PCVC. 14/494 0607



### 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

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DISTRICT III

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

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

### Apex Project No. 725040112227

### 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 insitu 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<sub>2</sub>).

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 ( $\mu$ g/L), which exceeds the WQCC GQS of 10  $\mu$ g/L. The groundwater samples collected from monitoring wells MW-1 and MW-16 exhibited benzene concentrations of 4.1  $\mu$ g/L and 2.1  $\mu$ g/L, respectively, which are below the WQCC GQS of 10  $\mu$ g/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  $\mu$ g/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  $\mu$ g/L and 88  $\mu$ g/L, respectively, which are below the WQCC GQS of 750  $\mu$ g/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  $\mu$ g/L.

The groundwater sample collected from monitoring well MW-19 exhibited a total xylenes concentration of 640  $\mu$ g/L, which exceeds the WQCC GQS of 620  $\mu$ g/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  $\mu$ g/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  $\mu$ g/L, which exceeds the WQCC GQS of 10  $\mu$ g/L. The groundwater sample collected from monitoring well MW-1 exhibited a benzene concentration of 2.8  $\mu$ g/L, which is below the WQCC GQS of 10  $\mu$ g/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  $\mu$ g/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  $\mu$ g/L and 70  $\mu$ g/L, respectively, which are below the WQCC GQS of 750  $\mu$ g/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  $\mu$ g/L.

The groundwater sample collected from monitoring well MW-19 exhibited a total xylenes concentration of 150  $\mu$ g/L, which is below the WQCC GQS of 620  $\mu$ g/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  $\mu$ g/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 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.

### 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





Z\Dallas South\Drafting\2016\725040112227\Figure 2.mxd Modified 1/20/2017 by JSimpson NAD 1983 2011 StatePlane New Mexico Central FIPS 3002 Ft US Coordinate System



Z:\Dallas South\Draftingl2016\725040112227\Figure 3.mxd Modified 1/20/2017 by JSimpson NAD 1983 2011 StatePlane New Mexico Central FIPS 3002 Ft US Coordinate System





Z\Dallas South\Drafting\2016\725040112227\Figure 4B.mxd Modified 7/13/2018 by BMiller NAD 1983 2011 StatePlane New Mexico Central FIPS 3002 Ft US Coordinate System



Z\Dallas South\Drafting\2016\725040112227\Figure 5A.mxd Modified 1/29/2018 by jsimpson NAD 1983 2011 StatePlane New Mexico Central FIPS 3002 Ft US Coordinate System



Z\Dallas South\Drafting\2016\725040112227\Figure 5B.mxd Modified 1/29/2018 by jsimpson NAD 1983 2011 StatePlane New Mexico Central FIPS 3002 Ft US Coordinate System





APPENDIX B

Tables



		K GROUND	TABLE 51 Pipeline WATER ANALY	1 Release TICAL SUMMARY			
Sample LD	Data	Banzana	Toluono	Ethylhonzono	Yulanas	TDU	трц
Sample I.D.	Date	benzene	(up(l))	Ethylbenzene	Aylefies	CPO	DRO
		(µg/Ľ)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)
New Mexico Water Qua Groundwater (	lity Control Commmission Quality Standards	10	750	750	620	NE	NE
		SN	A Sample - Open	Excavation			
Excavation	4.21.10	7,000	13,000	540	5,200	NA	NA
			Monitoring V	Vells			
	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./	<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
MW-1	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
	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
MW-2	3.25.13	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
and a second	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



		K	TABLE           -51 Pipeline           WATER ANALY	1 Release TICAL 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 Qua Groundwater G	lity Control Commmission Quality Standards	10	750	750	620	NE	NE
	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	NA           0.48           0.25           0.67           0.066           <0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0		<1.0
	12.17.12	<1.0	<1.0	<1.0	<2.0		<1.0
MW-3	3.25.13	<1.0	<1.0	<1.0	<2.0		<1.0
	6.27.13	<1.0	<1.0	<1.0	<2.0		<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 NA 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
	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
MW-4	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
l	12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA



Sample LD.         Date         Benzene (igR.)         Toluene (igR.)         Ethylbenzene (igR.)         Xylenes (igR.)         TPH (igR.)         TPH (igR.)			K GROUND	TABLE -51 Pipeline WATER ANALY	1 Release TICAL SUMMARY			
New Mexico Water Quality Standards         10         750         750         620         NE         NE           421.11         <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           12.13.11         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           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           10.21.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           11.21.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           11.21.13         <1.0         <1.0         <1.0         <2.0         NA         NA           11.21.31         <1.0         <1.0	Sample I.D.	Date	Benzene (μg/L)	Toluene (μg/L)	Ethylbenzene (μg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
MW-11         4.21.11         <1.0	New Mexico Water Qua Groundwater G	lity Control Commmission Quality Standards	10	750	750	620	NE	NE
MW-11         6.21.11         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           9.22.11         <1.0		4.21.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-11         9.22.11         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           3.20.12         <1.0		6.21.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-11         12.13.11         <1.0         <1.0         <1.0         <2.0         <0.060         <1.0           3.20.12         <1.0		9.22.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-11         3.20.12         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           9.19.12         <1.0		12.13.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
Big 10         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           9.19.12         <1.0		3.20.12	<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		6.19.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-11         12.17.12         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           3.25.13         <1.0		9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-11         3.25.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           10.21.13         <1.0		12.17.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-11         6.27.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           10.21.13         <1.0		3.25.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MNUT1         10.21.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           12.13.13         <1.0	M\\\/_11	6.27.13	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         12.13.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           4.17.14         <1.0		10.21.13	<1.0	<1.0	<1.0         <2.0         <0.050           <1.0	< 0.050	<1.0	
MW-12         4.17.14         <1.0         <1.0         <2.0         <0.050         <1.0           11.6.14         <1.0		12.13.13	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         11.6.14         <1.0         <1.0         <1.0         <2.0         NA         NA           5.29.15         <1.0		4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
S29.15         <1.0         <1.0         <1.0         <2.0         NA         NA           11.30.15         <1.0		11.6.14	<1.0	<1.0	<1.0	<2.0	NA	NA
MW-12         11.30.15         <1.0         <1.0         <1.0         <2.0         NA         NA           5.26.16         <1.0		5.29.15	<1.0	<1.0	<1.0	<2.0	NA	NA
MW-12         5.25.16         <1.0         <1.0         <1.0         <2.0         NA         NA           11.08.16         <1.0		11.30.15	<1.0	<1.0	<1.0	<2.0	NA NA	NA
MW-12         11.08.16         <1.0         <1.0         <1.0         <2.0         NA         NA           5.26.17         <1.0		5.25.16	<1.0	<1.0	<1.0	<2.0	NA	NA
MW-12         5.26.17         <1.0         <1.0         <1.0         <1.5         NA         NA           12.06.17         <1.0		11.08.16	<1.0	<1.0	<1.0	<2.0	NA	NA
MW-12         12.06.17         <1.0         <1.0         <1.0         <1.5         NA         NA           4.21.11         1.9         <1.0		5.26.17	<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		12.06.17	<1.0	<1.0	<1.0	<1.5	NA	NA
MW-12         6.21.11         4.6         <1.0         <1.0         <2.0         0.063         <1.0           9.22.11         <1.0		4.21.11	1.9	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         9.22.11         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           12.13.11         <1.0		6.21.11	4.6	<1.0	<1.0	<2.0	0.063	<1.0
MW-12         12.13.11         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           3.20.12         <1.0		9.22.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         3.20.12         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           6.19.12         1.7         <1.0		12.13.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         1.7         <1.0         <1.0         <2.0         <0.050         <1.0           9.19.12         <1.0		3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-12         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           12.17.12         <1.0		6.19.12	1.7	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         12.17.12         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           3.25.13         <1.0		9.19.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         3.25.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           10.21.13         <1.0		12.17.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12         6.27.13         <1.0         <1.0         <1.0         <2.0         <0.050         <1.0           10.21.13         <1.0		3.25.13	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
10.21.13       <1.0	MW-12	6.27.13	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
12.13.13       <1.0		10.21.13	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
4.17.14       <1.0		12.13.13	<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		4.17.14	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
5.29.15         <1.0         <1.0         <1.0         <2.0         NA         NA           11.30.15         <1.0		11.6.14	<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		5.29.15	<1.0	<1.0	<1.0	<2.0	NA NA	NA NA
5.25.10         <1.0         <1.0         <1.0         <2.0         NA         NA           11.08.16         <1.0		F 25 10	<1.0	<1.0	<1.0	<2.0	NA	NA
11.00.10         <1.0         <1.0         <1.0         <2.0         NA         NA           5.26.17         <1.0		5.25.10	<1.0	<1.0	<1.0	<2.0	NA NA	NA
12.06.17 <1.0 <1.0 <1.0 <1.5 NA NA		5 26 17	<1.0	<1.0	<1.0	~2.0	NA NA	NA
		12 06 17	<1.0	<1.0	<1.0	<1.5	NA	NA



		K GROUND	TABLE -51 Pipeline WATER ANALY	1 Release TICAL 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 Quali Groundwater Q	ity Control Commmission quality Standards	10	750	750	620	NE	NE
	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
M\A/_13	6.27.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
10100-10	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 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
	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
MW-14	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
	5 29 45	<1.0	<1.0	<1.0	<2.0	NA NA	NA
	0.20.10	<1.0	<1.0	<1.0	<2.0	NA NA	NA
	5 26 16	<1.0	<1.0	<1.0	<2.0	NA	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	TPH           GRO           (mg/L)           NE           <0.050	NA



		K	TABLE -51 Pipeline WATER ANALY	1 Release TICAL 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)
ew Mexico Water Quali Groundwater Q	ty Control Commmission uality Standards	10	750	750	620	NE	NE
	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	TPH GRO (mg/L)           NE           <0.10	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0		<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0		<1.0
	12.17.12	3.1	<1.0	2.1	14		<1.0
	3.25.13	<1.0	<1.0	<1.0	<1.0		<1.0
MW-16	6.27.13	<1.0	<1.0	<1.0	<2.0		<1.0
10100-10	10.21.13	<1.0	<1.0	<1.0	<2.0		<1.0
	12.12.13	1	<1.0	<1.0	<2.0		<1.0
	4.17.14	1.4	<1.0	<1.0	<2.0		<1.0
	11.6.14	1.2	<1.0	<1.0	<2.0		NA
	5.29.15	3.0	<1.0	<1.0	<2.0		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	TPH           GRO (mg/L)           NE           <0.10	NA
	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
MW-17	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
	5 29 15	<1.0	<1.0	<1.0	<2.0	NA	NA NA
	0.20.10	<1.0	<1.0	<1.0	<2.0	NA NA	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									
		GROUND	WATER ANALY	TICAL SUMMARY						
Sample I.D.	Date	Benzene	Toluene	Ethvlbenzene	Xvlenes	ТРН	ТРН			
		(μg/L)	(μg/L)	(μg/L)	(µg/L)	GRO (mg/L)	DRO (mg/L)			
New Mexico Water Qua Groundwater	ality Control Commmission Quality Standards	10	750	750	620	NE	NE			
	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			
MW-18	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			
	5.20.17	NS	NS	N5 NS	NS	NS NS	NS			
	2 20 12	250	56	210	2 000	16	5.2			
	6 19 12	NADI	NAPI	NADI	NAPI	NA	5.5 NA			
	9 19 12	NAPL	NAPL	NAPL	NAPL	NA	NA			
	12 17 12	180	<5.0	54	23	22	26			
	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			
MA( 10	12.16.13	160	<1.0	37	12	1.4	4.2			
10100-19	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			
	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./	<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			
MW-20	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	<10	<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



			TABLE 2			
		K-51	Pipeline Rele	ase		
		GROUN	IDWATER ELEV	ATIONS		
Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
	4.21.11	ND	11.80	ND		6289.09
	6.21.11	ND	12.16	ND	4 4	6288.73
	9.22.11	ND ND	12.92	ND		6287.97
	3.20.12	ND	12.13	ND	1 1	6288.76
	6.19.12	ND	12.76	ND		6288.13
	9.19.12	ND ND	13.10	ND		6287.79
	3.15.13	ND	11.88	ND	1 1	6289.01
M\\/_1	6.27.13	ND	12.61	ND	6300.89	6288.28
	10.22.13	ND	11.71	ND		6289.18
	12.12.13	ND ND	11.35	ND ND		6289.54
	11.6.14	ND	11.56	ND	1 1	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
	5.26.17	ND	10.41	ND	-	6290.48
	12.06.17	ND	10.53	ND		6290.36
	4.21.11	ND	10.55	ND	4	6289.27
	6.21.11	ND	11.8/		4	6287.95
	12.13.11	ND	11.38	ND	1 1	6288.44
	3.20.12	ND	10.95	ND	1 1	6288.87
	6.19.12	ND	11.64	ND		6288.18
	9.19.12	ND	12.10			6287.72
	3.15.13	ND	10.65	ND	1 1	6289.17
M\/-2	6.27.13	ND	11.44	ND	6299.82	6288.38
	10.21.13	ND	10.44	ND	0200.02	6289.38
	4 17 14	ND	9.73	ND		6289.73
	11.6.14	ND	10.33	ND	1 1	6289.49
	5.28.15	ND	9.61	ND	]	6290.21
	11.30.15	ND	9.67	ND		6290.15
	5.25.16	ND ND	9.34	ND		6290.48
	5.26.17	ND	9.23	ND	1 1	6290.59
	12.06.17	ND	9.33	ND		6290.49
	4.21.11	ND	11.30	ND	-	6288.92
	9.22.11	ND	12.45	ND		6287.77
	12.13.11	ND	11.89	ND	1	6288.33
	3.20.12	ND	11.60	ND	]	6288.62
	6.19.12	ND	12.22	ND		6288.00
	12.17.12	ND	11.75	ND		6288.47
	3.15.13	ND	ND 11.37 ND	1 1	6288.85	
MW-3	6.27.13	ND	12.06	ND	6300.22	6288.16
	10.21.13	ND	11.12	ND	-	6289.10
	4.17.14	ND	10.55	ND	1 1	6289.67
	11.6.14	ND	11.02	ND	j	6289.20
	5.28.15	ND	10.37	ND	1 1	6289.85
	11.30.15	ND	10.40	ND	-	6289.82
	11.07.16	ND	10.10	ND		6289.32
	5.26.17	ND	10.00	ND	j	6290.22
	12.06.17	ND	10.05	ND		6290.17



			TABLE 2			
		K-51	Pipeline Rele	ase		
		GROUN	IDWATER ELEV	ATIONS		
Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
the second second second second	4.21.11	ND	11.90	ND		6289.01
	6.21.11	ND	12.18	ND	] [	6288.73
	9.22.11	ND	12.90	ND		6288.01
	3 20 12	ND	12.41	ND		6288.46
	6.19.12	ND	12.72	ND	1 1	6288.19
	9.19.12	ND	13.09	ND		6287.82
	12.17.12	ND	12.33	ND		6288.58
	6.27.13	ND	12.60	ND	-	6288.31
MW-4	10.22.13	ND	11.74	ND	6300.91	6289.17
	12.12.13	ND	11.37	ND	]	6289.54
	4.17.14	ND	11.05	ND		6289.86
	11.6.14 5 28 15	ND	11.58	ND		6289.33
	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
	4 21 11	ND	11.98	ND		6289.21
	6.21.11	ND	12.40	ND	1 1	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
	9.19.12	ND	13.27	ND	1 1	6287.92
	12.17.12	ND	12.51	ND	1 1	6288.68
	3.15.13	ND	12.05	ND	]	6289.14
MW-11	6.27.13	ND	12.82	ND	6301.19	6288.37
	12.12.13	ND	11.61	ND		6289.58
	4.17.14	ND	11.25	ND	1 1	6289.94
	11.6.14	ND	11.80	ND	]	6289.39
	5.28.15	ND	11.12	ND	-	6290.07
	5.25.16	ND	10.79	ND		6290.40
	11.07.16	ND	11.66	ND	1 1	6289.53
	5.26.17	ND	10.66	ND		6290.53
	12.06.17	ND	10.82	ND		6290.37
	4.21.11	ND	9.42	ND		6290.12
	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
	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
MVV-12	6.27.13	ND	9.99	ND	6299.08	6289.09
	10.21.13		9.09		-	6290 30
	4.17.14	ND	8.44	ND	1	6290.64
	11.6.14	ND	9.05	ND	]	6290.03
	5.28.15	ND	8.34	ND	4	6290.74
	11.30.15	ND	8.44	ND	-	6290.64
	11.07.16	ND	8,87	ND	-	6290.97
	5.26.17	ND	8.01	ND	1	6291.07
	12.06.17	ND	8.12	ND		6290.96



			TABLE 2			
		K-51	Pipeline Rele	ase		
Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
	4.21.11	ND	9.07	ND		6289.20
	6.21.11	ND	9.51	ND		6288.76
	9.22.11	ND	10.15	ND	TOC Elevations (feet AMSL)         6298.27         6301.20         6301.20	6288.12
	3 20 12	ND	9.59	ND		6288.92
	6.19.12	ND	10.09	ND	1 1	6288.18
	9.19.12	ND	10.29	ND		6287.98
	12.17.12	ND	9.47	ND		6288.80
	3.15.13	ND ND	9.11	ND		6289.16
MW-13	10.21.13	ND	8.91	ND	6298.27	6289.36
	12.12.13	ND	8.57	ND	1 E	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 8.21	ND		6290.06
	5.25.16	ND	8.01	ND	1 1	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
	4.21.11	ND	12.54	ND		6288.32
	9.22.11	ND	13.53	ND	1 1	6287.67
	12.13.11	ND	13.11	ND	1 1	6288.09
	3.20.12	ND	12.80	ND		6288.40
	6.19.12	ND	13.42	ND		6287.78
	9.19.12	ND	12.93	ND		6288.27
	3.15.13	ND	12.55	ND	1	6288.65
M\\/_14	6.27.13	ND	13.26	ND	6301.20	6287.94
	10.22.13	ND	12.39	ND	-	6288.81
	12.12.13	ND	12.06			6289.14
	11.6.14	ND	12.23	ND		6288.97
	5.28.15	ND	11.67	ND	1	6289.53
	11.30.15	ND	11.62	ND		6289.58
	5.25.16	ND	11.35	ND		6289.85
	5 26 17	ND	11.09	ND		6289.96
	12.06.17	ND	11.27	ND	TOC Elevations         (feet AMSL)         6298.27         6301.20         6301.20	6289.93
	4.21.11	ND	12.06	ND		6287.83
	6.21.11	ND	12.26	ND		6287.63
	9.22.11	ND	12.57	ND ND		6287.32
	3.20.12	ND	12.20	ND		6287.65
	6.19.12	ND	12.71	ND	1	6287.18
	9.19.12	ND	12.80	ND		6287.09
	12.17.12	ND	11.90	ND	-	6287.99
	6 27 13	ND	12.37	ND	-	6287.52
MW-16	10.21.13	ND	11.32	ND	6299.89	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		10.56			6289.53
	5.25.16	ND	10.10	ND	1	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



		K-51 GROUN	TABLE 2 Pipeline Rele	ease ATIONS		
Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
	4.21.11	ND	9.90	ND		6288.67
	6.21.11	ND	9.56	ND	4 1	6289.01
	9.22.11	ND	10.83	ND		6287.74
	2 20 12	ND	10.31			6288.45
	6 19 12	ND	10.12	ND		6287.76
	9.19.12	ND	10.95	ND	1 1	6287.62
	12.17.12	ND	10.13	ND	1	6288.44
	3.15.13	ND	9.85	ND	1	6288.72
MAX 17	6.27.13	ND	10.62	ND	6208 57	6287.95
1010 0-17	10.21.13	ND	9.61	ND	0230.37	6288.96
	12.12.13	ND	9.28	ND	4	6289.29
	4.17.14	ND	9.13	ND	4	6289.44
	11.6.14	ND	9.47	ND		6289.10
	5.28.15	ND	9.00	ND	4	6289.57
	11.30.15	ND	8.87	ND		6289.70
	5.25.10	ND	0.00	ND	4	6289.92
	5 26 17	ND	8.56	ND		6290.01
	12.06.17	ND	8.52	ND	1	6290.05
	3 20 12	ND	16.60	ND		6288.17
	6.19.12	ND	17.42	ND	1	6287.35
	9.19.12	ND	17.45	ND	1	6287.32
	12.17.12	ND	16.73	ND	1	6288.04
	3.15.13	Blockage	Blockage	Blockage		Blockage
	6.27.13	Blockage	Blockage	Blockage		Blockage
	10.22.13	Blockage	Blockage	Blockage	4	Blockage
MW-18	12.12.13	Blockage	Blockage	Blockage	6304.77	Blockage
	4.17.14	Blockage	Blockage	Blockage	-	Blockage
	5 29 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	1	Blockage
	5.26.17	Blockage	Blockage	Blockage	1	Blockage
	12.06.17	Blockage	Blockage	Blockage		Blockage
	3.20.12	ND	15.69	ND	1	6288.11
	6.19.12	16.25	16.32	0.07**	]	6287.52
	9.19.12	16.47	16.49	0.02**	1	6287.32
	12.17.12	ND	15.91	ND	4	6287.89
	3.15.13	ND	15.38	ND	4	6288.42
	6.27.13	ND	16.19	ND	-	6287.01
	12 12 13	ND	14.78	ND	4	6289.02
MW-19	4,18,14	ND	14.68	ND	6303.80	6289.12
	11.6.14	ND	14.99	ND	1	6288.81
	5.28.15	ND	14.60	ND	1	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	1	6288.97
	5.26.17	ND	14.20	ND	4	6289.60
	12.06.17	ND	14.08	ND		6289.72



	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)				
	3.20.12	ND	25.82	ND		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				
MAL 20	12.12.13	ND	24.57	ND	6212 50	6288.02				
1010 0-20	4.17.14	ND	24.66	ND	0312.59	6287.93				
	11.6.14	ND	24.81	ND	1	6287.78				
	5.28.15	ND	24.80	ND	1	6287.79				
	11.30.15	ND	24.15	ND	1	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 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

OrderNo.: 1705E49

Dear Kyle Summers:

RE: Lateral K-51

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 <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/2/2017

CLIENT: APEX TITAN	Client Sample ID: MW-14						
Project: Lateral K-51			Collectio	n Date: 5/26/2017 9:50:00 AM			
Lab ID: 1705E49-001	Matrix:	AQUEOUS	Receive	d Date: 5/27/2017 10:00:00 AM			
Analyses	Result	PQL Qual	Units	DF Date Analyzed Batch			
EPA METHOD 8260: VOLATILES SHO	RT LIST			Analyst: DJF			
Benzene	ND	1.0	µg/L	1 5/31/2017 7:19:25 PM SL4317			
Toluene	ND	1.0	µg/L	1 5/31/2017 7:19:25 PM SL4317			
Ethylbenzene	ND	1.0	µg/L	1 5/31/2017 7:19:25 PM SL4317			
Xylenes, Total	ND	1.5	µg/L	1 5/31/2017 7:19:25 PM SL4317			
Surr: 1,2-Dichloroethane-d4	95.0	70-130	%Rec	1 5/31/2017 7:19:25 PM SL4317			
Surr: 4-Bromofluorobenzene	96.2	70-130	%Rec	1 5/31/2017 7:19:25 PM SL4317			
Surr: Dibromofluoromethane	95.4	70-130	%Rec	1 5/31/2017 7:19:25 PM SL4317			
Surr: Toluene-d8	104	70-130	%Rec	1 5/31/2017 7:19:25 PM SL4317			

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank	
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of	39
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range	1
	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	l

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN			Client Samp	le ID: M	W-11					
Project: Lateral K-51		Collection Date: 5/26/2017 10:45:00 AM								
Lab ID: 1705E49-002	Matrix:	AQUEOUS	Received	Date: 5/2	27/2017 10:00:00 AM					
Analyses	Result	PQL (	Jual Units	DF	Date Analyzed	Batch				
EPA METHOD 8260: VOLATILES S	HORT 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				

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of C
	ND	Not Detected at the Reporting Limit	Р	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.

Date Reported: 6/2/2017

CLIENT: APEX TITAN		Client Sample ID: MW-4								
Project: Lateral K-51		Collection Date: 5/26/2017 11:30:00 AM								
Lab ID: 1705E49-003	Matrix:	AQUEOUS	Received	d Date: 5/27/2017 10:00:00 AM						
Analyses	Result	PQL Qual	Units	DF Date Analyzed Batch						
EPA METHOD 8260: VOLATILES SH	HORT 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						

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of C
	ND	Not Detected at the Reporting Limit	Р	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

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN	Client Sample ID: MW-12										
Project: Lateral K-51		Collection Date: 5/26/2017 12:20:00 PM									
Lab ID: 1705E49-004	Matrix: A	AQUEOUS	Received	Date: 5/2	27/2017 10:00:00 AM						
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch					
EPA METHOD 8260: VOLATILES SH	IORT 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					

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 9
	ND	Not Detected at the Reporting Limit	Р	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

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN		Client Sample ID: MW-2									
Project: Lateral K-51		Collection Date: 5/26/2017 1:05:00 PM									
Lab ID: 1705E49-005	Matrix: A	AQUEOUS	Received	Date: 5/2	27/2017 10:00:00 AM						
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch					
EPA METHOD 8260: VOLATILES S	HORT 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					

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	H Holding times for preparation or analysis exceeded			Analyte detected below quantitation limits Page 5 of 9
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
R RPD outside accepted recovery limits		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.

Date Reported: 6/2/2017

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	Receive	ed Date: 5/27/2017 10:00:00 AM		
Analyses	Result	PQL Qual	Units	DF Date Analyzed	Batch	
EPA METHOD 8260: VOLATILES SHOR	T 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	

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 6 of
ND Not Detect		Not Detected at the Reporting Limit	Р	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		Sample container temperature is out of limit as specified

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/2/2017

CLIENT: APEX TITAN		Client Sample ID: MW-17 Collection Date: 5/26/2017 2:35:00 PM							
Project: Lateral K-51									
Lab ID: 1705E49-007	Matrix: A	QUEOUS	Received	d Date: 5/27/2017 10:00:00 AM					
Analyses	Result	PQL Qual	Units	DF Date Analyzed Batch					
EPA METHOD 8260: VOLATILES SH	IORT 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					

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 7 of 9
	ND	Not Detected at the Reporting Limit	Р	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.

Client:APEX TITANProject:Lateral K-51

Sample ID rb	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	8260: Volatile	es Short L	ist	
Client ID: PBW	Batch	n ID: SL	43178	F	RunNo: 4	43178				
Prep Date:	Analysis D	)ate: 5/	31/2017	5	SeqNo: 1	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 Ics	SampT	ype: LC	S	Tes	tCode: E	PA Method	8260: Volatile	es Short L	_ist	
Client ID: LCSW	Batcl	n ID: SL	43178	F	RunNo: 4	43178				
Prep Date:	Analysis D	Date: 5/	31/2017	5	SeqNo: 1	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	SampT	ype: MS	6	Tes	tCode: E	PA Method	8260: Volatile	es Short L	_ist	
Client ID: MW-14	Batc	h ID: SL	43178	F	RunNo: 4	43178				
Prep Date:	Analysis D	Date: 5/	31/2017	5	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 ms	d Samp1	ype: MS	SD	Tes	tCode: E	PA Method	8260: Volatile	es Short I	list	
Client ID: MW-14	Batc	h ID: SL	43178	F	RunNo:	43178				
Prep Date:	Analysis [	Date: 5/	31/2017	ŝ	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.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range

Р

RL

- J Analyte detected below quantitation limits
  - Sample pH Not In Range
  - Reporting Detection Limit
- W Sample container temperature is out of limit as specified

WO#: 1705E49

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02-Jun-17

## **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

**Client: Project:** 

APEX TITAN Lateral K-51

Sample ID 1705e49-001a ms	d SampT	ype: MS	SD	Test	Code: El	PA Method	8260: Volatile	es Short L	.ist	
Client ID: MW-14	Batch	Batch ID: SL43178 RunNo: 43178								
Prep Date:	Analysis D	ate: 5/	31/2017	S	eqNo: 1	359069	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.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

WO#: 1705E49

02-Jun-17

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HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environment A TEL: 505-345-39 Website: www.	al Analysis Laborato 4901 Hawkins Ibuquerque, NM 871 75 FAX: 505-345-41 hallenvironmental.co	NE NE 109 <b>Sam</b> 107 om	Sample Log-In Check List				
Client Name: APEX AZTEC	Work Order Numb	er: 1705E49		RcptNo:	1			
Received By: Andy Freeman	5/27/2017 10:00:00	AM	andy					
Completed By: Anne Thome Reviewed By: ENM	5/30/2017 10:15:55 05/30/17	AM	aone Him	_				
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?	3	Courier						
Log In								
4. Was an attempt made to cool the	ne samples?	Yes 🗹	No 🗌					
5. Were all samples received at a	temperature of >0° C to 6.0°C	Yes 🗹	No 🗍					
6. Sample(s) in proper container(s	)?	Yes 🗹	No 🗌					
7. Sufficient sample volume for inc	licated test(s)?	Yes 🗹	No 🗌					
8. Are samples (except VOA and 0	ONG) properly preserved?	Yes 🖌	No					
9. Was preservative added to bottl	es?	Yes	No 🖌	NA 🗌				
10.VOA vials have zero headspace	?	Yes 🗹	No 🗆	No VOA Vials				
11. Were any sample containers re	ceived broken?	Yes	No 🗹	# of preserved				
12. Does paperwork match bottle la (Note discrepancies on chain of	bels? custody)	Yes 🖌	No 🗌	for pH:	>12 unless noted)			
13. Are matrices correctly identified	on Chain of Custody?	Yes 🗸	No 🗌	Adjusted?				
14. Is it clear what analyses were re	quested?	Yes 🗹	No 🗆					
.15. Were all holding times able to b (If no, notify customer for author	e met? ization.)	Yes 🗹	No 🗆	Checked by:				
16. Was client notified of all discrep	ancies with this order?	Yes	No 🗌	NA 🗹				
Person Notified:	Date	1						
By Whom:	Via:	eMail P	hone 🗌 Fax	In Person				
Regarding:	nan ar an							
Client Instructions:			1991.0.,201.004990.0.20499040.074290904090					
17. Additional remarks:								
18. Cooler Information								
Cooler No Temp °C Co	ndition Seal Intact Seal No	Seal Date	Signed By					
2.0 000	A NOLFICSCIL	i						

Page 1 of 1

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	×				CHAIN OF CUSTODY RECORD
			ANALYSIS		Lab use only
	Laboratory Hall		REQUEST	ed /  /  /  /  /	/ / / Due Date:
ADEX	Addresses AT	0 0100			
	Address:	2/14/M			Temp. of coolers 2,3 °C
Office Location	Cantasti A Trace	100 110			
	Contact. ATTER	JINNY	/		
V Cuint ave		0110007	- (4)		/ / Page of
Project Manager	PO/SO #: <u><u><u></u></u><sup>4</sup><u>L</u><u>20</u><u>U</u></u>	0112667			
Ranee Drechilly 2	Kuphil	1	08/		
Project Name 725040112227 Lateral	K-51	No/Type of Containers	00		
Matrix Date Time C G o r Identifying Ma	arks of Sample(s) tress of Sample(s)	VOA A/G 1LL 250 ml Glass	Old		Lab Sample ID (Lab Use Only)
W 5 2617 950 MU	1-14	3	X		1705E49-001
1 1045 MM	1-11	i			-002
1130 MI	N-4				743
1220 MI	N-12				-704
1305 M	W-2				-715
1350 M	W-13				-046
V V 1435 W	W-17	$\checkmark$	V		-407
	ATE			Add	AT US/ 30/17
	7012-1-1-				
Turn around time Normal 25% Rush	⊒ 50% Rush  □ 100% Rush	· · · · · · · · · · · · · · · · · · ·			
Belinquished by (Seprature) Date:	Time: Received by: (Signa	ature) Date	Time: M	NOTES:	1001
Relinquished by (Signature) Øatel	Time: Received by: Signa	ture) Date	Time:	DIITO	ripex
Relinquished by (Signature) Date:	Time: Received by: (Signa	ture) Date	Time:	Corpor	ate rate
Relinquished by (Signature) Date:	Time: Received by: (Signa	uture) Date	Time:	2.3 °C	
Matrix WW - Wastewater W - Water Container VOA - 40 ml vial A/G - Amber / 0	S - Soll SD - Solid L - Liquid Or Glass 1 Liter 250 ml -	d A - Air Bag C Glass wide mouth P/	Charcoal tube SI	L - sludge O - Oil	

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 4901 Hawkins NE Albuquergue, 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 <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

### Date Reported: 6/2/2017

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN		(	Client Samp	le ID: M	W-20					
Project: Lateral K 51		Collection Date: 5/30/2017 9:40:00 AM								
Lab ID: 1705F01-001	Matrix:	AQUEOUS	Received	Date: 5/3	31/2017 7:15:00 AM					
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch				
EPA METHOD 8260: VOLATILES S	HORT 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				

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 6
	ND	Not Detected at the Reporting Limit	Р	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		Sample container temperature is out of limit as specified

# **Analytical Report**

## Hall Environmental Analysis Laboratory, Inc.

Lab Order 1705F01 Date Reported: 6/2/2017

CLIENT: APEX TITAN		Client Sample ID: MW-16 Collection Date: 5/30/2017 10:35:00 AM								
Project: Lateral K 51										
Lab ID: 1705F01-002	Matrix:	AQUEOUS	Received	<b>Date: 5/3</b>	1/2017 7:15:00 AM					
Analyses	Result	PQL Qua	al Units	DF	Date Analyzed	Batch				
EPA METHOD 8260: VOLATILES S	HORT 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				

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 6
	ND	Not Detected at the Reporting Limit	Р	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

Date Reported: 6/2/2017

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN		Client Sample ID: MW-3								
Project: Lateral K 51			Collection	Date: 5/3	0/2017 11:25:00 AM					
Lab ID: 1705F01-003	Matrix:	AQUEOUS	Received	<b>Date:</b> 5/3	51/2017 7:15:00 AM					
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch				
EPA METHOD 8260: VOLATILES S	HORT 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				

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of 6
	ND	Not Detected at the Reporting Limit	Р	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

### Date Reported: 6/2/2017

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN		Client Sample ID: MW-1 Collection Date: 5/30/2017 12:10:00 PM								
Project: Lateral K 51										
Lab ID: 1705F01-004	Matrix:	AQUEOUS	Received	Date: 5/3	1/2017 7:15:00 AM					
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch				
EPA METHOD 8260: VOLATILES S	HORT 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				

Qualifiers:	*	Value exceeds Maximum Contaminant Level.		Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 6
	ND	Not Detected at the Reporting Limit	Р	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

Date Reported: 6/2/2017

## Hall Environmental Analysis Laboratory, Inc.

<b>CLIENT:</b> APEX TITAN	Client Sample ID: MW-19									
Project: Lateral K 51			Collection	Date: 5/3	30/2017 12:55:00 PM					
Lab ID: 1705F01-005	Matrix:	AQUEOUS	Received	<b>Date: 5/3</b>	31/2017 7:15:00 AM					
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch				
EPA METHOD 8260: VOLATILES S	HORT LIST				Analys	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				

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 6
	ND	Not Detected at the Reporting Limit	Р	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.

**Client: Project:** Lateral K 51

APEX TITAN

Sample ID 100ng lcs	SampT	ype: LC	S	Tes	Code: E	PA Method	8260: Volatile	s Short L	.ist	
Client ID: LCSW	Batch	ID: <b>R4</b>	3196	R	unNo: 4	3196				
Prep Date:	Analysis D	ate: 6/	1/2017	S	eqNo: 1	360075	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			
	SampType: MBLK TestCode: FPA Method 8260: Volatiles Short List									
Sample ID rb	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260: Volatile	es Short I	.ist	
Sample ID <b>rb</b> Client ID: <b>PBW</b>	SampT Batch	ype: ME	3LK 3196	Tes F	tCode: E RunNo: 4	PA Method 3196	8260: Volatile	es Short I	ist	
Sample ID <b>rb</b> Client ID: <b>PBW</b> Prep Date:	SampT Batch Analysis D	ype: ME ID: R4 ate: 6/	3LK 3196 1/2017	Tes F	tCode: E RunNo: 4 GeqNo: 1	PA Method 3196 360076	8260: Volatile Units: µg/L	es Short I	_ist	
Sample ID <b>rb</b> Client ID: <b>PBW</b> Prep Date: Analyte	SampT Batch Analysis D Result	ype: ME ID: R4 ate: 6/ PQL	3LK 3196 1/2017 SPK value	Tes F SPK Ref Val	tCode: E RunNo: 4 SeqNo: 1 %REC	PA Method 3196 360076 LowLimit	<b>8260: Volatile</b> Units: μg/L HighLimit	s Short I %RPD	<b>.ist</b> RPDLimit	Qual
Sample ID rb Client ID: PBW Prep Date: Analyte Benzene	SampT Batch Analysis D Result ND	ype: <b>ME</b> 1D: <b>R4</b> 9ate: <b>6</b> / PQL 1.0	3LK 3196 1/2017 SPK value	Tes F S SPK Ref Val	tCode: E RunNo: 4 GeqNo: 1 %REC	PA Method I3196 I360076 LowLimit	8260: Volatile Units: µg/L HighLimit	%RPD	<b>.ist</b> RPDLimit	Qual
Sample ID rb Client ID: PBW Prep Date: Analyte Benzene Toluene	SampT Batch Analysis D Result ND ND	ype: ME n ID: R4 pate: 6/ PQL 1.0 1.0	3LK 3196 1/2017 SPK value	Tes F SPK Ref Val	tCode: E RunNo: 4 SeqNo: 1 %REC	PA Method I3196 I360076 LowLimit	8260: Volatile Units: μg/L HighLimit	%RPD	<b>.ist</b> RPDLimit	Qual
Sample ID rb Client ID: PBW Prep Date: Analyte Benzene Toluene Ethylbenzene	SampT Batch Analysis D Result ND ND ND	ype: ME n ID: R4 pate: 6/ PQL 1.0 1.0 1.0	3196 3196 1/2017 SPK value	Tes F SPK Ref Val	tCode: E RunNo: 4 SeqNo: 1 %REC	PA Method I3196 360076 LowLimit	8260: Volatile Units: μg/L HighLimit	%RPD	<b>.ist</b> RPDLimit	Qual
Sample ID rb Client ID: PBW Prep Date: Analyte Benzene Toluene Ethylbenzene Xylenes, Total	SampT Batch Analysis D Result ND ND ND ND	ype: ME n ID: R4 Pate: 6/ PQL 1.0 1.0 1.0 1.5	3196 3196 1/2017 SPK value	Tes F SPK Ref Val	tCode: E RunNo: 4 GeqNo: 1 %REC	PA Method I3196 360076 LowLimit	8260: Volatile Units: μg/L HighLimit	%RPD	<b>.ist</b> RPDLimit	Qual
Sample ID rb Client ID: PBW Prep Date: Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 1,2-Dichloroethane-d4	SampT Batch Analysis D Result ND ND ND ND 9.8	ype: ME DD: R4 Pate: 6/ PQL 1.0 1.0 1.0 1.0	3LK 3196 1/2017 SPK value 10.00	Tes F SPK Ref Val	tCode: E RunNo: 4 GeqNo: 1 %REC 98.2	PA Method I3196 360076 LowLimit	8260: Volatile Units: μg/L HighLimit 130	%RPD	<b>RPDLimit</b>	Qual
Sample ID <b>rb</b> Client ID: <b>PBW</b> Prep Date: Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 1,2-Dichloroethane-d4 Surr: 4-Bromofluorobenzene	SampT Batch Analysis D Result ND ND ND 9.8 11	ype: ME DD: R4 Pate: 6/ PQL 1.0 1.0 1.0 1.5	3LK 3196 1/2017 SPK value 10.00 10.00	Tes F SPK Ref Val	tCode: E RunNo: 4 SeqNo: 1 %REC 98.2 106	PA Method I3196 I360076 LowLimit 70 70	8260: Volatile Units: μg/L HighLimit 130 130	%RPD	<b>RPDLimit</b>	Qual
Sample ID <b>rb</b> Client ID: <b>PBW</b> Prep Date: Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 1,2-Dichloroethane-d4 Surr: 4-Bromofluorobenzene Surr: Dibromofluoromethane	SampT Batch Analysis D Result ND ND ND 9.8 11 10	ype: ME DD: R4 Wate: 6/ PQL 1.0 1.0 1.0 1.5	3LK 3196 1/2017 SPK value 10.00 10.00 10.00	Tes F SPK Ref Val	tCode: E RunNo: 4 SeqNo: 1 %REC 98.2 106 104	PA Method I3196 I360076 LowLimit 70 70 70 70 70 70	8260: Volatile Units: μg/L HighLimit 130 130 130	%RPD	RPDLimit	Qual

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL **Reporting Detection Limit**
- W Sample container temperature is out of limit as specified

WO#: 1705F01

02-Jun-17

Page 6 of 6

Client Name:       APEX AZTEC       Work Order Number:       1705F01       RepNo: 1         Received By:       Sophia Campuzano       5/31/2017 7:15:00 AM       Gan, Jac, Jac, Jac, Jac, Jac, Jac, Jac, Jac	k List
Received By:       Anne Thome       5/31/2017 7:15:00 AM       Am. Am.         Completed By:       Soppla Campuzano       6/31/2017 9:40:52 AM       Am.         Reviewed By:       Sold IA       Molecular         1. Cutody seals intact on sample bottles?       Yes       No       Not Present         2. is Chain of Custody complete?       Yes       No       Not Present       Image: Complete	
Completed By:       Sign 2017 9:40:52 AM         Reviewed By:       Sign 2017 9:40:52 AM         Action of Custody         1. Custody seals intact on sample bottles?       Yes         2. Is Chain of Custody complete?         3. How was the sample delivered?         Courter         Log In         4. Was an attempt made to cool the samples?         Yes         5. Were all samples received at a temperature of >0° C to 6.0°C         6. Sample(s) in proper container(s)?         7. Sufficient sample volume for indicated test(s)?         8. Are samples (except VOA and ONG) properly preserved?         9. Was preservative added to bottle?         10. VOA vials have zero headspace?         11. Were any sample containers received broken?         Yes       No         12. Does paperwork match bottle labels?         (Ket discrepancies on chain of custody?         13. Are matrices correcity identified on Chain of Custody?         14. Is it clear what analyses were requested?         Yes       No         14. Is it clear what analyses wer	
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	
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	
2. is Chain of Custody complete?       Yes       No       Not Present         3. How was the sample delivered?       Courier         Log In	
3. How was the sample delivered?       Courier         Log In       4. Was an attempt made to cool the samples?       Yes Ø       No       NA         5. Were all samples received at a temperature of >0° C to 6.0°C       Yes Ø       No       NA         6. Sample(s) in proper container(s)?       Yes Ø       No       NA         7. Sufficient sample volume for indicated test(s)?       Yes Ø       No	
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       NA         7. Sufficient sample volume for indicated test(s)?       Yes       No       NA         8. Are samples (except VOA and ONG) properly preserved?       Yes       No       NA         9. Was preservative added to bottles?       Yes       No       NA         10. VOA vials have zero headspace?       Yes       No       No       NA         11. Were any sample containers received broken?       Yes       No       No       Was preserved         12. Does paperwork match bottle labels?       Yes       No       No       Wadits checked         12. Does paperwork match bottle labels?       Yes       No       Adjusted?       (         13. Are matrices correctly identified on Chain of Custody?       Yes       No       Adjusted?       (         14. Is it clear what analyses were requested?       Yes       No       Adjusted?       (       (         15. Were all holding (iff applicable)       In white order?       Yes       No       Na       (         16. Was	
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       NA         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         12. Does paperwork match bottle labels?       Yes       ✓       No       ✓       # of preserved bottles checked         13. Are matrices correctly identified on Chain of Custody?       Yes       ✓       No       ✓       Adjusted?         14. Is it dear what analyses were requested?       Yes       ✓       No       Checked by:       Checked by:         (If no, notify customer for authorization.)       ✓       Øate       Øate       Øate       Øate </td <td></td>	
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 No   7. Sufficient sample volume for indicated test(s)? Yes No No   8. Are samples (except VOA and ONG) properly preserved? Yes No NA   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 No VOA Vials   12. Does paperwork match bottle labels? Yes Yes No Hot preserved bottles checked for pH:   (Note discrepancies on chain of custody) 13. Are matrices correctly identified on Chain of Custody? Yes No Adjusted?   14. Is it clear what analyses were requested? Yes No Checked by: Checked by:   (If no, notify customer for authorization.) Via: eMail Phone Fax In Person   8. Accoler Information Via: Oate Parison Notified: Date In Person   17. Additional remarks: 18. Cooler Information Corrective is a two for the isone parison is a custom isone parison is a custom isone parison is a custom isone parison isone parison isone parisone	
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       ✓         10. VOA vials have zero headspace?       Yes       ✓       No       ✓       NA         11. Were any sample containers received broken?       Yes       ✓       No       ✓       ✓         12. Does paperwork match bottle labels?       Yes       ✓       No       ✓       ✓       ✓         (Note discrepancies on chain of custody)       13. Are matrices correctly identified on Chain of Custody?       Yes       ✓       No       ✓       Adjusted?         14. Is it clear what analyses were requested?       Yes       ✓       No       ✓       Adjusted?         15. Were all holding times able to be met?       Yes       ✓       No       ✓       Na       ✓         16. Was client notified of all discrepancies with this order?       Yes       No       Na       ✓         Person Notified:	
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   10. VOA vials have zero headspace? Yes No   11. Were any sample containers received broken? Yes No   12. Does paperwork match bottle labels? 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? Yes No   (If no, notify customer for authorization.) Date Person Notified:   9. Was client instructions: Date In Person   17. Additional remarks: 18. Cooler Information Sector Additional remarks:	
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 Yes   12. Does paperwork match bottle labels? Yes Yes No   (Note discrepancies on chain of custody) Yes No # of preserved bottles checked   13. Are matrices correctly identified on Chain of Custody? Yes No Adjusted?   14. Is it clear what analyses were requested? Yes No Checked by:   15. Were all holding times able to be met? Yes No Checked by:     Special Handling (if applicable)  16. Was client notified of all discrepancies with this order?  Yes No NA    The second s	
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       No VOA Vials         12. Does paperwork match bottle labels?       Yes       No       # of preserved bottles checked for pH:         (Note discrepancies on chain of custody)       Yes       No       Adjusted?         13. Are matrices correctly identified on Chain of Custody?       Yes       No       Adjusted?         14. Is it clear what analyses were requested?       Yes       No       Checked by:         15. Were all holding times able to be met?       Yes       No       Checked by:         (If no, notify customer for authorization.)       Special Handling (if applicable)       Na       M         16. Was client notified of all discrepancies with this order?       Yes       No       NA       M         Person Notified:	
10. VOA viais have zero headspace?       Yes       No       No VOA Viais         11. Were any sample containers received broken?       Yes       No       # of preserved bottles checked         12. Does paperwork match bottle labels?       Yes       Yes       No       # of preserved bottles checked         12. Does paperwork match bottle labels?       Yes       Yes       No       # of preserved bottles checked         13. Are matrices correctly identified on Chain of Custody?       Yes       No       Adjusted?	
11. Were any sample containers received broken? Yes No # of preserved bottles checked   12. Does paperwork match bottle labels? Yes No # of preserved bottles checked   13. Are matrices correctly identified on Chain of Custody? Yes No Adjusted?   14. Is it clear what analyses were requested? Yes No Adjusted?   15. Were all holding times able to be met? Yes No Checked by:   (If no, notify customer for authorization.) Yes No NA   Special Handling (if applicable) 16. Was client notified of all discrepancies with this order? Yes No No NA No NA No NA No No No No No No No Checked by: (If no, notify customer for authorization.) Special Handling (if applicable) 16. Was client notified of all discrepancies with this order? Yes No No No NA No	
12. Does paperwork match bottle labels?       Yes       ✓       No       for pH:       (<2 or >12 unle         13. Are matrices correctly identified on Chain of Custody?       Yes       ✓       No       Adjusted?	
13. Are matrices correctly identified on Chain of Custody?       Yes       ✓       No       Adjusted?         14. Is it clear what analyses were requested?       Yes       ✓       No       Checked by:         15. Were all holding times able to be met?       Yes       ✓       No       Checked by:         15. Were all holding times able to be met?       Yes       ✓       No       Checked by:         (If no, notify customer for authorization.)       Yes       ✓       No       NA         Special Handling (if applicable)       16. Was client notified of all discrepancies with this order?       Yes       No       NA         Person Notified:	unless note
14. Is it clear what analyses were requested? Yes No Checked by:   15. Were all holding times able to be met? Yes No Checked by:   (If no, notify customer for authorization.)  Special Handling (if applicable) 16. Was client notified of all discrepancies with this order? Yes No No No NA Person Notified: By Whom: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Order No Cooler Information	
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? Person Notified: By Whom: Regarding: Client Instructions:       No       NA       ✓         17. Additional remarks:       18. Cooler Information Coeler Mo       Coeler Information Coeler Mo       Coeler Information       Coeler Mo	
Special Handling (if applicable)     16. Was client notified of all discrepancies with this order?     Yes   No   NA     Person Notified:   By Whom:   Regarding:   Client Instructions:     17. Additional remarks:     18. Cooler Information     Ovalue No     Sector No	
16. Was client notified of all discrepancies with this order?       Yes       No       NA       ✓         Person Notified:       Date	
Person Notified: Date Date By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions:  17. Additional remarks:  18. <u>Cooler Information</u> Cashe No Coodified - Coodified - Cooler the description - Cooler the	
By Whom: Regarding: Client Instructions: 17. Additional remarks: 18. <u>Cooler Information</u> Cashe No.   Coolering   Cooleri	
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Client Instructions: 17. Additional remarks: 18. <u>Cooler Information</u> Cooler Information	
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Cooler No ( Temp "C   Condition   Seal Intact   Seal No   Seal Date   Signed By	
1 1.7 Good Yes	

				CHAIN OF CUSTODY RECON
X	Laboratory: Hall		ANALYSIS REQUESTED	Lab use only Due Date:
APEX	Address: ABQ.	NM		Tame description 1.7
Office Location Actes NIM				when received (C°):
	Contact: A. Fre	eman)		1 2 3 4 5
	Phone:		2	Page 1 of
Project Manager K, Summurs	PO/SO #: 7250	4012227		
Sampler's Name	Sampler's Signature	Л	1 <i>J        </i>	
Ranep Depender	Revalue	L,		
Proj. No. Project Name	,	No/Type of Containers		
725044/2027 Latera	LK51			1705501
Vatrix Date Time G r Identifying M	tarks of Sample(s)	VOA AlG TILL 250 Z50 Uar Uar		Lab Sample ID (Lab Lise Only)
P 6		2		
VV 120/17 190 IVIU	-20	2	X	- 001
1035 MU	v-16			-002
1125 M	w-3			-003
1210 N	111-			-004
V V 1255 M	w-19	¥	~	-005
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Ten quartes by (agriature) Date.	necerred by: (olgri			
Vatrix WW Wastewater W - Water Container VOA - 40 millional A/G - Amber /	S - Soil SD - Solid L - Liqui Or Glass 1 Liter 250 ml	id A - Air Bag C - Cha Glass wide mouth P/O - P	arcoal tube SL - sludge O - Oil fastic 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 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

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 <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN			Client Samp	e ID: M	W-14	
Project: Lateral K-51 (2010)			Collection	<b>Date:</b> 12	/6/2017 10:00:00 AM	M
Lab ID: 1712488-001	Matrix:	AQUEOUS	Received	Date: 12	/8/2017 7:55:00 AM	
Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES S	HORT LIST				Analy	/st: 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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 14
	ND	Not Detected at the Reporting Limit	Р	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

### Analytical Report Lab Order 1712488

### Date Reported: 12/12/2017

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN		Client Sample ID: MW-11						
Project: Lateral K-51 (2010)			Collection	Date: 12	/6/2017 11:05:00 AM	M		
Lab ID: 1712488-002	Matrix:	AQUEOUS	Received	Date: 12	/8/2017 7:55:00 AM	[		
Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch		
EPA METHOD 8260: VOLATILES S	HORT LIST				Analy	yst: 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		

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 14
	ND	Not Detected at the Reporting Limit	Р	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-4								
Project: Lateral K-51 (2010)		Collection Date: 12/6/2017 12:05:00 PM							
Lab ID: 1712488-003	Matrix:	Matrix: AQUEOUS Received I			l Date: 12/8/2017 7:55:00 AM				
Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch			
EPA METHOD 8260: VOLATILES S	HORT LIST				Analy	yst: 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			

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of 14
	ND	Not Detected at the Reporting Limit	Р	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

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: APEX TITAN	Client Sample ID: MW-12						
Project: Lateral K-51 (2010)			Collection	<b>Date:</b> 12/	/6/2017 12:55:00 PN	1	
Lab ID: 1712488-004	Matrix: AQUEOUS Received			Date: 12/8/2017 7:55:00 AM			
Analyses	Result	PQL Qua	l Units	DF	Date Analyzed	Batch	
EPA METHOD 8260: VOLATILES S	HORT LIST				Analy	/st: 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	

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 14
	ND	Not Detected at the Reporting Limit	Р	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	<b>Date:</b> 12	/8/2017 7:55:00 AM	[	
Analyses	Result	PQL Qua	Units	DF	Date Analyzed	Batch	
EPA METHOD 8260: VOLATILES SHO	RT LIST				Anal	yst: 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	

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 14
	ND	Not Detected at the Reporting Limit	Р	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

## Analytical Report Lab Order 1712488

### Date Reported: 12/12/2017

## Hall Environmental Analysis Laboratory, Inc.

<b>CLIENT:</b> 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	<b>Date:</b> 12	/8/2017 7:55:00 AM				
Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch			
EPA METHOD 8260: VOLATILES S	HORT LIST				Analys	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			

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 6 of 14
	ND	Not Detected at the Reporting Limit	Р	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	Receiv	ed Date: 12/8/2017 7:55:00 AM				
Analyses	Result	PQL Qual	Units	DF Date Analyzed	Batch			
EPA METHOD 8260: VOLATILES SHOP	RT 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			

<b>Oualifiers</b> :	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
<b>C</b>	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 7 of 14
	ND Not Detected at the Reporting Limit		Р	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 Sampl	e ID: M	W-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 Q	ual 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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 8 of 14
	ND Not Detected at the Reporting Limit		Р	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	<b>Date:</b> 12	/8/2017 7:55:00 AM				
Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch			
EPA METHOD 8260: VOLATILES S	HORT 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			

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 9 of 14
	ND	Not Detected at the Reporting Limit	Р	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

## **Analytical Report** Lab Order 1712488

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/12/2017

CLIENT: APEX TITAN		Client Sample ID: MW-3							
Project: Lateral K-51 (2010)	Collection Date: 12/7/2017 12:50:00 F								
Lab ID: 1712488-010	Matrix:	AQUEOUS	Received 1	Date: 12	/8/2017 7:55:00 AM				
Analyses	Result	PQL Qu	al 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			

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limitspage 10 of 14
	ND	Not Detected at the Reporting Limit	Р	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

# **Analytical Report**

## Hall Environmental Analysis Laboratory, Inc.

Lab Order 1712488 Date Reported: 12/12/2017

CLIENT:	APEX TITAN		Client Sample ID: MW-1						
<b>Project:</b>	Lateral K-51 (2010)		Collection Date: 12/7/2017 1:50:00 PM						
Lab ID:	1712488-011	Matrix:	AQUEOUS	Receive	d Date: 12/	/8/2017 7:55:00 AM			
Analyses		Result	PQL (	Qual Units	DF	Date Analyzed	Batch		
EPA MET	HOD 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		
Ethylben	zene	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	4-Bromofluorobenzene	94.7	70-130	%Rec	1	12/11/2017 2:56:42 PM	R47688		
Surr: 1	Foluene-d8	101	70-130	%Rec	1	12/11/2017 2:56:42 PM	R47688		

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limitspage 11 of 14
	ND	Not Detected at the Reporting Limit	Р	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)		<b>Collection Date:</b> 12/7/2017 2:50:00 PM								
Lab ID: 1712488-012	Matrix:	AQUEOU	S	Received	Date: 12	/8/2017 7:55:00 AM				
Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch			
EPA METHOD 8260: VOLATILES S	HORT 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			

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limitsPage 12 of 14
	ND	Not Detected at the Reporting Limit	Р	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, In	ıc.

Client: APEX TITAN Project: Lateral K-51 (2010)

Sample ID rb	SampTy	pe: ME	BLK	Tes	tCode: E	PA Method	8260: Volatile	es Short L	.ist	
Client ID: PBW	Batch I	D: <b>R4</b>	7688	F	RunNo: 4	7688				
Prep Date:	Analysis Dat	te: 12	2/11/2017	S	eqNo: 1	523907	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	SampTy	pe: MS	6	Tes	tCode: E	PA Method	8260: Volatile	es Short L	_ist	
Client ID: MW-14	Batch I	D: <b>R4</b>	7688	F	RunNo: 4	7688				
Prep Date:	Analysis Da	te: 12	2/11/2017	S	SeqNo: 1	523909	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 I	ID: <b>R4</b>	7688	F	RunNo: 4	7688				
Prep Date:	Analysis Da	te: 12	2/11/2017	5	SeqNo: 1	523910	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	

#### Qualifiers:

Toluene

Ethylbenzene

Xylenes, Total

Surr: 1,2-Dichloroethane-d4

Surr: 4-Bromofluorobenzene

Surr: Dibromofluoromethane

Surr: Toluene-d8

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

19

18

54

0

0

10

8.9

1.0

1.0

1.5

20.00

20.00

60.00

10.00

10.00

0

0

0.1398

0

0

- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range

92.5

91.3

90.1

89.3

100

0

0

70

70

70

70

70

70

70

130

130

130

130

130

130

130

8.52

7.61

7.56

0

0

0

0

20

0

0 0

0

0

0

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- J Analyte detected below quantitation limits
- P Sample pH Not In RangeRL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

WO#: 1712488

12-Dec-17

## **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

**Client: Project:** 

APEX TITAN Lateral K-51 (2010)

Sample ID 100ng btex lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: R47688		R	unNo: 47	7688					
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. \*
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range E
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: 1712488

12-Dec-17

HALL Hall Environmental ANALYSIS LABORATORY TEL: 50 Webs			Hall Environmental Alb TEL: 505-345-3975 Website: www.ha	Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 505-345-3975 FAX: 505-345-4107 ebsite: www.hallenvironmental.com			Sample Log-In Check Lis		
Client Name: A	PEX AZTEC	;	Work Order Number	: 1712	488		RcptNo:	1	
Received By:	Anne Thorn	8	12/8/2017 7:55:00 AM	l		anne Hom	~		
Completed By:	Anne Thorn	0	12/8/2017 11:52:13 AI	M		ann Am	~		
Reviewed By:	ich		12/08/17						
Chain of Custo	ody	N Contraction of the second seco							
1. Custody seals	intact on sar	nple bottles?		Yes	$\checkmark$	No 🗌	Not Present		
2. Is Chain of Cu	stody comple	ete?		Yes	$\checkmark$	No 🗌	Not Present		
3. How was the s	ample delive	red?		Cou	rier				
Log In									
4. Was an attem	pt made to c	ool the samples	?	Yes	$\checkmark$	No 🗌	NA 🗌		
5. Were all samp	les received	at a temperature	e of >0° C to 6.0°C	Yes		No 🗌			
6. Sample(s) in p	proper contai	ner(s)?		Yes	$\checkmark$	No 🗌			
7. Sufficient samp	ple volume fo	or indicated test(	s)?	Yes	$\checkmark$	No			
8. Are samples (e	except VOA a	and ONG) prope	rly preserved?	Yes	$\checkmark$	No 🗌			
9. Was preservat	ive added to	bottles?		Yes		No 🗹	NA 🗌		
10.VOA vials have	e zero heads	pace?		Yes		No 🗌	No VOA Vials		
11. Were any sam	nple containe	rs received brok	en?	Yes		No 🗹	# of preserved		
12. Does paperwo (Note discrepa	rk match bot incies on cha	tle labels? iin of custody)		Yes		No	for pH: (<2 or	>12 unless noted)	
13. Are matrices correctly identified on Chain of Custody?				Yes	$\checkmark$	No 🗌	Adjusted?		
14. Is it clear what analyses were requested?					$\checkmark$	No 🗌			
15. Were all holdin (If no, notify cu	ng times able ustomer for a	to be met? uthorization.)		Yes	$\checkmark$	No 🗌	Checked by:		
Special Handli	ng (if app	licable)							
16. Was client not	ified of all dis	crepancies with	this order?	Yes		No 🗌	NA 🗹		
Person N	Notified:		Date		#11448-01-01-02-02-02-02-02-02-02-02-02-02-02-02-02-	innereteretereterieteriteratiet			
By Whor	n: [	Merene konstruer entre terreter i er terreter terreter i er terreter i er terreter i er terreter i er terreter	Via:	eM	ail 🗌 P	hone 🗌 Fax	In Person		
Regardin	ng:				NAXCO 47740 (61 (147) 43 44				
Client Ins	structions:								
II. Additional rem	harks:								
18. Cooler Inform Cooler No	nation Temp °C	Condition S	eal intact Seal No	Seal D	ate	Signed By			
<b> </b> 1	1.0	Good Ye	s						

APEX     Hall Environmental Laboratory: Analysis Laboratory Adress: L(40L) Hall 2(1ns. NC Adress: L(40L) Hall 2(1ns. NC Project Name Fastore (1ns. Not Adress: L(40L) Hall 2(1ns. NC Project Name Fastore (122227) Porter (122227) Native (122227) Native (12227) Native					CHAIN OF CUSTODY RECORD
APEX       Laboratory: Analysis		Hall	Environmental	ANALYSIS	Lab use only
APEX       Address:       L401       Hu Vins       NE         Office Location       Address:       L401       Hu Vins       NE         Object Location       Address:       L401       Hu Vins       NE         Object Location       Address:       L402       Address:       L402         Object Location       Phone:       S05-345-3475       Poilor       Poilor         Project Manager       KSummers       Samper's Signature;       Poilor       Poilor       Poilor         Samper's Signature;       Rate Call       KSummers;       Norfyce of Contares;       Poilor       Poilor       Poilor       Poilor         Mark       Date       Time       Poilor       Sampler(s)       Poilor		Laboratory: An	alvisis Laboration	REQUESTED	/ / / Due Date:
Office Location     Albury Ligut (Ly ML S ± 10.9)     Image: State (Ly ML S ± 10.9)       606 S 210 (arable subted to the state (Ly ML S ± 10.9)     Contact: A Free (Man)     Project Manager       Artect NM Struct     Pointe: S05 - 345 - 347	APEX	Address: 4901	Hawkins NF		1 1 1 1 1 1 0
606       S Zic Grandse, Suitet       Contact:       A. Freeman         Aztec/NM_STUD       Phone:       S05-345-2475         Project Manager       KSUMMERS       PO/SO #.       S05-345-2475         Sample's Name       Sample's Signature       Project Name       Rame: Discontraction         Zate Line       Reserve Contact       Rame: Sample's Signature       Rame: Discontraction         Zate Line       Rame: Sample's Signature       Notryce of contairers       Rame: Sample's Signature         Zate Line       Rame: Sample's Signature       Notryce of contairers       Rame: Sample's Signature         Marxiv       Date       Mentrying Marks of Sample(s)       State State       State State         Vi 12/6/17       Lobs       MW-14       Z       X       Image: State         W 12/6/17       Lobs       MW-12       Z       X       Image: State         W 12	Office Location	Albuquerqu	LLINM 87109	- ////	when received IC°):
Actrc/NM       87410       Phone:       SDS-345-3175         Project Manager       KSUMMers       Polso #.       Cases of U22222         Sampler's Name       Sampler's Signature       Montype of Contairers       Montype of Contairers         Project Manager       KSUMMers       Project Name       Sampler's Signature       Montype of Contairers         Project Name       Sampler's Signature       Montype of Contairers       Montype of Contairers       Montype of Contairers         Project Name       Date       Time       One       Montype of Contairers       Montype of Contairers       Montype of Contairers       Montype of Contairers         Project Name       Date       Time       One       Montype of Contairers       Montype of Contairers       Montype of Contairers         Project Name       Date       Time       One       Montype of Contairers       Montype of Contairers       Montype of Contairers         Mark       Date       Time       Montype of Contairers       Montype of Contairers       Montype of Contairers       Montype of Contairers         Mark       Date       Montype of Contairers         Mill Polity Lines       Montype of Contairers       Montype of Contair	606 5 Riolerande su	tp + Contact: A	Freeman		1 2 3 4 5
Project Manager       K.S.UMMPL/S       PO/SO #       Image: Target and the sumple of signature         Sampler's Name       Sampler's Signature       Reference       NoType of Containers       NoType of Containers         Proj. No.       Project Name       Reference       NoType of Containers       NoType of Containers         725040112321       Lateral       K-S1 (2010)       NoType of Containers       NoType of Containers         Matrix       Date       Time       Reference       NoType of Containers       NoType of Containers         Matrix       Date       Time       Reference       NoType of Containers       NoType of Containers         W 12/b1/t       Lob Sample ID (Lab Use Only       Set	Aztec, NM 87410	Phone: 505-	345-3975		Page / of 2
Sampler's Name Sampler's Signature Sampler's Signature Sampler's Signature Sampler's Signature Sampler's Signature Sampler's Signature Signature State Time Signature Sampler's Sampler's Signature Sampler's Sampler's Sampler's Sampler's Signature Sampler's	Project Manager KSummer	> P0/S0 #. S	7250401122222		
Rance DecchillyResultProject NameProject Name725040112327Lateral K-51 (2010)Matrix DateTime $\overrightarrow{P}$ $\overrightarrow{P}$ Matrix DateMul-14 $\overrightarrow{P}$ $P$	ampler's Name	Sampler's Signature			
Project Name       Project Name       NorType of Containers       NorType of Containers $725040112227$ $2a+e ral$ $K-51$ $(2010)$ NorType of Containers $72$ Matrix       Date       Time $\frac{0}{0}$ $\frac{1}{0}$ Mentifying Marks of Sample(s) $\frac{1}{0}$ $\frac{1}$	Range Deechilly	Roberty			
Table Time $\begin{bmatrix} G \\ D \\$	roj. No. Project Name		No/Type of Containers		/ / / /
MatrixDateTime $\frac{1}{10}$ Identifying Marks of Sample(s) $\frac{1}{10}$ <	725040112227 Late	ral K-51 (2010)		_ 7 / / / / /	
W       12/6/17       1000       MW-14       3       X       17/2488 ac         W       12/6/17       1005       MW-11       3       X       ac       ac         W       12/6/17       1205       MW-4       3       X       ac       ac         W       12/6/17       1205       MW-4       3       X       ac       ac         W       12/6/17       1255       MW-12       3       X       ac       ac         W       12/6/17       1355       MW-2       3       X       ac       ac         W       12/6/17       1355       MW-2       3       X       ac       ac         W       12/6/17       1950       MW-13       3       X       ac       ac         W       12/6/17       1950       MW-20       3       X       ac       ac         W       12/7/17       1755       MW-16       3       X       ac       ac         W       12/7/17       150       MW-17       3       X       ac       ac         W       12/7/17       1705       MW-18       30% Rush       30% Rush       ac       ac     <	latrix Date Time O r Ide Matrix Date Dime D b	ntifying Marks of Sample(s)	VOA VOA VOA AG	8 / / / / /	Lab Sample ID (Lab Use Only)
W 12/6/17       105       MW-11       3       X       TC         W 12/6/17       205       MW-4       3       X       TC         W 12/6/17       255       MW-12       3       X       TC         W 12/6/17       255       MW-2       3       X       TC         W 12/6/17       1355       MW-2       3       X       TC         W 12/6/17       1355       MW-2       3       X       TC         W 12/6/17       1355       MW-2       3       X       TC         W 12/6/17       1450       MW-13       3       X       TC         W 12/6/17       1450       MW-16       3       X       TC         W 12/7/17       1555       MW-16       3       X       TC         W 12/7/17       1555       MW-16       3       X       TC         W 12/7/17       150       MW-17       3       X       TC         W 12/7/17       150       MW-18       30% Rush       TC       TC         W 12/7/17       150       MW-18       3       X       TC         W 12/7/17       150       MW-3       3       X       TC<	W 12/6/17 1000	MW-14	3	X	1712488-201
W       12/6/17       12/6       MW -4       3       X       TC         W       12/6/17       1255       MW -12       3       X       TC         W       12/6/17       1355       MW -2       3       X       TC         W       12/6/17       1355       MW -2       3       X       TC         W       12/6/17       1355       MW -2       3       X       TC         W       12/6/17       1450       MW -13       3       X       TC         W       12/7/17       1950       MW -20       3       X       TC         W       12/7/17       1055       MW -16       3       X       TC         W       12/7/17       1055       MW -17       3       X       TC         W       12/7/17       150       MW -17       3       X       TC         W       12/7/17       150       MW -17       3       X       TC         W       12/7/17       173       3       X       TC       TC         W       12/7/17       173       10%       Reservectory: (Signature)       Date:       Time:       Bill +2 Apex	W 12/0/17 1105	MW-11	3	X	- 212
W       12/6/17       255       MW-12       3       X       -CC         W       12/6/17       1355       MW-2       3       X       -CC         W       12/6/17       1355       MW-2       3       X       -CC         W       12/6/17       1355       MW-2       3       X       -CC         W       12/6/17       1450       MW-13       3       X       -CC         W       12/7/17       150       MW-20       3       X       -CC         W       12/7/17       1055       MW-16       3       X       -CC         W       12/7/17       150       MW-17       3       X       -CC         W       12/7/17       1732       3       X       -CC       -CC         W       12/7/17       1732       100% Rush       100% Rush       -CC       -CC         Rainguishec by (Signatu	N 12/0/17/205	MW-4	3	X	73
W       12/6/17       1355       MW-2       3       X       Take         W       12/6/17       1450       MW-13       3       X       Take         W       12/6/17       1450       MW-13       3       X       Take         W       12/7/17       1950       MW-20       3       X       Take         W       12/7/17       1955       MW-16       3       X       Take         W       12/7/17       1950       MW-17       3       X       Take         W       12/7/17       1950       MW-3       3       X       Take         Turn around time       100% Rush       100% Rush       100% Rush       Take       Time:       NOTES:         Take       17/17       17/3       17/3       Bill +a Apex       Bill +a Apex	N 12/0/17/255	MW-12	3	×	
W       12/6/17       1450       MW-13       3       X       Take         W       12/7/17       1055       MW-20       3       X       Take         W       12/7/17       1055       MW-16       3       X       Take         W       12/7/17       1055       MW-16       3       X       Take         W       12/7/17       1055       MW-17       3       X       Take         W       12/7/17       1050       MW-17       3       X       Take         W       12/7/17       1050       MW-3       3       X       Take         W       12/7/17       10% Rush       100% Rush       100% Rush       Take       Time:         Balinguishec by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:         Refinguishec, by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:         Refinguishec, by (Signature)       Date:       Time:       Time:       Bill +2 Apex	N/12/6/17/1355	MW-2	3	X	7.5
W 12 7 17       950       MW-20       3       X       Tu         W 12 7 17       1055       MW-16       3       X       Tu         W 12 7 17       1055       MW-16       3       X       Tu         W 12 7 17       1055       MW-16       3       X       Tu         W 12 7 17       1050       MW-17       3       X       Tu         W 12 7 17       1050       MW-3       3       X       Tu         W 12 7 17       1050       MW-3       3       X       Tu         Salinguished by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:         Public       Date:       Time:       Received by: (Signature)       Date:       Time:       Bill +t         Belinguished: by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:         Belinguished: by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:         Bill       H       100% Rush       Date:       Time:       Bill +t       Apex	N 121617 1450	MINI-13	3	X	Zela
MI2HIF 1055     MW-16     3     X     TC       MI2HIF 1055     MW-16     3     X     TC       MI2HIF 1250     MW-17     3     X     TC       W12HIF 1250     MW-3     3     X     TC       Turn around time     Normal     25% Rush     100% Rush     Tom % Rush       Belinquished by (Signature)     Date:     Time:     NOTES:       MU D HEH     24/17/1632     Date:     Time:     NOTES:       Relinquished by (Signature)     Date:     Time:     Bate:     Time:       Belinquished by (Signature)     Date:     Time:     NOTES:       Belinquished by (Signature)     Date:     Time:     NOTES:       Belinquished by (Signature)     Date:     Time:     Bill +2	W121212 950	NIW-20	2	$\mathbf{\hat{\nabla}}$	7(7
W 12 + 17       150       MW - 17       3       -cu         W 12 + 17       150       MW - 3       3       -cu         W 12 + 17       125%       MW - 3       3       -cu         Turn around time       21%       Normal       25%       Bush       -cu         Beinquishec by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:       NOTES:         Hu D Her       12 + 17       1730       1730       Bill + t. Apex         Beinquishec by (Signature)       Date:       Time:       Bate:       Time:         Beinquishec by (Signature)       Date:       Time:       Bill + t. Apex	NIZIZIZINEE	Malala	3	$\overline{\mathcal{T}}$	708
W 12 +17+ 12 SO       MW - 3       3       Ci         Turn around time       Normal       25% Rush       50% Rush       100% Rush         Balinguishec by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:         Received by:       Date:       Time:       Received by: (Signature)       Date:       Time:       NOTES:         Reinguishec by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:       NOTES:         Reinguishec by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:       Bill +c       Apex	1/12/2/12 1/50		2	- 13	-719
Turn around time       Normal       25% Rush       50% Rush       100% Rush         Belinguished by (Signature)       Date:       Time:       Received by: (Signature)       Date:       Time:       NOTES:         Mathematical Mathematic	WIDDING MOD	NUL-3	2	12	
Beinguishec by (Signature)     Date:     Time:     Received by: (Signature)     Date:     Time:     NOTES:       Multiplication     Date:     Time:     12/7/7     1/732     Bate:     Time:     Bill +2       Reinguishec by (Signature)     Date:     Time:     Bate:     Time:     Bill +2     Apex	urn around time Normal 25% F	lush 350% Rush 3100% Ru	ish 2		-2(()
Relinquished by (Signature) Date: Time: Received by: (Signature) Date: Time: Bill to Apex	alinquished by (Signature) Date	Time: Received by: (S	ignature) Date:	Time: NOTES:	
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Matrix WW - Wastewater W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Charcoal tube SL - sludge O - Oil	latrix WW - Wastewater W - V	Vater 5 - Soil SD - Solid L - I	Liquid A - Air Bag C - C	harcoal tube SL - sludge O -	Oil

#### Lab use only ANALYSIS Hall Environmenter Due Date: REQUESTED Laboratory: Analysis labirate APEX Hawkins NE Address: 4901 Temp. of coclers 10 when received (C°! Albuqueque NM 87109 Office Location Brey way 1006 S RID Grande, Suite A 2 3 4 5 Contact: Freeman AZTECINM 87410 Page 2 of 2 505-345-3975 Phone: KSummers PO/SO #: 725040112227 Project Manager Sampler's Name Sampler's Signature Rance I Secchil Pro. No Project Name No/Type of Containers 12010 uteral K-51 72504012227 G COE Starf Depth End Depth A/G 1LL 250 250 allar P/O VOA Matrix Date Identifying Marks of Sample(s) Time Lab Sample ID (Lab Use Only) X 2488 W 1350 12717 3 MW-1 2 MW-19 N 450 25% Rush Turn around time Normal □ 50% Rush 100% Rush Belinquished by (Signature) Date: Time: Received by: (Signature). Date: Time: NOTES: 2171 1930 12/7/17 1930 w 5 Bill to Apex (opporate rate Received by: (Signature Date: Time Relinquished by (Signature) Date: Time: 12/7/17 RY BIN 0755 123 Received by: (Signature) Time: Relinquished by (Signature) Date: Time: Date: Time: Relinquished by (Signature) Date: Time: Received by: (Signature) Date: O · Oil W - Water S - Soil SD - Solid L - Liquid A - Ar Bag C - Charcoal tube SL - sludge Matrix WW - Wastewater 250 ml - Glass wide mouth P/O - Plastic or other A/G - Amber / Or Glass 1 Liter Container VOA - 40 mi vial

CHAIN OF CUSTODY RECORD

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