

3R-446

**April & November 2014
AGWMR**

**Date
1/5/15**



ENTERPRISE PRODUCTS PARTNERS L.P.
ENTERPRISE PRODUCTS HOLDINGS LLC
(General Partner)

ENTERPRISE PRODUCTS OPERATING LLC

January 5, 2015

Return Receipt Requested
7012 3460 0001 7236 2640

Mr. Glenn von Gonten
New Mexico Energy, Minerals & Natural Resources
Department - Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

**Re: Annual Groundwater Monitoring Report (April and November 2014 Events)
K-51 Pipeline Release Site
Off County Road 537
NE ¼ Section 34 & NW ¼, Sec 35, T26N, R6W
Rio Arriba County, New Mexico**

OIL CONS. DIV DIST. 3

JAN 09 2015

Dear Mr. Von Gonten:

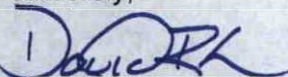
Enterprise Field Services, LLC (Enterprise) is submitting two (2) copies of the enclosed report entitled: *Annual Groundwater Monitoring Report (April and November 2014 Events)* for the K-51 release site. This report documents the results of the April and November 2014 groundwater monitoring events conducted at the release site. Remedial actions are being conducted at the site in response to a natural gas condensate release occurring on April 13, 2010.

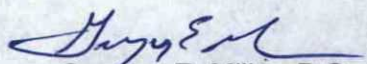
During these monitoring events, dissolved-phase benzene concentrations exceeding applicable Water Quality Control Commission (WQCC) Groundwater Quality Standards were present at two monitor well locations (MW-1 and MW-19). No measurable accumulation of phase-separated hydrocarbon (PSH) was present at any monitoring location.

Groundwater constituent concentrations at this site are degrading naturally; with the exception of dissolved-phase benzene concentration in downgradient monitor well MW-19. Enterprise is currently working with the Bureau of Land Management (BLM) to obtain approval for an additional monitor well downgradient of MW-19.

Enterprise will continue routine groundwater monitor events, and evaluate whether additional remedial actions are necessary to complete site closure. If you have any questions concerning the enclosed report, please do not hesitate to contact me at (713) 381-2286, or via email at: drsmith@eprod.com.

Sincerely,


David R. Smith, P.G.
Sr. Environmental Scientist


Gregory E. Miller, P.G.
Supervisor, Environmental

/dep
Enclosures

cc: **Brandon Powell** - New Mexico Oil Conservation Division, Aztec, NM
Bill Liess - Bureau of Land Management, Farmington, NM

ec: Jim Griswold - New Mexico Oil Conservation Division, Santa Fe, NM
Shari Ketcham - Bureau of Land Management, Farmington, NM
Liz Scaggs - Apex TITAN Inc., (formerly Southwest Geoscience), Dallas, TX
Kyle Summers - Apex TITAN Inc. (formerly Southwest Geoscience), Farmington, NM



OIL CONS. DIV DIST. 3

JAN 09 2015

**ANNUAL GROUNDWATER MONITORING REPORT
(April and November 2014 Sampling Events)
OCD RP: 3R-446 (Formerly 3R-206)**

Property:

**K-51 Pipeline Release (3/19/2010)
Sections 34 and 35, T26N R6W
Rio Arriba County, New Mexico**

December 12, 2014
Apex Project No. 7030410G003

Prepared for:

**Enterprise Field Services, LLC
P.O. Box 4324
Houston, Texas 77210-4324
Attn: Mr. David R. Smith, P.G.**

Prepared by:

District Copy
For Scanning Only
Has NOT been processed.

A handwritten signature in blue ink that reads 'Heather M. Woods'.

Heather M. Woods, P.G.
Senior Project Manager

A handwritten signature in blue ink that reads 'Liz Scaggs'.

Elizabeth Scaggs, P.G.
Senior Program Manager

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**ANNUAL GROUNDWATER MONITORING REPORT
(April and November 2014 Sampling Events)
OCD RP: 3R-446 (Formerly 3R-206)**

**K-51 Pipeline Release (3/19/2010)
Sections 34 and 35, T26N R6W
Rio Arriba County, New Mexico**

Apex Project No. 7030410G003

1.0 INTRODUCTION

1.1 Site Description & Background

The K-51 pipeline release 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), referred to hereinafter as the "Site" or "subject Site". The Site consists of silty/sandy canyon bottomland with native grasses, and is crossed by a natural gas pipeline operated by Enterprise Field Services, LLC (Enterprise).

On April 13, 2010, approximately 10 barrels of natural gas condensate were released from the Enterprise natural gas gathering pipeline at the Site, due to internal corrosion. Subsequent to the completion of excavation and off-site disposal of petroleum 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 groundwater which recharged into the excavation. The excavation was then backfilled with unaffected soils.

In 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*). Based on the results of soil and groundwater sampling activities, constituent of concern (COC) concentrations were identified in soil above the New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) *Remediation Action Levels* (RALs) and in groundwater 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. (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, fifteen (15) injection points were installed to allow in-situ chemical oxidation (ISCO) of the COCs. ISCO activities were performed during May 2011 (*Supplemental Site Investigation and Corrective Action Report, dated October 5, 2011 – SWG*).

Based on the distribution of COCs in groundwater, a former drip valve, tank, or pit may have been a historic source of petroleum hydrocarbon impact to groundwater (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 in and around the former drip valve area to further evaluate the extent COCs in groundwater as a result of the release (*Supplemental Site Investigation & Corrective Action Work Plan, dated April 23, 2012 – SWG*). Soil boring MW-18 was advanced to the west of the former



drip valve, hydrogeologically cross-gradient, and soil borings MW-19 and MW-20 were advanced to the north and northwest of the drip valve, hydrogeologically down-gradient.

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 OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the EMNRD OCD rules, specifically New Mexico Administrative Code (NMAC) 19.15.29 Remediation Plan. 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 the 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 in relation to pertinent structures and general Site boundaries, is included as Figure 3 of Appendix A.

1.2 Scope of Work

The objective of the groundwater monitoring events was to further evaluate the concentrations of constituents of concern (COCs) in groundwater at the Site.

1.3 Standard of Care, Limitations & Reliance

Apex Companies, LLC's (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.

2.0 SAMPLING PROGRAM

Semi-annual groundwater sampling events were conducted during April and November, 2014 by Aaron Bryant, an Apex environmental professional.

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 wells exhibiting measurable NAPL were not sampled during the completion of the groundwater monitoring event.

Please note, due to the depth of groundwater at monitoring well MW-20, which exceeds the lift capacity of the peristaltic pump, monitoring well MW-20 was purged and sampled utilizing a disposable bailer. In addition, monitoring well MW-18 appears to be silted in and was not sampled during these events

Each monitoring well was micro-purged utilizing low-flow sampling techniques. 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 L/min are maintained during sampling activities, using dedicated sampling equipment.

The utilization of low-flow minimal drawdown techniques enables the isolation of the screened interval groundwater from the overlying stagnant casing water. 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.

Subsequent to the completion of the micro-purge process, one (1) groundwater sample was collected from each monitoring well not observed to contain NAPL. The groundwater samples were collected from each monitoring well once produced groundwater was consistent in color, clarity, pH, dissolved oxygen, oxidation-reduction potential, temperature and conductivity.

Monitoring well MW-20 was purged of three (3) casing volumes utilizing a disposable bailer, and sampled following groundwater recharge.

Groundwater samples were collected in laboratory supplied containers, sealed with custody tape and placed on ice in a cooler secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico.

3.0 LABORATORY ANALYTICAL PROGRAM

The groundwater samples collected from the monitoring wells during the groundwater sampling events were analyzed for total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO) utilizing EPA method SW-846 #8015, and benzene, toluene, ethylbenzene and xylenes (BTEX) utilizing EPA method SW-846 #8021. The containers containing the samples for organic analyses were pre-preserved with HgCl₂. TPH GRO/GRO analyses were eliminated after the April 2014 sampling event due to the lack of a regulatory driver and the lack of interpretative benefit provided by the resulting data (based on past sampling events).

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

Analysis	Sample Type	No. of Samples (April/November)	EPA Method
TPH GRO/DRO	Groundwater	12/0	SW-846 8015
BTEX	Groundwater	12/12	SW-846 8021

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

4.0 GROUNDWATER FLOW DIRECTION

Each of the monitoring wells has been surveyed for top-of-casing (TOC) elevations. Prior to sample collection, Apex gauged the depth to fluids in each monitoring well. The groundwater flow direction (gradient) at the Site is generally toward the west-northwest. The observed gradient during the April and November 2014 monitoring events averages approximately 0.009 ft/ft across the Site.

Groundwater measurements collected during the April and November 2014 gauging events are presented with TOC elevations in Table 2 (Appendix B). Groundwater gradient maps for the April and November 2014 events are included as Figure 4A and 4B (Appendix A).

5.0 DATA EVALUATION

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

5.1 Groundwater Samples

Apex compared BTEX concentrations or laboratory reporting limits (RLs) associated with the groundwater samples collected from monitoring wells during the April and November 2014 sampling events to the New Mexico WQCC GQSs; however, the New Mexico WQCC GQSs may not be applicable since the initial groundwater-bearing unit may not be considered an "Underground Source of Drinking Water" in accordance with 19.15.30 NMAC *Remediation* due to elevated Total Dissolved Solids concentrations. 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.

April 2014:

Benzene, Toluene, Ethylbenzene, and Xylenes

The groundwater samples collected from monitoring wells MW-1 and MW-19 exhibited benzene

concentrations of 23 micrograms per liter ($\mu\text{g/L}$) and 230 $\mu\text{g/L}$, respectively, which exceeded the WQCC GQS of 10 $\mu\text{g/L}$. The groundwater samples collected from the remaining monitoring wells exhibited benzene concentrations ranging from below laboratory RLs to 1.4 $\mu\text{g/L}$ (MW-16), which are below the WQCC GQS of 10 $\mu\text{g/L}$.

The groundwater samples collected from the monitoring wells did not exhibit toluene concentrations above the laboratory RLs, which are below the WQCC GQS of 750 $\mu\text{g/L}$.

The groundwater samples collected from monitoring wells MW-1, MW-4, and MW-19 exhibited ethylbenzene concentrations ranging from 28 $\mu\text{g/L}$ (MW-1) to 76 $\mu\text{g/L}$ (MW-4), which are below the WQCC GQS of 750 $\mu\text{g/L}$. The groundwater samples collected from the remaining monitoring wells did not exhibit ethylbenzene concentrations above the laboratory RLs, which are below the WQCC GQS of 750 $\mu\text{g/L}$.

The groundwater samples collected from monitoring wells MW-1, MW-4, and MW-19 exhibited xylenes concentrations ranging from 14 $\mu\text{g/L}$ (MW-4) to 86 $\mu\text{g/L}$ (MW-1), which are below the WQCC GQS of 620 $\mu\text{g/L}$. The groundwater samples collected from the remaining monitoring wells did not exhibit xylenes concentrations above the laboratory RLs, which are below the WQCC GQS of 620 $\mu\text{g/L}$.

TPH Gasoline Range Organics/Diesel Range Organics

The groundwater samples collected from the monitoring wells during April 2014 exhibited TPH GRO concentrations ranging from <0.050 milligrams per liter (mg/L) to 2.2 mg/L, and TPH DRO concentrations ranging from <1.0 mg/L to 10 mg/L. The highest TPH GRO/DRO concentrations during the April 2014 sampling event were observed in the groundwater sample from monitoring well MW-19 with 2.2 mg/L GRO and 10 mg/L DRO.

November 2014:

Benzene, Toluene, Ethylbenzene, and Xylenes

The groundwater samples collected from monitoring wells MW-1 and MW-19 exhibited benzene concentrations of 32 $\mu\text{g/L}$ and 260 $\mu\text{g/L}$, respectively, which exceeded the WQCC GQS of 10 $\mu\text{g/L}$. The groundwater samples collected from the remaining monitoring wells exhibited benzene concentrations ranging from below laboratory RLs to 1.2 $\mu\text{g/L}$ (MW-16), which are below the WQCC GQS of 10 $\mu\text{g/L}$.

The groundwater samples collected from the monitoring wells did not exhibit toluene concentrations above the laboratory RLs, which are below the WQCC GQS of 750 $\mu\text{g/L}$.

The groundwater samples collected from monitoring wells MW-1, MW-4, and MW-19 exhibited ethylbenzene concentrations ranging from 11 $\mu\text{g/L}$ (MW-4) to 75 $\mu\text{g/L}$ (MW-19), which are below the WQCC GQS of 750 $\mu\text{g/L}$. The groundwater samples collected from the remaining monitoring wells did not exhibit ethylbenzene concentrations above the laboratory RLs, which are below the WQCC GQS of 750 $\mu\text{g/L}$.

The groundwater samples collected from monitoring wells MW-1, MW-4, and MW-19 exhibited xylenes concentrations ranging from 2.9 $\mu\text{g/L}$ (MW-4) to 61 $\mu\text{g/L}$ (MW-1), which are below the WQCC GQS of 620 $\mu\text{g/L}$. The groundwater samples collected from the remaining monitoring wells did not exhibit xylenes concentrations above the laboratory RLs, which are below the WQCC GQS of 620 $\mu\text{g/L}$.

6.0 FINDINGS

Apex conducted semi-annual groundwater monitoring events at the K-51 Pipeline release site during April and November 2014. 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 consists of silty/sandy canyon bottomland with native grasses, and is crossed by a natural gas pipeline operated by Enterprise. The objective of the groundwater monitoring events was to further evaluate the concentrations of COCs in groundwater.

- Prior to sample collection, Apex gauged the depth to fluids in each monitoring well using an interface probe capable of detecting LNAPL.
- During the completion of the sampling event, one (1) groundwater sample was collected from each monitoring well utilizing low-flow sampling techniques or purge and sample (disposable bailer) sampling techniques. Monitoring well MW-18 appears to be silted in and was not sampled during these events. Monitoring well MW-18 has not exhibited detectable concentrations of COCs in the past and is up/cross gradient to the COC plume. It is recommended that this well be plugged and abandoned.
- The groundwater flow direction at the Site is generally towards the west-northwest, with an approximate gradient of 0.009 ft/ft across the Site.
- The groundwater samples collected from monitoring wells MW-2, MW-3, MW-4, MW-11, MW-12, MW-13, MW-14, MW-16, MW-17, and MW-20 during the April and November 2014 sampling events did not exhibit benzene, toluene, ethylbenzene, or xylenes concentrations above the respective WQCC GQSs.
- The groundwater samples collected from monitoring wells MW-1 and MW-19 during the April and November 2014 sampling events exhibited benzene concentrations ranging from 23 µg/L to 260 µg/L, which exceed the WQCC GQS of 10 µg/L.
- With the exception of monitoring well MW-19, sampling events at the site have exhibited generally declining COC concentrations. In the source area of the release, concentrations have decreased by two (2) orders of magnitude, and only monitoring wells MW-19 and MW-1 continue to exhibit COC concentrations above the WQCC GQSs.

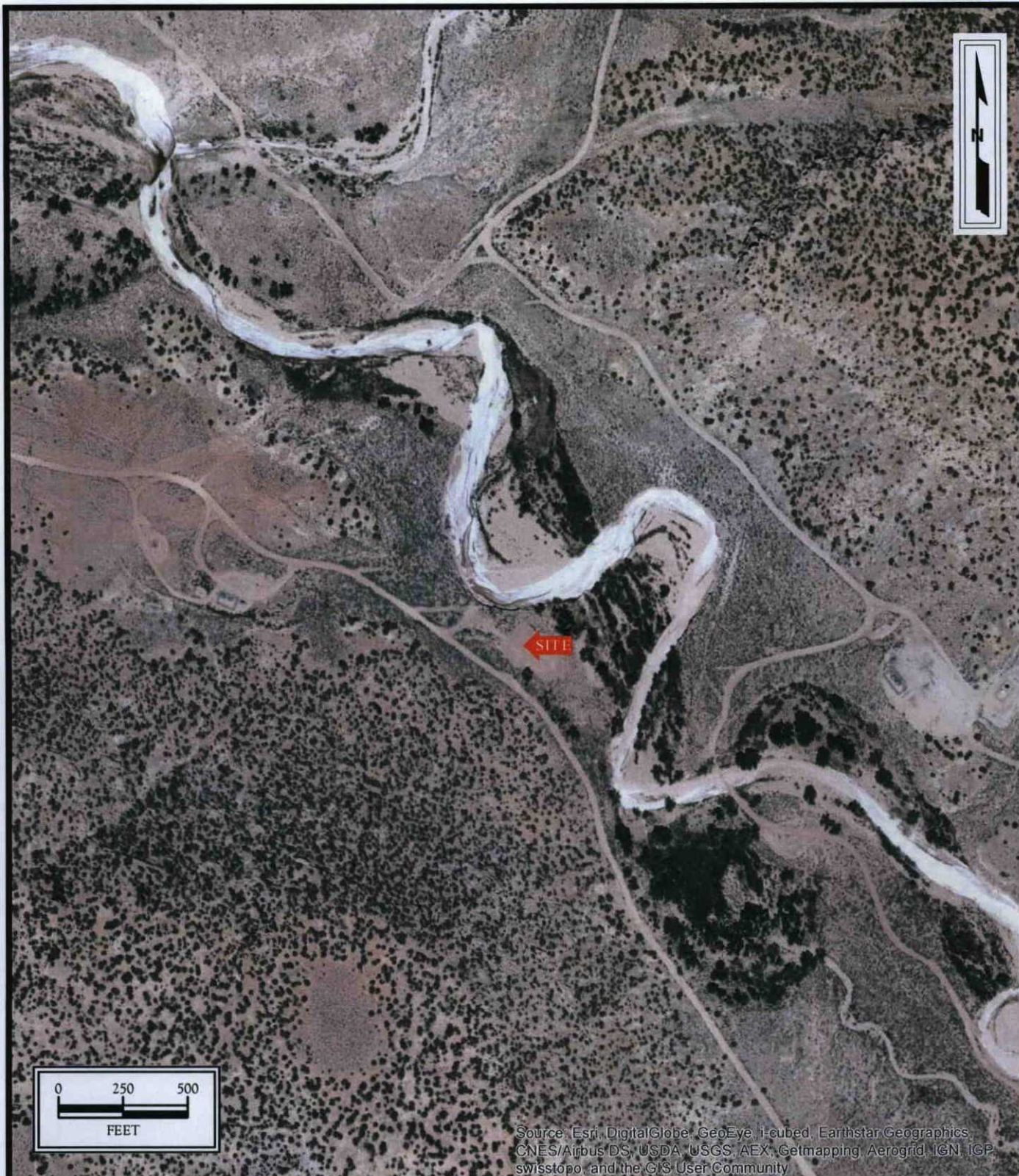
7.0 RECOMMENDATIONS

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

- Report the groundwater monitoring results to the OCD;
- Continue monitoring groundwater at the Site;
- Install a monitoring well down-gradient of monitoring well MW-19 and plug and abandon monitoring well MW-18;
- Additional in situ chemical oxidation was previously recommended in the *Supplemental Site Investigation & Corrective Action Work Plan* (SWG – April 23, 2012). However, due to the continual decrease in COC concentrations at the Site,



Apex recommends evaluating groundwater conditions after the installation of the new down-gradient monitoring well prior to performing additional remediation activities.



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

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

Project No. 7030410G003.001



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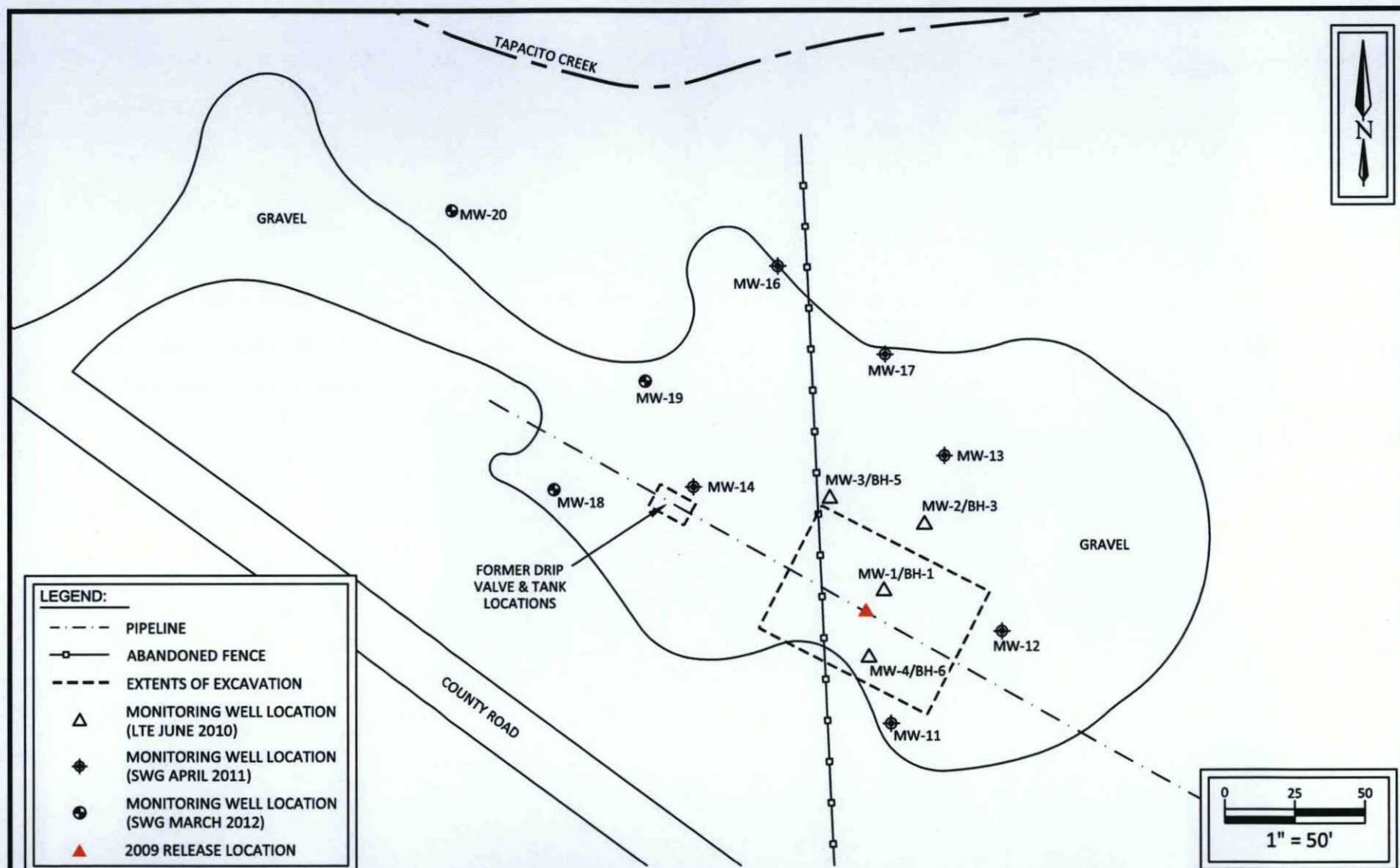
606 South Rio Grande, Suite A
Aztec, NM 87410

Phone: (505) 334-5200

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FIGURE 2
Site Vicinity Map



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

Project No. 7030410G003



Apex TITAN, Inc.

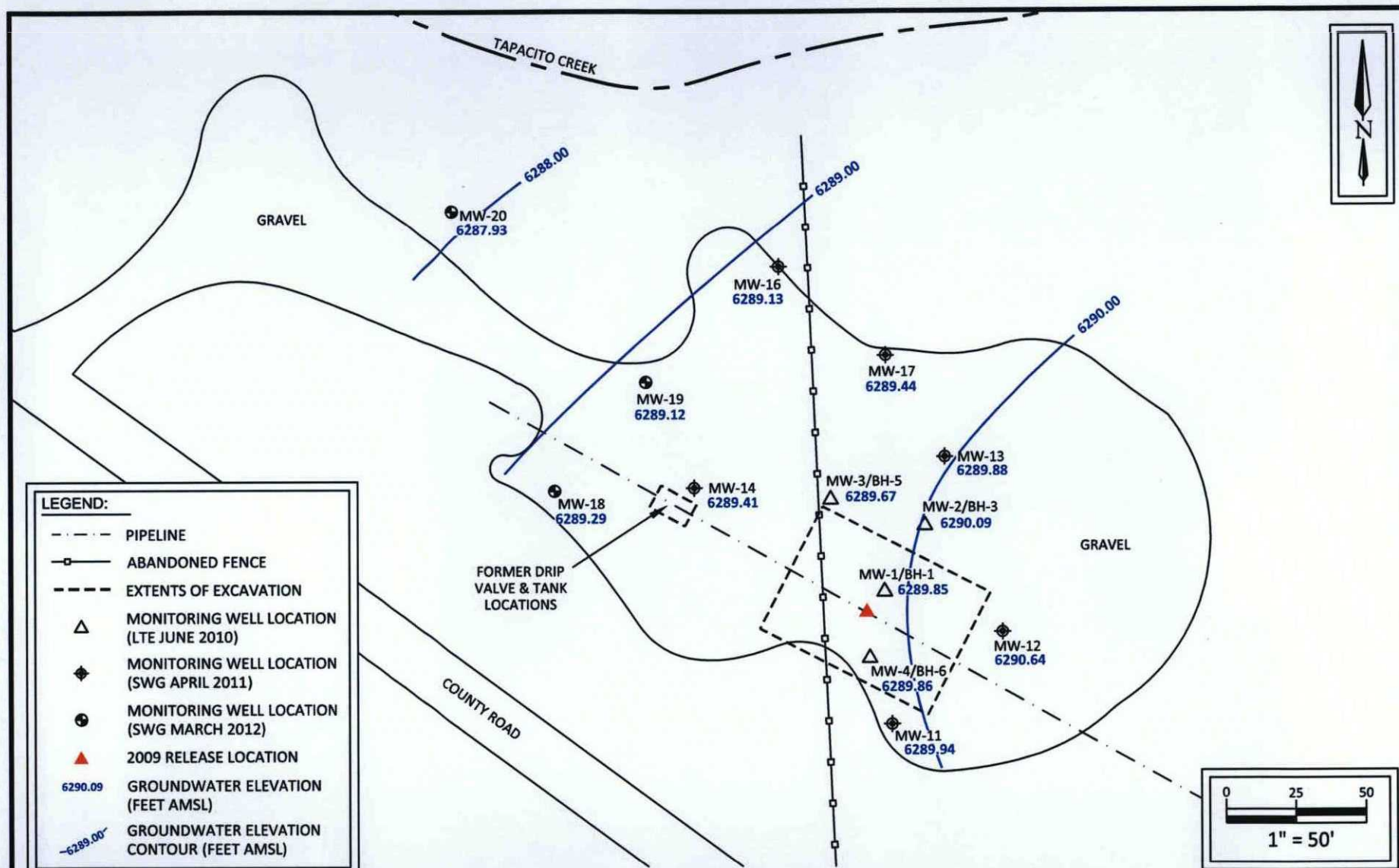
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FIGURE 3
Site Map



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

Project No. 7030410G003



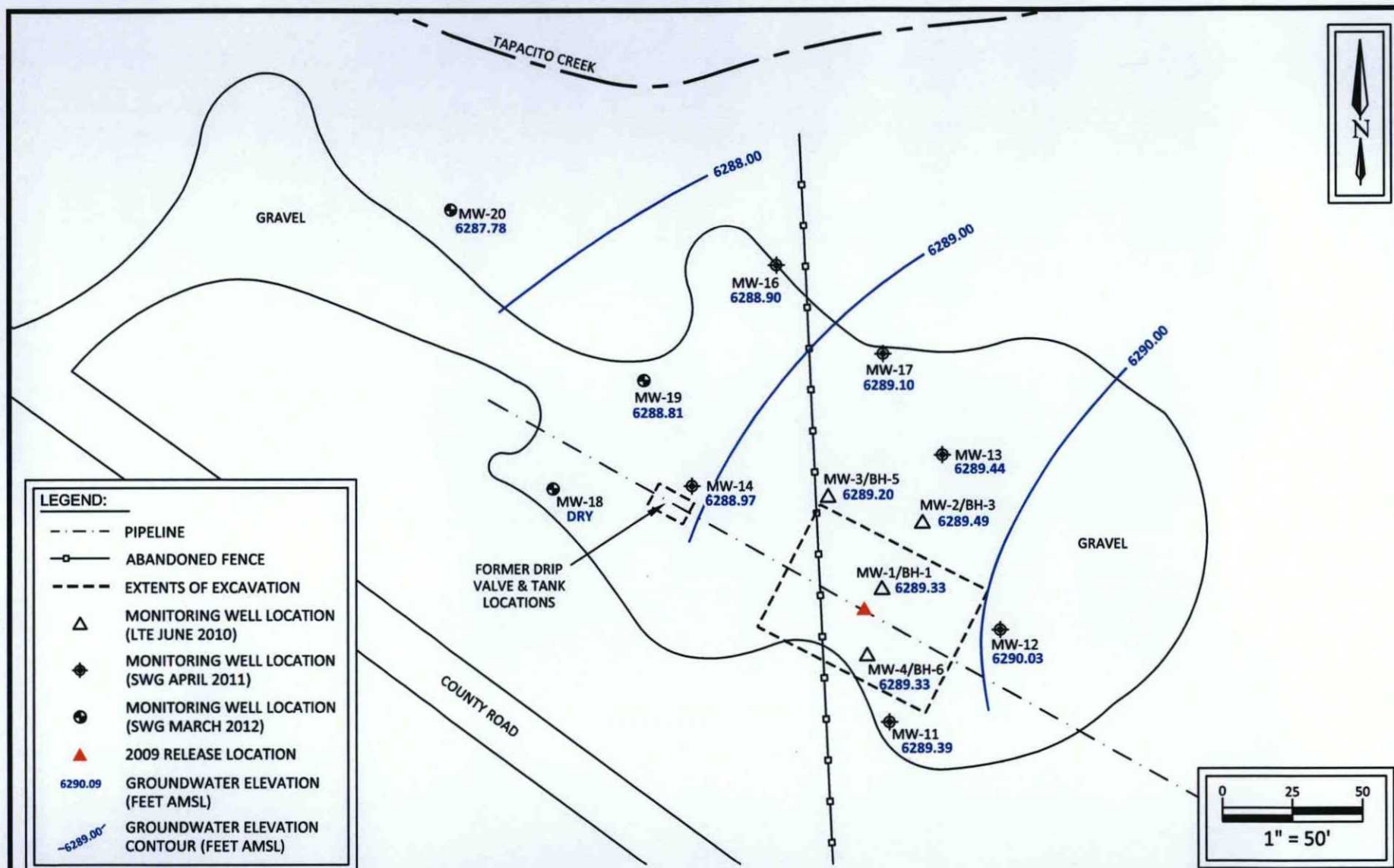
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FIGURE 4A
Groundwater Gradient Map
April 2014



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

Project No. 7030410G003



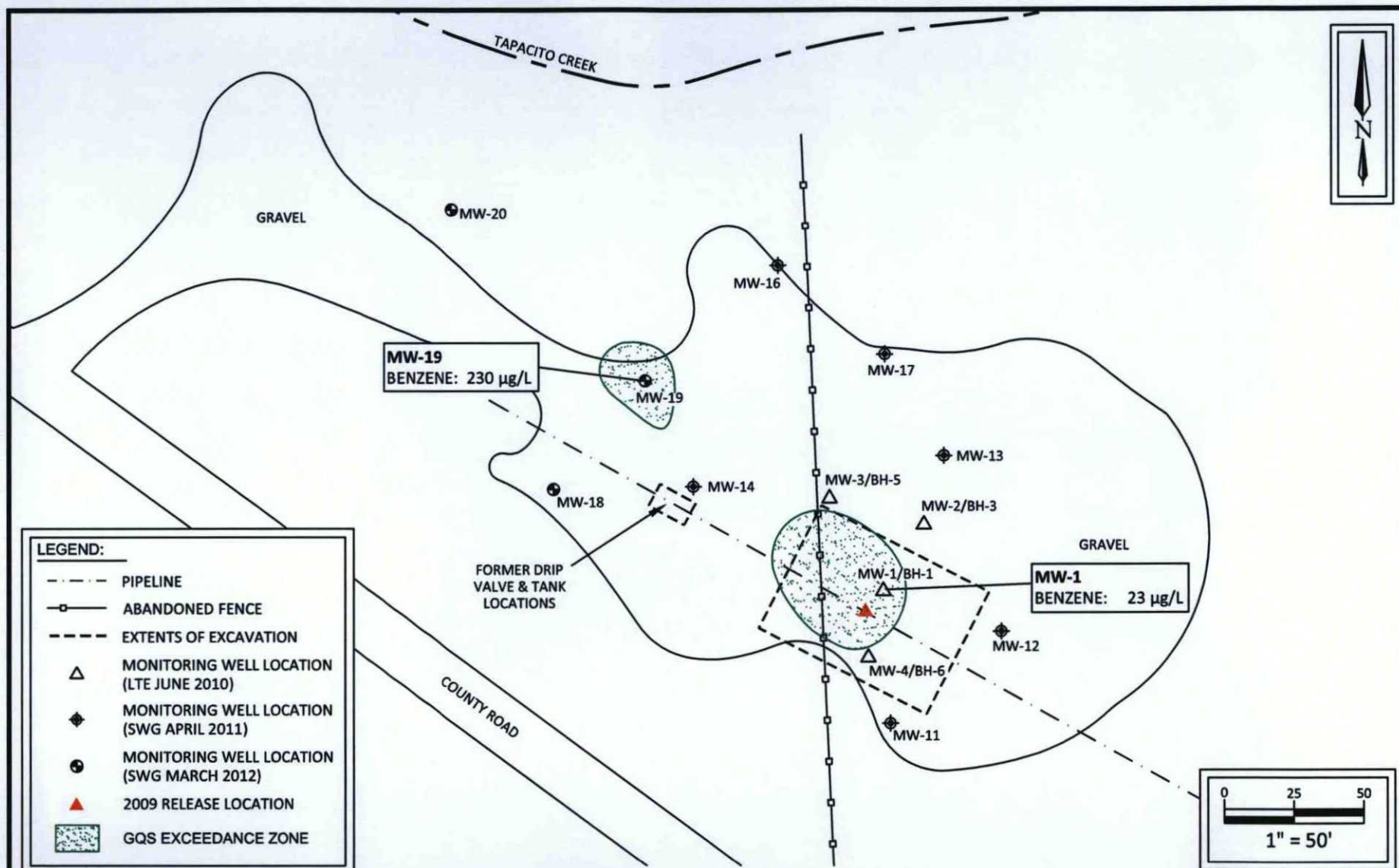
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FIGURE 4B
Groundwater Gradient Map
November 2014



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

Project No. 7030410G003



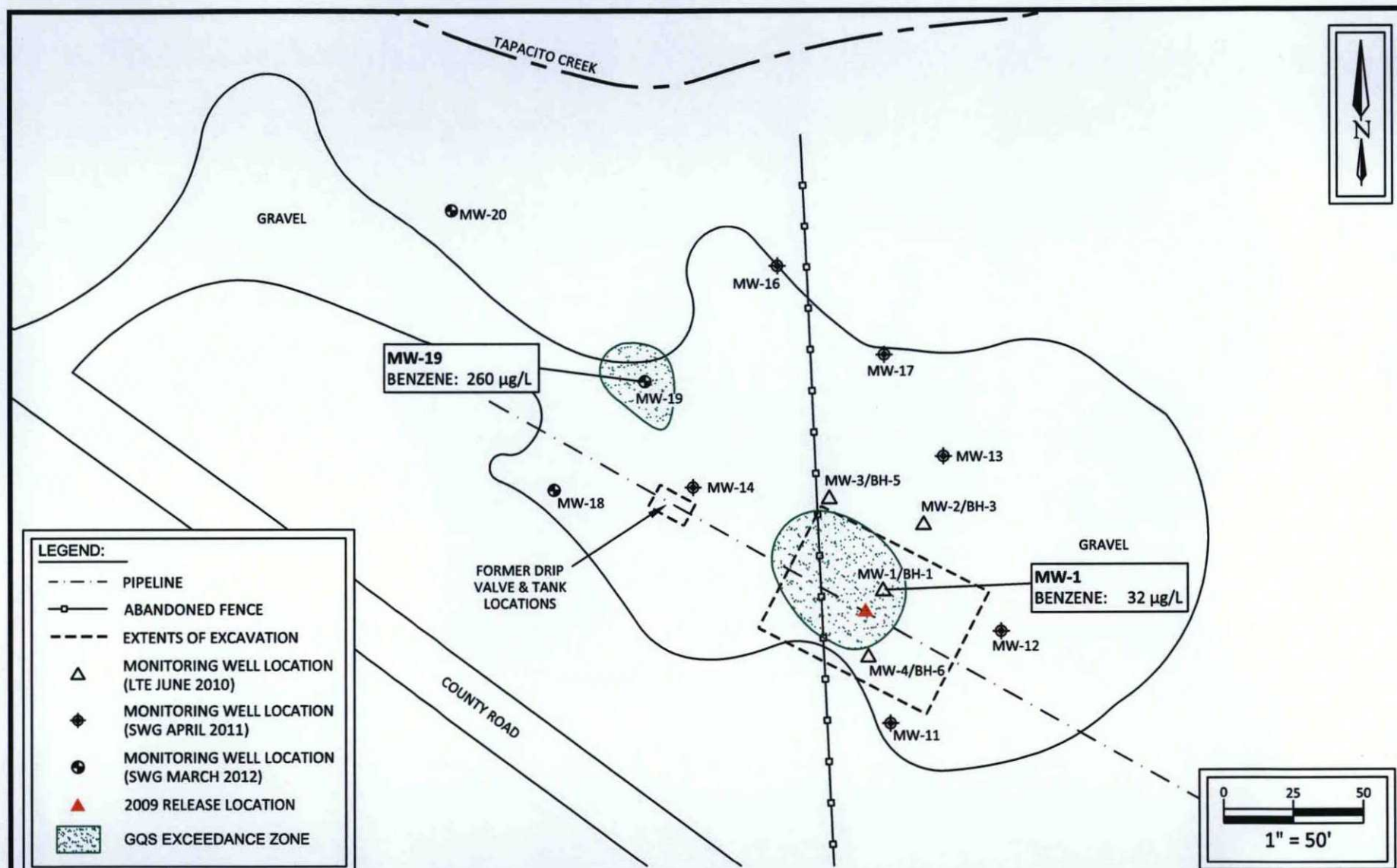
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FIGURE 5A
Groundwater GQS
Exceedance Zone Map
April 2014



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

Project No. 7030410G003



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FIGURE 5B
Groundwater GQS
Exceedance Zone Map
November 2014



TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

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



TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

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

TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

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



TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

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



TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

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



TABLE 1
K-51 Pipeline Release
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commission Groundwater Quality Standards		10	750	750	620	NE	NE
MW-18	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.20.12*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	3.25.13	NS	NS	NS	NS	NS	NS
	6.27.13	NS	NS	NS	NS	NS	NS
	10.21.13	NS	NS	NS	NS	NS	NS
	12.12.13	NS	NS	NS	NS	NS	NS
	4.17.14	NS	NS	NS	NS	NS	NS
	11.6.14	NS	NS	NS	NS	NS	NS
MW-19	6.19.12	NAPL	NAPL	NAPL	NAPL	NA	NA
	9.19.12	NAPL	NAPL	NAPL	NAPL	NA	NA
	12.17.12	180	<5.0	5.4	23	2.2	2.6
	3.25.13	160	<5.0	17	<10	1.5	1.4
	6.27.13	390	<1.0	79	66	2.7	5.9
	10.22.13	140	<1.0	<1.0	<2.0	0.51	2.1
	12.16.13	160	<1.0	37	12	1.4	4.2
	4.18.14	230	<1.0	41	53	2.2	10
	11.6.14	260	<1.0	75	42	NA	NA
MW-20	6.19.12	3.4	<1.0	<1.0	<2.0	<0.050	<1.0
	9.20.12*	4.7	<1.0	<1.0	<2.0	<0.050	<1.0
	12.17.12*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.25.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.27.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	10.22.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.16.13*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.18.14*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	11.6.14*	<1.0	<1.0	<1.0	<2.0	NA	NA

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

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

NA = Not Analyzed

NS = Not Sampled

NE = Not Established

NAPL = Non-aqueous phase liquid

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-1	4.21.11	ND	11.80	ND	6300.89	6289.09
	6.21.11	ND	12.16	ND		6288.73
	9.22.11	ND	12.92	ND		6287.97
	12.13.11	ND	12.45	ND		6288.44
	3.20.12	ND	12.13	ND		6288.76
	6.19.12	ND	12.76	ND		6288.13
	9.19.12	ND	13.10	ND		6287.79
	12.17.12	ND	12.33	ND		6288.56
	3.15.13	ND	11.88	ND		6289.01
	6.27.13	ND	12.61	ND		6288.28
	10.22.13	ND	11.71	ND		6289.18
	12.12.13	ND	11.35	ND		6289.54
	4.18.14	ND	11.04	ND		6289.85
	11.6.14	ND	11.56	ND		6289.33
MW-2	4.21.11	ND	10.55	ND	6299.82	6289.27
	6.21.11	ND	11.87	ND		6287.95
	9.22.11	ND	11.86	ND		6287.96
	12.13.11	ND	11.38	ND		6288.44
	3.20.12	ND	10.95	ND		6288.87
	6.19.12	ND	11.64	ND		6288.18
	9.19.12	ND	12.10	ND		6287.72
	12.17.12	ND	11.23	ND		6288.59
	3.15.13	ND	10.65	ND		6289.17
	6.27.13	ND	11.44	ND		6288.38
	10.21.13	ND	10.44	ND		6289.38
	12.12.13	ND	10.09	ND		6289.73
	4.17.14	ND	9.73	ND		6290.09
	11.6.14	ND	10.33	ND		6289.49
MW-3	4.21.11	ND	11.30	ND	6300.22	6288.92
	6.21.11	ND	11.64	ND		6288.58
	9.22.11	ND	12.45	ND		6287.77
	12.13.11	ND	11.89	ND		6288.33
	3.20.12	ND	11.60	ND		6288.62
	6.19.12	ND	12.22	ND		6288.00
	9.19.12	ND	12.53	ND		6287.69
	12.17.12	ND	11.75	ND		6288.47
	3.15.13	ND	11.37	ND		6288.85
	6.27.13	ND	12.06	ND		6288.16
	10.21.13	ND	11.12	ND		6289.10
	12.12.13	ND	10.84	ND		6289.38
	4.17.14	ND	10.55	ND		6289.67
	11.6.14	ND	11.02	ND		6289.20

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-4	4.21.11	ND	11.90	ND	6300.91	6289.01
	6.21.11	ND	12.18	ND		6288.73
	9.22.11	ND	12.90	ND		6288.01
	12.13.11	ND	12.41	ND		6288.50
	3.20.12	ND	12.45	ND		6288.46
	6.19.12	ND	12.72	ND		6288.19
	9.19.12	ND	13.09	ND		6287.82
	12.17.12	ND	12.33	ND		6288.58
	3.15.13	ND	11.85	ND		6289.06
	6.27.13	ND	12.60	ND		6288.31
	10.22.13	ND	11.74	ND		6289.17
	12.12.13	ND	11.37	ND		6289.54
	4.17.14	ND	11.05	ND		6289.86
	11.6.14	ND	11.58	ND		6289.33
MW-11	4.21.11	ND	11.98	ND	6301.19	6289.21
	6.21.11	ND	12.40	ND		6288.79
	9.22.11	ND	13.07	ND		6288.12
	12.13.11	ND	12.55	ND		6288.64
	3.20.12	ND	12.26	ND		6288.93
	6.19.12	ND	12.93	ND		6288.26
	9.19.12	ND	13.27	ND		6287.92
	12.17.12	ND	12.51	ND		6288.68
	3.15.13	ND	12.05	ND		6289.14
	6.27.13	ND	12.82	ND		6288.37
	10.21.13	ND	11.94	ND		6289.25
	12.12.13	ND	11.61	ND		6289.58
	4.17.14	ND	11.25	ND		6289.94
	11.6.14	ND	11.80	ND		6289.39
MW-12	4.21.11	ND	8.96	ND	6299.08	6290.12
	6.21.11	ND	9.42	ND		6289.66
	9.22.11	ND	10.82	ND		6288.26
	12.13.11	ND	10.13	ND		6288.95
	3.20.12	ND	9.41	ND		6289.67
	6.19.12	ND	10.09	ND		6288.99
	9.19.12	ND	11.03	ND		6288.05
	12.17.12	ND	10.21	ND		6288.87
	3.15.13	ND	9.26	ND		6289.82
	6.27.13	ND	9.99	ND		6289.09
	10.21.13	ND	9.09	ND		6289.99
	12.12.13	ND	8.78	ND		6290.30
	4.17.14	ND	8.44	ND		6290.64
	11.6.14	ND	9.05	ND		6290.03

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-13	4.21.11	ND	9.07	ND	6298.27	6289.20
	6.21.11	ND	9.51	ND		6288.76
	9.22.11	ND	10.15	ND		6288.12
	12.13.11	ND	9.59	ND		6288.68
	3.20.12	ND	9.35	ND		6288.92
	6.19.12	ND	10.09	ND		6288.18
	9.19.12	ND	10.29	ND		6287.98
	12.17.12	ND	9.47	ND		6288.80
	3.15.13	ND	9.11	ND		6289.16
	6.27.13	ND	9.94	ND		6288.33
	10.21.13	ND	8.91	ND		6289.36
	12.12.13	ND	8.57	ND		6289.70
	4.17.14	ND	8.39	ND		6289.88
	11.6.14	ND	8.83	ND		6289.44
MW-14	4.21.11	ND	12.54	ND	6301.20	6288.66
	6.21.11	ND	12.88	ND		6288.32
	9.22.11	ND	13.53	ND		6287.67
	12.13.11	ND	13.11	ND		6288.09
	3.20.12	ND	12.80	ND		6288.40
	6.19.12	ND	13.42	ND		6287.78
	9.19.12	ND	13.70	ND		6287.50
	12.17.12	ND	12.93	ND		6288.27
	3.15.13	ND	12.55	ND		6288.65
	6.27.13	ND	13.26	ND		6287.94
	10.22.13	ND	12.39	ND		6288.81
	12.12.13	ND	12.06	ND		6289.14
	4.18.14	ND	11.79	ND		6289.41
	11.6.14	ND	12.23	ND		6288.97
MW-16	4.21.11	ND	12.06	ND	6299.89	6287.83
	6.21.11	ND	12.26	ND		6287.63
	9.22.11	ND	12.57	ND		6287.32
	12.13.11	ND	12.28	ND		6287.61
	3.20.12	ND	12.24	ND		6287.65
	6.19.12	ND	12.71	ND		6287.18
	9.19.12	ND	12.80	ND		6287.09
	12.17.12	ND	11.90	ND		6287.99
	3.15.13	ND	11.80	ND		6288.09
	6.27.13	ND	12.37	ND		6287.52
	10.21.13	ND	11.32	ND		6288.57
	12.12.13	ND	10.92	ND		6288.97
	4.17.14	ND	10.76	ND		6289.13
	11.6.14	ND	10.99	ND		6288.90

TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-17	4.21.11	ND	9.90	ND	6298.57	6288.67
	6.21.11	ND	9.56	ND		6289.01
	9.22.11	ND	10.83	ND		6287.74
	12.13.11	ND	10.31	ND		6288.26
	3.20.12	ND	10.12	ND		6288.45
	6.19.12	ND	10.81	ND		6287.76
	9.19.12	ND	10.95	ND		6287.62
	12.17.12	ND	10.13	ND		6288.44
	3.15.13	ND	9.85	ND		6288.72
	6.27.13	ND	10.62	ND		6287.95
	10.21.13	ND	9.61	ND		6288.96
	12.12.13	ND	9.28	ND		6289.29
	4.17.14	ND	9.13	ND		6289.44
	11.6.14	ND	9.47	ND		6289.10
MW-18	3.20.12	ND	16.60	ND	6304.77	6288.17
	6.19.12	ND	17.42	ND		6287.35
	9.19.12	ND	17.45	ND		6287.32
	12.17.12	ND	16.73	ND		6288.04
	3.15.13	ND	NG	ND		NG
	6.27.13	ND	16.86	ND		6287.91
	10.22.13	ND	NG	ND		NG
	12.12.13	ND	NG	ND		NG
	4.17.14	ND	15.48	ND		6289.29
	11.6.14	DRY	DRY	DRY		DRY
MW-19	3.20.12	ND	15.69	ND	6303.80	6288.11
	6.19.12	16.25	16.32	0.07		6287.52
	9.19.12	16.47	16.49	0.02		6287.32
	12.17.12	ND	15.91	ND		6287.89
	3.15.13	ND	15.38	ND		6288.42
	6.27.13	ND	16.19	ND		6287.61
	10.22.13	ND	15.13	ND		6288.67
	12.12.13	ND	14.78	ND		6289.02
	4.18.14	ND	14.68	ND		6289.12
	11.6.14	ND	14.99	ND		6288.81
MW-20	3.20.12	ND	25.82	ND	6312.59	6286.77
	6.19.12	ND	26.30	ND		6286.29
	9.19.12	ND	26.31	ND		6286.28
	12.17.12	ND	25.42	ND		6287.17
	3.15.13	ND	25.38	ND		6287.21
	6.27.13	ND	26.11	ND		6286.48
	10.22.13	ND	24.98	ND		6287.61
	12.12.13	ND	24.57	ND		6288.02
	4.17.14	ND	24.66	ND		6287.93
	11.6.14	ND	24.81	ND		6287.78

BTOC - below top of casing

AMSL - above mean sea level

TOC - top of casing

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

ND - Not Detected

NG - Not Gauged



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

November 18, 2014

Kyle Summers
Southwest Geoscience
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (903) 821-5603
FAX (214) 350-2914

RE: K-51

OrderNo.: 1404917

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 8 sample(s) on 4/22/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued April 28, 2014.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience**Client Sample ID:** MW-16**Project:** K-51**Collection Date:** 4/17/2014 11:00:00 AM**Lab ID:** 1404917-001**Matrix:** AQUEOUS**Received Date:** 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/23/2014 7:31:55 PM	12827
Surr: DNOP	102	62.7-145		%REC	1	4/23/2014 7:31:55 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2014 5:05:02 PM	R18156
Surr: BFB	85.4	80.4-118		%REC	1	4/22/2014 5:05:02 PM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	1.4	1.0		µg/L	1	4/22/2014 5:05:02 PM	R18156
Toluene	ND	1.0		µg/L	1	4/22/2014 5:05:02 PM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/22/2014 5:05:02 PM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/22/2014 5:05:02 PM	R18156
Surr: 4-Bromofluorobenzene	98.4	82.9-139		%REC	1	4/22/2014 5:05:02 PM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-17

Project: K-51

Collection Date: 4/17/2014 11:55:00 AM

Lab ID: 1404917-002

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/23/2014 7:53:57 PM	12827
Surr: DNOP	80.2	62.7-145		%REC	1	4/23/2014 7:53:57 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2014 6:35:25 PM	R18156
Surr: BFB	86.3	80.4-118		%REC	1	4/22/2014 6:35:25 PM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/22/2014 6:35:25 PM	R18156
Toluene	ND	1.0		µg/L	1	4/22/2014 6:35:25 PM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/22/2014 6:35:25 PM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/22/2014 6:35:25 PM	R18156
Surr: 4-Bromofluorobenzene	100	82.9-139		%REC	1	4/22/2014 6:35:25 PM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-13

Project: K-51

Collection Date: 4/17/2014 1:10:00 PM

Lab ID: 1404917-003

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/23/2014 8:16:00 PM	12827
Surr: DNOP	76.2	62.7-145		%REC	1	4/23/2014 8:16:00 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2014 7:05:34 PM	R18156
Surr: BFB	88.0	80.4-118		%REC	1	4/22/2014 7:05:34 PM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/22/2014 7:05:34 PM	R18156
Toluene	ND	1.0		µg/L	1	4/22/2014 7:05:34 PM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/22/2014 7:05:34 PM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/22/2014 7:05:34 PM	R18156
Surr: 4-Bromofluorobenzene	101	82.9-139		%REC	1	4/22/2014 7:05:34 PM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-12

Project: K-51

Collection Date: 4/17/2014 1:55:00 PM

Lab ID: 1404917-004

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/23/2014 8:38:01 PM	12827
Surr: DNOP	75.5	62.7-145		%REC	1	4/23/2014 8:38:01 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2014 7:35:55 PM	R18156
Surr: BFB	88.7	80.4-118		%REC	1	4/22/2014 7:35:55 PM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/22/2014 7:35:55 PM	R18156
Toluene	ND	1.0		µg/L	1	4/22/2014 7:35:55 PM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/22/2014 7:35:55 PM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/22/2014 7:35:55 PM	R18156
Surr: 4-Bromofluorobenzene	102	82.9-139		%REC	1	4/22/2014 7:35:55 PM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-11

Project: K-51

Collection Date: 4/17/2014 2:45:00 PM

Lab ID: 1404917-005

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/23/2014 8:59:56 PM	12827
Surr: DNOP	73.6	62.7-145		%REC	1	4/23/2014 8:59:56 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2014 11:07:12 PM	R18156
Surr: BFB	85.6	80.4-118		%REC	1	4/22/2014 11:07:12 PM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/22/2014 11:07:12 PM	R18156
Toluene	ND	1.0		µg/L	1	4/22/2014 11:07:12 PM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/22/2014 11:07:12 PM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/22/2014 11:07:12 PM	R18156
Surr: 4-Bromofluorobenzene	97.9	82.9-139		%REC	1	4/22/2014 11:07:12 PM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-4

Project: K-51

Collection Date: 4/17/2014 3:45:00 PM

Lab ID: 1404917-006

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/23/2014 9:43:51 PM	12827
Surr: DNOP	82.1	62.7-145		%REC	1	4/23/2014 9:43:51 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	0.78	0.050		mg/L	1	4/22/2014 11:37:25 PM	R18156
Surr: BFB	204	80.4-118	S	%REC	1	4/22/2014 11:37:25 PM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/22/2014 11:37:25 PM	R18156
Toluene	ND	1.0		µg/L	1	4/22/2014 11:37:25 PM	R18156
Ethylbenzene	76	1.0		µg/L	1	4/22/2014 11:37:25 PM	R18156
Xylenes, Total	14	2.0		µg/L	1	4/22/2014 11:37:25 PM	R18156
Surr: 4-Bromofluorobenzene	180	82.9-139	S	%REC	1	4/22/2014 11:37:25 PM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-2

Project: K-51

Collection Date: 4/17/2014 4:40:00 PM

Lab ID: 1404917-007

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/24/2014 2:42:55 PM	12827
Surr: DNOP	119	62.7-145		%REC	1	4/24/2014 2:42:55 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/23/2014 12:07:39 AM	R18156
Surr: BFB	86.6	80.4-118		%REC	1	4/23/2014 12:07:39 AM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/23/2014 12:07:39 AM	R18156
Toluene	ND	1.0		µg/L	1	4/23/2014 12:07:39 AM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/23/2014 12:07:39 AM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/23/2014 12:07:39 AM	R18156
Surr: 4-Bromofluorobenzene	101	82.9-139		%REC	1	4/23/2014 12:07:39 AM	R18156

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

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

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1404917

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience**Client Sample ID:** MW-3**Project:** K-51**Collection Date:** 4/17/2014 6:00:00 PM**Lab ID:** 1404917-008**Matrix:** AQUEOUS**Received Date:** 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/24/2014 3:05:00 PM	12827
Surr: DNOP	119	62.7-145		%REC	1	4/24/2014 3:05:00 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/23/2014 12:37:49 AM	R18156
Surr: BFB	85.5	80.4-118		%REC	1	4/23/2014 12:37:49 AM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/23/2014 12:37:49 AM	R18156
Toluene	ND	1.0		µg/L	1	4/23/2014 12:37:49 AM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/23/2014 12:37:49 AM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/23/2014 12:37:49 AM	R18156
Surr: 4-Bromofluorobenzene	96.8	82.9-139		%REC	1	4/23/2014 12:37:49 AM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404917

18-Nov-14

Client: Southwest Geoscience

Project: K-51

Sample ID	MB-12827	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524763	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Surr: DNOP	1.2		1.000		118	62.7	145			

Sample ID	LCS-12827	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524791	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	121	78.6	146			
Surr: DNOP	0.60		0.5000		120	62.7	145			

Sample ID	LCSD-12827	SampType:	LCSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSS02	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524860	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.7	1.0	5.000	0	93.5	78.6	146	25.4	26.5	
Surr: DNOP	0.45		0.5000		90.5	62.7	145	0	0	

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404917

18-Nov-14

Client: Southwest Geoscience

Project: K-51

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523939	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.4	80.4	118			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523940	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	105	80	120			
Surr: BFB	18		20.00		88.9	80.4	118			

Sample ID	1404917-002AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	MW-17	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523956	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	107	79	121			
Surr: BFB	19		20.00		93.8	80.4	118			

Sample ID	1404917-002AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	MW-17	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523958	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	100	79	121	6.69	20	
Surr: BFB	18		20.00		90.7	80.4	118	0	0	

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404917

18-Nov-14

Client: Southwest Geoscience

Project: K-51

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523997	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	20		20.00		101	82.9	139			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	524000	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	80	120			
Toluene	21	1.0	20.00	0	103	80	120			
Ethylbenzene	21	1.0	20.00	0	103	80	120			
Xylenes, Total	63	2.0	60.00	0	104	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		103	82.9	139			

Sample ID	1404917-001AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	MW-16	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	524008	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	1.366	109	71	129			
Toluene	22	1.0	20.00	0	109	68.4	135			
Ethylbenzene	22	1.0	20.00	0	108	69.4	135			
Xylenes, Total	66	2.0	60.00	0	110	72.4	135			
Surr: 4-Bromofluorobenzene	21		20.00		103	82.9	139			

Sample ID	1404917-001AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	MW-16	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	524009	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	1.366	105	71	129	3.39	20	
Toluene	21	1.0	20.00	0	106	68.4	135	2.75	20	
Ethylbenzene	21	1.0	20.00	0	105	69.4	135	3.17	20	
Xylenes, Total	64	2.0	60.00	0	107	72.4	135	3.45	20	
Surr: 4-Bromofluorobenzene	21		20.00		103	82.9	139	0	0	

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

Sample Log-In Check List

Client Name: Southwest Geoscience

Work Order Number: 1404917

RcptNo: 1

Received by/date:

C-S

04/22/14

Logged By: Ashley Gallegos

4/22/2014 10:00:00 AM

AG

Completed By: Ashley Gallegos

4/22/2014 11:11:01 AM

AG

Reviewed By:

AG / CS

04/22/14

Chain of Custody

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

Log In

- | | | | |
|---|-------|------|--|
| 4. Was an attempt made to cool the samples? | Yes ✓ | No | NA |
| 5. Were all samples received at a temperature of >0° C to 6.0°C | Yes ✓ | No | NA |
| 6. Sample(s) in proper container(s)? | Yes ✓ | No | |
| 7. Sufficient sample volume for indicated test(s)? | Yes ✓ | No | |
| 8. Are samples (except VOA and ONG) properly preserved? | Yes ✓ | No | |
| 9. Was preservative added to bottles? | Yes | No ✓ | NA |
| 10. VOA vials have zero headspace? | Yes ✓ | No | No VOA Vials |
| 11. Were any sample containers received broken? | Yes | No ✓ | # of preserved bottles checked for pH: |
| 12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) | Yes ✓ | No | (<2 or >12 unless noted) |
| 13. Are matrices correctly identified on Chain of Custody? | Yes ✓ | No | Adjusted? |
| 14. Is it clear what analyses were requested? | Yes ✓ | No | |
| 15. Were all holding times able to be met?
(If no, notify customer for authorization.) | Yes ✓ | No | Checked by: |

Special Handling (if applicable)

- | | | | |
|---|-----|----|------|
| 16. Was client notified of all discrepancies with this order? | Yes | No | NA ✓ |
|---|-----|----|------|

Person Notified:

Date:

By Whom:

Via:

eMail

Phone

Fax

In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.9	Good	Not Present			

CHAIN OF CUSTODY RECORD

<h1 style="margin: 0;">Southwest</h1> <h2 style="margin: 0;">GEOSCIENCE</h2> <p style="margin: 0;">Environmental & Hydrogeologic Consultants</p>		Laboratory: <u>HALL ABQ</u> Address: _____ Contact: <u>FREEMAN</u> Phone: _____ PO/SO #: _____		ANALYSIS REQUESTED <div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> BTX 8021 TPH 8015 PRO/60 </div>										Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>2.9°</u> <div style="display: flex; justify-content: space-between;"> 12345 </div> Page <u>1</u> of <u>1</u>	
		Office Location <u>AZTEC NM</u> Project Manager <u>Kyle Summers</u> Sampler's Name <u>AARON BRYANT</u> Project No. <u>04106003</u> Project Name <u>K-51</u> No/Type of Containers _____		Sampler's Signature <u>[Signature]</u>											

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 L.	250 ml	P/O	Lab Sample ID (Lab Use Only)
W	4-17-14	1100		X	MW-16			5			X X	1404917-001
W		1155		X	MW-17			5			X X	-002
W		1310		X	MW-13			5			X X	-003
W		1355		X	MW-12			5			X X	-004
W		1445		X	MW-11			5			X X	-005
W		1545		X	MW-4			5			X X	-006
W		1640		X	MW-2			5			X X	-007
W		1800		X	MW-3			5			X X	-008
NFS A13												

Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush				NOTES: <div style="font-size: 2em; font-weight: bold;">\$ 97 / Sample</div> Temp 05 04/22/14					
Relinquished by (Signature)	Date	Time	Received by (Signature)					Date	Time
<u>[Signature]</u>	4/18/14	0815	<u>[Signature]</u>					4/18/14	0815
Relinquished by (Signature)	Date	Time	Received by (Signature)					Date	Time
<u>[Signature]</u>	4/18/14	1120	<u>Master West</u>	4/18/14	1120				
Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time				
<u>Master West</u>	4/21/14	1740	<u>Alan Sun</u>	4/22/14	1000				
Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time				

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



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

November 18, 2014

Kyle Summers
Southwest Geoscience
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (903) 821-5603
FAX (214) 350-2914

RE: K-51

OrderNo.: 1404918

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/22/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued May 1, 2014.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404918

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-1

Project: K-51

Collection Date: 4/18/2014 10:55:00 AM

Lab ID: 1404918-001

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	1.1	1.0		mg/L	1	4/24/2014 3:27:09 PM	12827
Surr: DNOP	117	62.7-145		%REC	1	4/24/2014 3:27:09 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	0.38	0.050		mg/L	1	4/23/2014 1:07:56 AM	R18156
Surr: BFB	103	80.4-118		%REC	1	4/23/2014 1:07:56 AM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	23	1.0		µg/L	1	4/23/2014 1:07:56 AM	R18156
Toluene	ND	1.0		µg/L	1	4/23/2014 1:07:56 AM	R18156
Ethylbenzene	28	1.0		µg/L	1	4/23/2014 1:07:56 AM	R18156
Xylenes, Total	86	2.0		µg/L	1	4/23/2014 1:07:56 AM	R18156
Surr: 4-Bromofluorobenzene	116	82.9-139		%REC	1	4/23/2014 1:07:56 AM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1404918

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience**Client Sample ID:** MW-14**Project:** K-51**Collection Date:** 4/18/2014 12:00:00 PM**Lab ID:** 1404918-002**Matrix:** AQUEOUS**Received Date:** 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/23/2014 11:11:29 PM	12827
Surr: DNOP	106	62.7-145		%REC	1	4/23/2014 11:11:29 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/23/2014 1:37:58 AM	R18156
Surr: BFB	86.4	80.4-118		%REC	1	4/23/2014 1:37:58 AM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/23/2014 1:37:58 AM	R18156
Toluene	ND	1.0		µg/L	1	4/23/2014 1:37:58 AM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/23/2014 1:37:58 AM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/23/2014 1:37:58 AM	R18156
Surr: 4-Bromofluorobenzene	99.7	82.9-139		%REC	1	4/23/2014 1:37:58 AM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1404918

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience**Client Sample ID:** MW-19**Project:** K-51**Collection Date:** 4/18/2014 1:00:00 PM**Lab ID:** 1404918-003**Matrix:** AQUEOUS**Received Date:** 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	10	1.0		mg/L	1	4/23/2014 11:33:23 PM	12827
Surr: DNOP	89.4	62.7-145		%REC	1	4/23/2014 11:33:23 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	2.2	0.050		mg/L	1	4/23/2014 2:08:14 AM	R18156
Surr: BFB	336	80.4-118	S	%REC	1	4/23/2014 2:08:14 AM	R18156
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	230	5.0		µg/L	5	4/23/2014 3:16:18 PM	R18173
Toluene	ND	1.0		µg/L	1	4/23/2014 2:08:14 AM	R18156
Ethylbenzene	41	1.0		µg/L	1	4/23/2014 2:08:14 AM	R18156
Xylenes, Total	53	2.0		µg/L	1	4/23/2014 2:08:14 AM	R18156
Surr: 4-Bromofluorobenzene	137	82.9-139		%REC	1	4/23/2014 2:08:14 AM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404918

Date Reported: 11/18/2014

CLIENT: Southwest Geoscience

Client Sample ID: MW-20

Project: K-51

Collection Date: 4/18/2014 1:25:00 PM

Lab ID: 1404918-004

Matrix: AQUEOUS

Received Date: 4/22/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/24/2014 3:49:15 PM	12827
Surr: DNOP	121	62.7-145		%REC	1	4/24/2014 3:49:15 PM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/25/2014 7:31:19 PM	R18223
Surr: BFB	87.2	80.4-118		%REC	1	4/25/2014 7:31:19 PM	R18223
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/23/2014 3:08:33 AM	R18156
Toluene	ND	1.0		µg/L	1	4/23/2014 3:08:33 AM	R18156
Ethylbenzene	ND	1.0		µg/L	1	4/23/2014 3:08:33 AM	R18156
Xylenes, Total	ND	2.0		µg/L	1	4/23/2014 3:08:33 AM	R18156
Surr: 4-Bromofluorobenzene	99.7	82.9-139		%REC	1	4/23/2014 3:08:33 AM	R18156

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404918

18-Nov-14

Client: Southwest Geoscience

Project: K-51

Sample ID	MB-12827	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524763	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Surr: DNOP	1.2		1.000		118	62.7	145			

Sample ID	LCS-12827	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524791	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	121	78.6	146			
Surr: DNOP	0.60		0.5000		120	62.7	145			

Sample ID	LCSD-12827	SampType:	LCSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSS02	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524860	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.7	1.0	5.000	0	93.5	78.6	146	25.4	26.5	
Surr: DNOP	0.45		0.5000		90.5	62.7	145	0	0	

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404918

18-Nov-14

Client: Southwest Geoscience

Project: K-51

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523939	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.4	80.4	118			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523940	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	105	80	120			
Surr: BFB	18		20.00		88.9	80.4	118			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524582	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	18		20.00		87.5	80.4	118			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524583	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	18		20.00		91.3	80.4	118			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R18223	RunNo:	18223					
Prep Date:		Analysis Date:	4/25/2014	SeqNo:	526137	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		85.8	80.4	118			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R18223	RunNo:	18223					
Prep Date:		Analysis Date:	4/25/2014	SeqNo:	526138	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	80	120			
Surr: BFB	18		20.00		91.8	80.4	118			

Qualifiers:

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

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404918

18-Nov-14

Client: Southwest Geoscience

Project: K-51

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	523997	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	20		20.00		101	82.9	139			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R18156	RunNo:	18156					
Prep Date:		Analysis Date:	4/22/2014	SeqNo:	524000	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	80	120			
Toluene	21	1.0	20.00	0	103	80	120			
Ethylbenzene	21	1.0	20.00	0	103	80	120			
Xylenes, Total	63	2.0	60.00	0	104	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		103	82.9	139			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524603	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Surr: 4-Bromofluorobenzene	20		20.00		99.5	82.9	139			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524609	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		103	82.9	139			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R18223	RunNo:	18223					
Prep Date:		Analysis Date:	4/25/2014	SeqNo:	526174	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	19		20.00		94.3	82.9	139			

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404918

18-Nov-14

Client: Southwest Geoscience

Project: K-51

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R18223	RunNo:	18223					
Prep Date:		Analysis Date:	4/25/2014	SeqNo:	526175	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	20		20.00		102	82.9	139			

Qualifiers:

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

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: Southwest Geoscience

Work Order Number: 1404918

RcptNo: 1

Received by/date:

C.S.

04/22/14

Logged By:

Ashley Gallegos

4/22/2014 10:00:00 AM

Completed By:

Ashley Gallegos

4/22/2014 11:49:08 AM

Reviewed By:

CS

04/22/14

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

Adjusted?

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 ☐

Checked by:

(If no, notify customer for authorization.)

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.9	Good	Yes			

CHAIN OF CUSTODY RECORD

<h1 style="margin:0;">Southwest</h1> <h2 style="margin:0;">GEOSCIENCE</h2> <p style="margin:0;">Environmental & Hydrogeologic Consultants</p>				Laboratory: <u>HALL</u> Address: <u>ABQ</u> Contact: <u>FREEMAN</u> Phone: _____ PO/SO #: <u>04106003</u>				ANALYSIS REQUESTED <div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> BTEX 8021 TPH 8015 DEQ/CRO </div>				Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>2.9°</u> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:20%;">1</td> <td style="width:20%;">2</td> <td style="width:20%;">3</td> <td style="width:20%;">4</td> <td style="width:20%;">5</td> </tr> </table> Page <u>1</u> of <u>1</u>				1	2	3	4	5
				1	2	3	4					5								
Office Location <u>AZTEL, NM</u> Project Manager <u>KYLE SUMMERS</u> Sampler's Name <u>ARON BRYANT</u> Sampler's Signature <u>Aron Bryant</u>																				
Proj. No. <u>04106003</u>		Project Name <u>K-51</u>		No/Type of Containers																
Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 L.	250 ml	P/O	Lab Sample ID (Lab Use Only)								
W	4-18-14	1055		X	MW-1			5				X	X	1404918-001						
W		1200		X	MW-14			5				X	X	-002						
W		1300		X	MW-19			5				X	X	-003						
W		1325		X	MW-20			5				X	X	-004						
<div style="border: 1px solid black; padding: 10px; transform: rotate(-15deg); display: inline-block;"> NFS AB </div>																				
Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush																				
Relinquished by (Signature) <u>Aron Bryant</u>		Date: <u>4-18-14</u> Time: <u>1543</u>		Received by (Signature) <u>[Signature]</u>		Date: <u>4/19/14</u> Time: <u>1542</u>		NOTES: <u>97/sample</u>												
Relinquished by (Signature) <u>[Signature]</u>		Date: <u>4/18/14</u> Time: <u>1615</u>		Received by (Signature) <u>[Signature]</u>		Date: <u>4/18/14</u> Time: <u>1615</u>														
Relinquished by (Signature) <u>[Signature]</u>		Date: <u>4/21/14</u> Time: <u>1740</u>		Received by (Signature) <u>[Signature]</u>		Date: <u>4/22/14</u> Time: <u>1000</u>														
Relinquished by (Signature) _____		Date: _____ Time: _____		Received by (Signature) _____		Date: _____ Time: _____														
Matrix	WW - Wastewater	W - Water	S - Soil	SD - Solid	L - Liquid	A - Air Bag	C - Charcoal tube	SL - sludge	O - Oil											
Container	VOA - 40 ml vial	A/G - Amber / Or Glass 1 Liter			250 ml - Glass wide mouth	P/O - Plastic or other														



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

November 12, 2014

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

RE: K-51

OrderNo.: 1411333

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 12 sample(s) on 11/8/2014 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order: 1411333

Date Reported: 11/12/2014

CLIENT: APEX TITAN
Project: K-51**Lab Order:** 1411333**Lab ID:** 1411333-001**Collection Date:** 11/6/2014 9:35:00 AM**Client Sample ID:** MW-16**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	1.2	1.0		µg/L	1	11/11/2014 2:09:55 AM	R22439
Toluene	ND	1.0		µg/L	1	11/11/2014 2:09:55 AM	R22439
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 2:09:55 AM	R22439
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 2:09:55 AM	R22439
Surr: 4-Bromofluorobenzene	107	66.6-167		%REC	1	11/11/2014 2:09:55 AM	R22439

Lab ID: 1411333-002**Collection Date:** 11/6/2014 10:20:00 AM**Client Sample ID:** MW-17**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 2:37:19 AM	R22439
Toluene	ND	1.0		µg/L	1	11/11/2014 2:37:19 AM	R22439
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 2:37:19 AM	R22439
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 2:37:19 AM	R22439
Surr: 4-Bromofluorobenzene	110	66.6-167		%REC	1	11/11/2014 2:37:19 AM	R22439

Lab ID: 1411333-003**Collection Date:** 11/6/2014 11:00:00 AM**Client Sample ID:** MW-13**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 3:04:39 AM	R22439
Toluene	ND	1.0		µg/L	1	11/11/2014 3:04:39 AM	R22439
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 3:04:39 AM	R22439
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 3:04:39 AM	R22439
Surr: 4-Bromofluorobenzene	107	66.6-167		%REC	1	11/11/2014 3:04:39 AM	R22439

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1411333

Date Reported: 11/12/2014

CLIENT: APEX TITAN
Project: K-51

Lab Order: 1411333

Lab ID: 1411333-004

Collection Date: 11/6/2014 11:40:00 AM

Client Sample ID: MW-2

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 3:32:01 AM	R22439
Toluene	ND	1.0		µg/L	1	11/11/2014 3:32:01 AM	R22439
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 3:32:01 AM	R22439
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 3:32:01 AM	R22439
Surr: 4-Bromofluorobenzene	105	66.6-167		%REC	1	11/11/2014 3:32:01 AM	R22439

Lab ID: 1411333-005

Collection Date: 11/6/2014 12:30:00 PM

Client Sample ID: MW-12

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 3:59:15 AM	R22439
Toluene	ND	1.0		µg/L	1	11/11/2014 3:59:15 AM	R22439
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 3:59:15 AM	R22439
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 3:59:15 AM	R22439
Surr: 4-Bromofluorobenzene	104	66.6-167		%REC	1	11/11/2014 3:59:15 AM	R22439

Lab ID: 1411333-006

Collection Date: 11/6/2014 12:20:00 PM

Client Sample ID: MW-20

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 4:26:20 AM	R22439
Toluene	ND	1.0		µg/L	1	11/11/2014 4:26:20 AM	R22439
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 4:26:20 AM	R22439
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 4:26:20 AM	R22439
Surr: 4-Bromofluorobenzene	105	66.6-167		%REC	1	11/11/2014 4:26:20 AM	R22439

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order: 1411333

Date Reported: 11/12/2014

CLIENT: APEX TITAN
Project: K-51**Lab Order:** 1411333**Lab ID:** 1411333-007**Collection Date:** 11/6/2014 1:25:00 PM**Client Sample ID:** MW-11**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 12:48:53 PM	R22479
Toluene	ND	1.0		µg/L	1	11/11/2014 12:48:53 PM	R22479
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 12:48:53 PM	R22479
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 12:48:53 PM	R22479
Surr: 4-Bromofluorobenzene	109	66.6-167		%REC	1	11/11/2014 12:48:53 PM	R22479

Lab ID: 1411333-008**Collection Date:** 11/6/2014 2:15:00 PM**Client Sample ID:** MW-4**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 2:10:53 PM	R22479
Toluene	ND	1.0		µg/L	1	11/11/2014 2:10:53 PM	R22479
Ethylbenzene	11	1.0		µg/L	1	11/11/2014 2:10:53 PM	R22479
Xylenes, Total	2.9	2.0		µg/L	1	11/11/2014 2:10:53 PM	R22479
Surr: 4-Bromofluorobenzene	129	66.6-167		%REC	1	11/11/2014 2:10:53 PM	R22479

Lab ID: 1411333-009**Collection Date:** 11/6/2014 2:55:00 PM**Client Sample ID:** MW-3**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 2:38:02 PM	R22479
Toluene	ND	1.0		µg/L	1	11/11/2014 2:38:02 PM	R22479
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 2:38:02 PM	R22479
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 2:38:02 PM	R22479
Surr: 4-Bromofluorobenzene	107	66.6-167		%REC	1	11/11/2014 2:38:02 PM	R22479

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order: 1411333

Date Reported: 11/12/2014

CLIENT: APEX TITAN
Project: K-51**Lab Order:** 1411333**Lab ID:** 1411333-010**Collection Date:** 11/6/2014 3:30:00 PM**Client Sample ID:** MW-14**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	1.0		µg/L	1	11/11/2014 3:05:12 PM	R22479
Toluene	ND	1.0		µg/L	1	11/11/2014 3:05:12 PM	R22479
Ethylbenzene	ND	1.0		µg/L	1	11/11/2014 3:05:12 PM	R22479
Xylenes, Total	ND	2.0		µg/L	1	11/11/2014 3:05:12 PM	R22479
Surr: 4-Bromofluorobenzene	107	66.6-167		%REC	1	11/11/2014 3:05:12 PM	R22479

Lab ID: 1411333-011**Collection Date:** 11/6/2014 4:05:00 PM**Client Sample ID:** MW-1**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	32	1.0		µg/L	1	11/11/2014 3:32:26 PM	R22479
Toluene	ND	1.0		µg/L	1	11/11/2014 3:32:26 PM	R22479
Ethylbenzene	27	1.0		µg/L	1	11/11/2014 3:32:26 PM	R22479
Xylenes, Total	61	2.0		µg/L	1	11/11/2014 3:32:26 PM	R22479
Surr: 4-Bromofluorobenzene	116	66.6-167		%REC	1	11/11/2014 3:32:26 PM	R22479

Lab ID: 1411333-012**Collection Date:** 11/6/2014 4:40:00 PM**Client Sample ID:** MW-19**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	260	5.0		µg/L	5	11/11/2014 12:21:32 PM	R22479
Toluene	ND	1.0		µg/L	1	11/11/2014 11:27:36 AM	R22479
Ethylbenzene	75	1.0		µg/L	1	11/11/2014 11:27:36 AM	R22479
Xylenes, Total	42	2.0		µg/L	1	11/11/2014 11:27:36 AM	R22479
Surr: 4-Bromofluorobenzene	160	66.6-167		%REC	1	11/11/2014 11:27:36 AM	R22479

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411333

12-Nov-14

Client: APEX TITAN

Project: K-51

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R22439	RunNo:	22439					
Prep Date:		Analysis Date:	11/10/2014	SeqNo:	661851	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	21		20.00		107	66.6	167			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R22439	RunNo:	22439					
Prep Date:		Analysis Date:	11/10/2014	SeqNo:	661852	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	80	120			
Toluene	22	1.0	20.00	0	108	80	120			
Ethylbenzene	22	1.0	20.00	0	111	80	120			
Xylenes, Total	67	2.0	60.00	0	112	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		109	66.6	167			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R22479	RunNo:	22479					
Prep Date:		Analysis Date:	11/11/2014	SeqNo:	662614	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		111	66.6	167			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R22479	RunNo:	22479					
Prep Date:		Analysis Date:	11/11/2014	SeqNo:	662615	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	80	120			
Toluene	22	1.0	20.00	0	110	80	120			
Ethylbenzene	22	1.0	20.00	0	111	80	120			
Xylenes, Total	67	2.0	60.00	0	112	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		109	66.6	167			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411333

12-Nov-14

Client: APEX TITAN

Project: K-51

Sample ID	1411333-007AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	MW-11	Batch ID:	R22479	RunNo:	22479					
Prep Date:		Analysis Date:	11/11/2014	SeqNo:	662633	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0.2660	96.5	80	120			
Toluene	20	1.0	20.00	0	101	80	120			
Ethylbenzene	21	1.0	20.00	0.1840	104	79.7	126			
Xylenes, Total	65	2.0	60.00	0	108	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		109	66.6	167			

Sample ID	1411333-007AMSD			SampType:	MSD		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	MW-11		Batch ID:	R22479		RunNo:	22479				
Prep Date:				Analysis Date:	11/11/2014		SeqNo:	662635		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	19	1.0	20.00	0.2660	94.8	80	120	1.75	20		
Toluene	20	1.0	20.00	0	98.8	80	120	2.55	20		
Ethylbenzene	20	1.0	20.00	0.1840	101	79.7	126	3.09	20		
Xylenes, Total	63	2.0	60.00	0	105	80	120	2.78	20		
Surr: 4-Bromofluorobenzene	22		20.00		108	66.6	167	0	0		

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit



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

Sample Log-In Check List

Client Name: APEX AZTEC

Work Order Number: 1411333

RcptNo: 1

Received by/date:

AF

11/08/14

Logged By: Lindsay Mangin

11/8/2014 10:20:00 AM

Judy Hagg

Completed By: Lindsay Mangin

11/10/2014 8:45:29 AM

Judy Hagg

Reviewed By:

CS

11/10/14

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: ☐
(<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted? ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by: ☐

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:


Client Instructions:

17. Additional remarks:


18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes			

CHAIN OF CUSTODY RECORD

 APEX Office Location <u>AZTEC, NM</u>		Laboratory: <u>HALL</u> Address: <u>ABQ</u> Contact: <u>FREEMAN</u> Phone: _____ Project Manager <u>Kyle Summers</u> PO/SO #: _____		ANALYSIS REQUESTED <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; font-weight: bold;">BTX 8021</div>		Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>3.1</u> <div style="display: flex; justify-content: space-between;"> 12345 </div> Page <u>1</u> of <u>2</u>							
		Sampler's Name <u>AARON BRYANT</u> Sampler's Signature <u>[Signature]</u>											
Proj. No. <u>7030410G003</u> Project Name <u>K-51</u> No/Type of Containers _____													
Matrix	Date	Time	Coed	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	AG 1L	250 ml	Glass Jar	P/O	Lab Sample ID (Lab Use Only)
W	11-6-14	0935		X	mw-16			3					X 1411333-001
		1020			mw-17								-002
		1100			mw-13								-003
		1140			mw-2								-004
		1230			mw-12								-005
		1220			mw-20								-006
		1325			mw-11								-007
		1415			mw-4								-008
		1455			mw-3								-009
		1530			mw-14								-010
Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush													
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:	NOTES:					
[Signature]		11-7-14	0605	[Signature]		11/7/14	0605						
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:						
[Signature]		11/7/14	757	[Signature]		11/7/14	757						
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:						
[Signature]		11/7/14	1740	[Signature]		11/7/14	1000						
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:						
[Signature]				[Signature]									
<div style="display: flex; justify-content: space-between; font-size: 0.8em;"> <div>Matrix Container</div> <div>WW - Wastewater VOA - 40 ml vial</div> <div>W - Water A/G - Amber / Or Glass 1 Liter</div> <div>S - Soil SD - Solid 250 ml - Glass wide mouth</div> <div>L - Liquid A - Air Bag</div> <div>C - Charcoal tube P/O - Plastic or other</div> <div>SL - sludge</div> <div>O - Oil</div> </div>													

CHAIN OF CUSTODY RECORD

 APEX Office Location <u>Arizel, NM</u>		Laboratory: <u>HALL</u> Address: <u>ABR</u> Contact: <u>FREEMAN</u> Phone: _____ PO/SO #: _____		ANALYSIS REQUESTED <div style="border: 1px solid black; padding: 5px; transform: rotate(-90deg); display: inline-block;">BTEX 2021</div>		Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>5.1</u> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> <tr> <td></td><td></td><td></td><td></td><td></td></tr> </table> Page <u>2</u> of <u>2</u>		1	2	3	4	5					
		1	2			3	4	5									
Project Manager <u>Kyle Summers</u> Sampler's Name <u>AARON BRYANT</u> Sampler's Signature <u>[Signature]</u>		Project No. <u>70304106003</u> Project Name <u>K-51</u> No/Type of Containers _____															

Matrix	Date	Time	Cool	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	AG 1 L	250 ml	Glass Jar	P/O	Lab Sample ID (Lab Use Only)
W	11-6-14	1605		X	mw-1			3					X 1411333-011
W	11-6-14	1640		X	mw-19			3					X -012
<div style="position: relative; width: 100%; height: 100%;"> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;"> NFE AB </div> </div>													

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

Relinquished by (Signature) <u>[Signature]</u>	Date: <u>11-7-14</u> Time: <u>0605</u>	Received by (Signature) <u>[Signature]</u>	Date: <u>11/7/14</u> Time: <u>0605</u>	NOTES:
Relinquished by (Signature) <u>[Signature]</u>	Date: <u>11/7/14</u> Time: <u>0605</u>	Received by (Signature) <u>[Signature]</u>	Date: _____ Time: _____	
Relinquished by (Signature) <u>[Signature]</u>	Date: <u>11/7/14</u> Time: <u>757</u>	Received by (Signature) <u>[Signature]</u>	Date: <u>11/7/14</u> Time: <u>757</u>	
Relinquished by (Signature) <u>[Signature]</u>	Date: <u>11/7/14</u> Time: <u>0700</u>	Received by (Signature) <u>[Signature]</u>	Date: <u>11/9/14</u> Time: <u>1620</u>	

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