12:20:00 PM
Received Date: 5/27/2017 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/31/2017 11:07:28 PM	SL43178
Toluene	ND	1.0		µg/L	1	5/31/2017 11:07:28 PM	SL43178
Ethylbenzene	ND	1.0		µg/L	1	5/31/2017 11:07:28 PM	SL43178
Xylenes, Total	ND	1.5		µg/L	1	5/31/2017 11:07:28 PM	SL43178
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%Rec	1	5/31/2017 11:07:28 PM	SL43178
Surr: 4-Bromofluorobenzene	95.6	70-130		%Rec	1	5/31/2017 11:07:28 PM	SL43178
Surr: Dibromofluoromethane	94.3	70-130		%Rec	1	5/31/2017 11:07:28 PM	SL43178
Surr: Toluene-d8	99.2	70-130		%Rec	1	5/31/2017 11:07:28 PM	SL43178

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
R	RPD outside accepted recovery limits	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 K-51
Lab ID: 1705E49-005
Matrix: AQUEOUS
Client Sample ID: MW-2
Collection Date: 5/26/2017 1:05:00 PM
Received Date: 5/27/2017 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	5/31/2017 11:35:56 PM	SL43178
Toluene	ND	1.0		µg/L	1	5/31/2017 11:35:56 PM	SL43178
Ethylbenzene	ND	1.0		µg/L	1	5/31/2017 11:35:56 PM	SL43178
Xylenes, Total	ND	1.5		µg/L	1	5/31/2017 11:35:56 PM	SL43178
Surr: 1,2-Dichloroethane-d4	97.3	70-130		%Rec	1	5/31/2017 11:35:56 PM	SL43178
Surr: 4-Bromofluorobenzene	96.1	70-130		%Rec	1	5/31/2017 11:35:56 PM	SL43178
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	5/31/2017 11:35:56 PM	SL43178
Surr: Toluene-d8	99.6	70-130		%Rec	1	5/31/2017 11:35:56 PM	SL43178

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
R	RPD outside accepted recovery limits	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: MW-13
Project: Lateral K-51
Collection Date: 5/26/2017 1:50:00 PM
Lab ID: 1705E49-006
Matrix: AQUEOUS
Received Date: 5/27/2017 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	6/1/2017 12:04:33 AM	SL43178
Toluene	ND	1.0		µg/L	1	6/1/2017 12:04:33 AM	SL43178
Ethylbenzene	ND	1.0		µg/L	1	6/1/2017 12:04:33 AM	SL43178
Xylenes, Total	ND	1.5		µg/L	1	6/1/2017 12:04:33 AM	SL43178
Surr: 1,2-Dichloroethane-d4	93.9	70-130		%Rec	1	6/1/2017 12:04:33 AM	SL43178
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	6/1/2017 12:04:33 AM	SL43178
Surr: Dibromofluoromethane	94.3	70-130		%Rec	1	6/1/2017 12:04:33 AM	SL43178
Surr: Toluene-d8	101	70-130		%Rec	1	6/1/2017 12:04:33 AM	SL43178

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
R	RPD outside accepted recovery limits	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 K-51
Lab ID: 1705E49-007
Matrix: AQUEOUS
Client Sample ID: MW-17
Collection Date: 5/26/2017 2:35:00 PM
Received Date: 5/27/2017 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	6/1/2017 12:33:15 AM	SL43178
Toluene	ND	1.0		µg/L	1	6/1/2017 12:33:15 AM	SL43178
Ethylbenzene	ND	1.0		µg/L	1	6/1/2017 12:33:15 AM	SL43178
Xylenes, Total	ND	1.5		µg/L	1	6/1/2017 12:33:15 AM	SL43178
Surr: 1,2-Dichloroethane-d4	97.0	70-130		%Rec	1	6/1/2017 12:33:15 AM	SL43178
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	6/1/2017 12:33:15 AM	SL43178
Surr: Dibromofluoromethane	96.3	70-130		%Rec	1	6/1/2017 12:33:15 AM	SL43178
Surr: Toluene-d8	100	70-130		%Rec	1	6/1/2017 12:33:15 AM	SL43178

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
R	RPD outside accepted recovery limits	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#: **1705E49**

02-Jun-17

Client: APEX TITAN
Project: Lateral K-51

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL43178**	RunNo: **43178**
Prep Date:	Analysis Date: **5/31/2017**	SeqNo: **1359057** 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	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.7	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL43178**	RunNo: **43178**
Prep Date:	Analysis Date: **5/31/2017**	SeqNo: **1359058** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.7	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.4	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.1	70	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Sample ID **1705e49-001a ms**	SampType: **MS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW-14**	Batch ID: **SL43178**	RunNo: **43178**
Prep Date:	Analysis Date: **5/31/2017**	SeqNo: **1359068** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	106	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.0	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.9	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID **1705e49-001a msd**	SampType: **MSD**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW-14**	Batch ID: **SL43178**	RunNo: **43178**
Prep Date:	Analysis Date: **5/31/2017**	SeqNo: **1359069** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130	1.09	20	
Toluene	20	1.0	20.00	0	97.6	70	130	6.25	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
R	RPD outside accepted recovery limits	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#: **1705E49**

02-Jun-17

Client: APEX TITAN

Project: Lateral K-51

Sample ID **1705e49-001a msd**	SampType: **MSD**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW-14**	Batch ID: **SL43178**	RunNo: **43178**
Prep Date:	Analysis Date: **5/31/2017**	SeqNo: **1359069** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.6		10.00		95.8	70	130	0	0	
Surr: Dibromofluoromethane	9.7		10.00		96.9	70	130	0	0	
Surr: Toluene-d8	9.9		10.00		99.2	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
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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: 1705E49 RcptNo: 1

Received By: Andy Freeman 5/27/2017 10:00:00 AM

Completed By: Anne Thorne 5/30/2017 10:15:55 AM

Reviewed By: ENM 05/30/17

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° 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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Not Present			

CHAIN OF CUSTODY RECORD

APEX

Office Location: Aztec, NM

Project Manager: K. Summers

Laboratory: Hall

Address: ABQ, NM

Contact: A. Freeman

Phone:

PO/SO #: 725040112227

Lab use only
Due Date:

Temp. of coolers when received (C°): 2.3°C

1	2	3	4	5

Page 1 of 1

Sampler's Name: Ranee Deechilly

Sampler's Signature: Ranee Deechilly

Proj. No.: 725040112227

Project Name: Lateral K-51

ANALYSIS REQUESTED: 8021 BTEX

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)
W	5/26/17	950			MW-14			3					X 1705E49-001
		1045			MW-11								-002
		1130			MW-4								-003
		1220			MW-12								-004
		1305			MW-2								-005
		1350			MW-13								-006
		1435			MW-17								-007
													~~-008~~
													At 05/30/17

NFS

Turn around time: X Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Ranee Deechilly	5/26/17	1725		5/27/17	10:00
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

NOTES:

Bill to Apex
Corporate rate

2.3°C

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

June 02, 2017

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

RE: Lateral K 51 OrderNo.: 1705F01

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 5 sample(s) on 5/31/2017 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN
Project: Lateral K 51
Lab ID: 1705F01-001 **Matrix:** AQUEOUS

Client Sample ID: MW-20
Collection Date: 5/30/2017 9:40:00 AM
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	6/1/2017 7:13:00 PM	R43196
Toluene	ND	1.0		µg/L	1	6/1/2017 7:13:00 PM	R43196
Ethylbenzene	ND	1.0		µg/L	1	6/1/2017 7:13:00 PM	R43196
Xylenes, Total	ND	1.5		µg/L	1	6/1/2017 7:13:00 PM	R43196
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	6/1/2017 7:13:00 PM	R43196
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	6/1/2017 7:13:00 PM	R43196
Surr: Dibromofluoromethane	106	70-130		%Rec	1	6/1/2017 7:13:00 PM	R43196
Surr: Toluene-d8	102	70-130		%Rec	1	6/1/2017 7:13:00 PM	R43196

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
R	RPD outside accepted recovery limits	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 K 51
Lab ID: 1705F01-002
Matrix: AQUEOUS
Client Sample ID: MW-16
Collection Date: 5/30/2017 10:35:00 AM
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	2.1	1.0		µg/L	1	6/1/2017 7:36:00 PM	R43196
Toluene	ND	1.0		µg/L	1	6/1/2017 7:36:00 PM	R43196
Ethylbenzene	ND	1.0		µg/L	1	6/1/2017 7:36:00 PM	R43196
Xylenes, Total	ND	1.5		µg/L	1	6/1/2017 7:36:00 PM	R43196
Surr: 1,2-Dichloroethane-d4	98.0	70-130		%Rec	1	6/1/2017 7:36:00 PM	R43196
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	6/1/2017 7:36:00 PM	R43196
Surr: Dibromofluoromethane	105	70-130		%Rec	1	6/1/2017 7:36:00 PM	R43196
Surr: Toluene-d8	101	70-130		%Rec	1	6/1/2017 7:36:00 PM	R43196

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
R	RPD outside accepted recovery limits	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: MW-3
Project: Lateral K 51
Collection Date: 5/30/2017 11:25:00 AM
Lab ID: 1705F01-003
Matrix: AQUEOUS
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	6/1/2017 8:00:00 PM	R43196
Toluene	ND	1.0		µg/L	1	6/1/2017 8:00:00 PM	R43196
Ethylbenzene	ND	1.0		µg/L	1	6/1/2017 8:00:00 PM	R43196
Xylenes, Total	ND	1.5		µg/L	1	6/1/2017 8:00:00 PM	R43196
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	1	6/1/2017 8:00:00 PM	R43196
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	6/1/2017 8:00:00 PM	R43196
Surr: Dibromofluoromethane	105	70-130		%Rec	1	6/1/2017 8:00:00 PM	R43196
Surr: Toluene-d8	102	70-130		%Rec	1	6/1/2017 8:00:00 PM	R43196

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
R	RPD outside accepted recovery limits	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 K 51
Lab ID: 1705F01-004
Matrix: AQUEOUS
Client Sample ID: MW-1
Collection Date: 5/30/2017 12:10:00 PM
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	4.1	1.0		µg/L	1	6/1/2017 8:24:00 PM	R43196
Toluene	ND	1.0		µg/L	1	6/1/2017 8:24:00 PM	R43196
Ethylbenzene	ND	1.0		µg/L	1	6/1/2017 8:24:00 PM	R43196
Xylenes, Total	ND	1.5		µg/L	1	6/1/2017 8:24:00 PM	R43196
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%Rec	1	6/1/2017 8:24:00 PM	R43196
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	6/1/2017 8:24:00 PM	R43196
Surr: Dibromofluoromethane	105	70-130		%Rec	1	6/1/2017 8:24:00 PM	R43196
Surr: Toluene-d8	102	70-130		%Rec	1	6/1/2017 8:24:00 PM	R43196

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
R	RPD outside accepted recovery limits	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 K 51
Lab ID: 1705F01-005
Matrix: AQUEOUS
Client Sample ID: MW-19
Collection Date: 5/30/2017 12:55:00 PM
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	270	2.5		µg/L	5	6/1/2017 8:47:00 PM	R43196
Toluene	ND	2.5		µg/L	5	6/1/2017 8:47:00 PM	R43196
Ethylbenzene	88	2.5		µg/L	5	6/1/2017 8:47:00 PM	R43196
Xylenes, Total	640	5.0		µg/L	5	6/1/2017 8:47:00 PM	R43196
Surr: 1,2-Dichloroethane-d4	94.8	70-130		%Rec	5	6/1/2017 8:47:00 PM	R43196
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	5	6/1/2017 8:47:00 PM	R43196
Surr: Dibromofluoromethane	102	70-130		%Rec	5	6/1/2017 8:47:00 PM	R43196
Surr: Toluene-d8	104	70-130		%Rec	5	6/1/2017 8:47:00 PM	R43196

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
R	RPD outside accepted recovery limits	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#: **1705F01**

02-Jun-17

Client: APEX TITAN

Project: Lateral K 51

Sample ID **100ng lcs**	SampType: **LCS**			TestCode: **EPA Method 8260: Volatiles Short List**					
Client ID: **LCSW**	Batch ID: **R43196**			RunNo: **43196**					
Prep Date:	Analysis Date: **6/1/2017**			SeqNo: **1360075**		Units: **µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.0	70	130			
Toluene	20	1.0	20.00	0	99.6	70	130			
Ethylbenzene	20	1.0	20.00	0	101	70	130			
Xylenes, Total	60	1.5	60.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID **rb**	SampType: **MBLK**			TestCode: **EPA Method 8260: Volatiles Short List**					
Client ID: **PBW**	Batch ID: **R43196**			RunNo: **43196**					
Prep Date:	Analysis Date: **6/1/2017**			SeqNo: **1360076**		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	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		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
R	RPD outside accepted recovery limits	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: 1705F01 | RcptNo: 1

Received By: Anne Thorne 5/31/2017 7:15:00 AM

Completed By: Sophia Campuzano 5/31/2017 9:40:52 AM

Reviewed By: 5/31/17

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° 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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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 ☐	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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

CHAIN OF CUSTODY RECORD

APEX

Office Location: Aztec, NM

Project Manager: K. Summers

Laboratory: Hall

Address: ABQ, NM

Contact: A. Freeman

Phone:

PO/SO #: 725040112227

Sampler's Name: Ranee Deechilly

Sampler's Signature: Ranee Deechilly

Proj. No.: 725040112227

Project Name: Lateral K-51

No/Type of Containers

ANALYSIS REQUESTED

BTEX 8021

Lab use only
Due Date:

Temp. of coolers when received (C°): 1.7

1 2 3 4 5

Page 1 of

1705F01

Lab Sample ID (Lab Use Only)

Matrix	Date	Time	Composite	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt	250 ml	Glass Jar	P/O	Lab Sample ID
W	5/30/17	940			MW-20			3					-001
		1035			MW-16								-002
		1125			MW-3								-003
		1210			MW-1								-004
		1255			MW-19								-005

NFS

Turn around time: X Normal ❑ 25% Rush ❑ 50% Rush ❑ 100% Rush

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Ranee Deechilly	5/30/17	1615		05/31/17	0715
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

NOTES:

Bill to Apex
Corporate

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

Apex TITAN, Inc. • 606 S. Rio Grande, Suite A, Downstairs • Aztec, New Mexico 87410 • Office: 505-334-5200 • Fax: 505-334-5204

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

December 12, 2017

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

RE: Lateral K-51 (2010) OrderNo.: 1712488

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 12 sample(s) on 12/8/2017 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712488**
Date Reported: **12/12/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN
Client Sample ID: MW-14
Project: Lateral K-51 (2010)
Collection Date: 12/6/2017 10:00:00 AM
Lab ID: 1712488-001
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 10:20:35 AM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 10:20:35 AM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 10:20:35 AM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 10:20:35 AM	R47688
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/11/2017 10:20:35 AM	R47688
Surr: Toluene-d8	102	70-130		%Rec	1	12/11/2017 10:20:35 AM	R47688

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 K-51 (2010)
Lab ID: 1712488-002
Matrix: AQUEOUS
Client Sample ID: MW-11
Collection Date: 12/6/2017 11:05:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 11:29:35 AM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 11:29:35 AM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 11:29:35 AM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 11:29:35 AM	R47688
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	12/11/2017 11:29:35 AM	R47688
Surr: Toluene-d8	99.0	70-130		%Rec	1	12/11/2017 11:29:35 AM	R47688

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 K-51 (2010)
Lab ID: 1712488-003
Matrix: AQUEOUS
Client Sample ID: MW-4
Collection Date: 12/6/2017 12:05:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 11:52:33 AM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 11:52:33 AM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 11:52:33 AM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 11:52:33 AM	R47688
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/11/2017 11:52:33 AM	R47688
Surr: Toluene-d8	97.9	70-130		%Rec	1	12/11/2017 11:52:33 AM	R47688

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: MW-12
Project: Lateral K-51 (2010)
Collection Date: 12/6/2017 12:55:00 PM
Lab ID: 1712488-004
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 12:15:35 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 12:15:35 PM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 12:15:35 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 12:15:35 PM	R47688
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	12/11/2017 12:15:35 PM	R47688
Surr: Toluene-d8	99.0	70-130		%Rec	1	12/11/2017 12:15:35 PM	R47688

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: MW-2
Project: Lateral K-51 (2010)
Collection Date: 12/6/2017 1:55:00 PM
Lab ID: 1712488-005
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 12:38:35 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 12:38:35 PM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 12:38:35 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 12:38:35 PM	R47688
Surr: 4-Bromofluorobenzene	95.8	70-130		%Rec	1	12/11/2017 12:38:35 PM	R47688
Surr: Toluene-d8	97.9	70-130		%Rec	1	12/11/2017 12:38:35 PM	R47688

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: MW-13
Project: Lateral K-51 (2010)
Collection Date: 12/6/2017 2:50:00 PM
Lab ID: 1712488-006
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 1:01:38 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 1:01:38 PM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 1:01:38 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 1:01:38 PM	R47688
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	12/11/2017 1:01:38 PM	R47688
Surr: Toluene-d8	103	70-130		%Rec	1	12/11/2017 1:01:38 PM	R47688

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: MW-20
Project: Lateral K-51 (2010)
Collection Date: 12/7/2017 9:50:00 AM
Lab ID: 1712488-007
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 1:24:35 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 1:24:35 PM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 1:24:35 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 1:24:35 PM	R47688
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	12/11/2017 1:24:35 PM	R47688
Surr: Toluene-d8	98.8	70-130		%Rec	1	12/11/2017 1:24:35 PM	R47688

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: MW-16
Project: Lateral K-51 (2010)
Collection Date: 12/7/2017 10:55:00 AM
Lab ID: 1712488-008
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 1:47:37 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 1:47:37 PM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 1:47:37 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 1:47:37 PM	R47688
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/11/2017 1:47:37 PM	R47688
Surr: Toluene-d8	100	70-130		%Rec	1	12/11/2017 1:47:37 PM	R47688

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: MW-17
Project: Lateral K-51 (2010)
Collection Date: 12/7/2017 11:50:00 AM
Lab ID: 1712488-009
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 2:10:32 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 2:10:32 PM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 2:10:32 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 2:10:32 PM	R47688
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	12/11/2017 2:10:32 PM	R47688
Surr: Toluene-d8	99.1	70-130		%Rec	1	12/11/2017 2:10:32 PM	R47688

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: MW-3
Project: Lateral K-51 (2010)
Collection Date: 12/7/2017 12:50:00 PM
Lab ID: 1712488-010
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	12/11/2017 2:33:37 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 2:33:37 PM	R47688
Ethylbenzene	ND	1.0		µg/L	1	12/11/2017 2:33:37 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 2:33:37 PM	R47688
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	12/11/2017 2:33:37 PM	R47688
Surr: Toluene-d8	99.6	70-130		%Rec	1	12/11/2017 2:33:37 PM	R47688

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 K-51 (2010)
Lab ID: 1712488-011
Matrix: AQUEOUS
Client Sample ID: MW-1
Collection Date: 12/7/2017 1:50:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	2.8	1.0		µg/L	1	12/11/2017 2:56:42 PM	R47688
Toluene	ND	1.0		µg/L	1	12/11/2017 2:56:42 PM	R47688
Ethylbenzene	2.0	1.0		µg/L	1	12/11/2017 2:56:42 PM	R47688
Xylenes, Total	ND	1.5		µg/L	1	12/11/2017 2:56:42 PM	R47688
Surr: 4-Bromofluorobenzene	94.7	70-130		%Rec	1	12/11/2017 2:56:42 PM	R47688
Surr: Toluene-d8	101	70-130		%Rec	1	12/11/2017 2:56:42 PM	R47688

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: MW-19
Project: Lateral K-51 (2010)
Collection Date: 12/7/2017 2:50:00 PM
Lab ID: 1712488-012
Matrix: AQUEOUS
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	180	5.0	D	µg/L	5	12/11/2017 3:19:42 PM	R47688
Toluene	ND	5.0	D	µg/L	5	12/11/2017 3:19:42 PM	R47688
Ethylbenzene	70	5.0	D	µg/L	5	12/11/2017 3:19:42 PM	R47688
Xylenes, Total	150	7.5	D	µg/L	5	12/11/2017 3:19:42 PM	R47688
Surr: 4-Bromofluorobenzene	97.5	70-130	D	%Rec	5	12/11/2017 3:19:42 PM	R47688
Surr: Toluene-d8	104	70-130	D	%Rec	5	12/11/2017 3:19:42 PM	R47688

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#: **1712488**

12-Dec-17

Client: APEX TITAN

Project: Lateral K-51 (2010)

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R47688**	RunNo: **47688**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523907** 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	1.5								
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	0		10.00		0	70	130			S
Surr: Toluene-d8	9.9		10.00		98.7	70	130			

Sample ID **1712488-001ams**	SampType: **MS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW-14**	Batch ID: **R47688**	RunNo: **47688**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523909** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	106	70	130			
Toluene	20	1.0	20.00	0.1398	101	70	130			
Ethylbenzene	20	1.0	20.00	0	98.5	70	130			
Xylenes, Total	58	1.5	60.00	0	97.2	70	130			
Surr: 1,2-Dichloroethane-d4	0		0		0	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130			
Surr: Dibromofluoromethane	0		0		0	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **1712488-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW-14**	Batch ID: **R47688**	RunNo: **47688**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523910** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.8	70	130	10.4	20	
Toluene	19	1.0	20.00	0.1398	92.5	70	130	8.52	20	
Ethylbenzene	18	1.0	20.00	0	91.3	70	130	7.61	0	
Xylenes, Total	54	1.5	60.00	0	90.1	70	130	7.56	0	
Surr: 1,2-Dichloroethane-d4	0		0		0	70	130	0	0	
Surr: 4-Bromofluorobenzene	8.9		10.00		89.3	70	130	0	0	
Surr: Dibromofluoromethane	0		0		0	70	130	0	0	
Surr: Toluene-d8	10		10.00		100	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#: **1712488**

12-Dec-17

Client: APEX TITAN

Project: Lateral K-51 (2010)

Sample ID **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R47688**	RunNo: **47688**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1524011** 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	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Ethylbenzene	22	1.0	20.00	0	108	70	130			
Xylenes, Total	62	1.5	60.00	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	0									
Surr: 4-Bromofluorobenzene	9.3		10.00		92.6	70	130			
Surr: Dibromofluoromethane	0									
Surr: Toluene-d8	11		10.00		105	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: 1712488 | RcptNo: 1

Received By: Anne Thorne 12/8/2017 7:55:00 AM

Completed By: Anne Thorne 12/8/2017 11:52:13 AM

Reviewed By: 12/08/17

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° 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 ☑	# of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
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 ☐	Adjusted? ____
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 ☐	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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	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~~ 725040112227

Sampler's Name: Renee Deechilly
Sampler's Signature: [signature]

Proj. No.: 725040112227
Project Name: Lateral K-51 (2010)

Lab use only
Due Date:
Temp. of coolers when received (C°): 1.0
1 | 2 | 3 | 4 | 5
Page 1 of 2

ANALYSIS REQUESTED: BTEX 8021

Matrix	Date	Time	Cont.	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)
W	12/6/17	1000			MW-14			3					X 1712488-001
W	12/6/17	1105			MW-11			3					X -002
W	12/6/17	1205			MW-4			3					X -003
W	12/6/17	1255			MW-12			3					X -004
W	12/6/17	1355			MW-2			3					X -005
W	12/6/17	1450			MW-13			3					X -006
W	12/7/17	950			MW-20			3					X -007
W	12/7/17	1055			MW-16			3					X -008
W	12/7/17	1150			MW-17			3					X -009
W	12/7/17	1250			MW-3			3					X -010

Turn around time: ☒ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

Relinquished by (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	12/7/17	1932	[signature]	12/7/17	1932
[signature]	12/7/17	2003	[signature]	12/08/17	0755

NOTES:
Bill to Apex Corporate rate

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 / Cr Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other _____

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 #: 725040112227

Sampler's Name: Ranee Decchilly
Sampler's Signature:

Proj. No: 725040112227
Project Name: Lateral K-51 (2010)

Lab use only
Due Date:
Temp. of coolers when received (C°): 1.0
1 | 2 | 3 | 4 | 5
Page 2 of 2

ANALYSIS REQUESTED

BTEX 8021

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)
W	12/7/17	1350			MW-1			3					X 1712488-01
W	12/7/17	1450			MW-19			3					X -02

NTS

Turn around time: ☒ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	12/7/17	1930		12/7/17	1930
	12/7/17	2013		12/8/17	0755

NOTES:
Bill to Apex
Corporate rate

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