

3R – 451

2014 AGWMR

04 / 27 / 2015



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

ENTERPRISE PRODUCTS OPERATING LLC

April 27, 2015

Return Receipt Requested
7014 1820 0001 6317 9785

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 (February and November 2014 Sampling Events)*
Enterprise Field Services, LLC – Lateral K-7 Pipeline Release (8/30/2012)
Rio Arriba County, New Mexico
OCD RP: 3R-451

Dear Mr. von Gonten:

Please find attached, the above-referenced report prepared by Apex TITAN, Inc. (Apex). The report is associated with the Enterprise Field Services, LLC (Enterprise) Lateral K-7 pipeline release of natural gas condensate that occurred on August 30, 2012.

The activities detailed in the attached *Annual Groundwater Monitoring Report* (AGMR) include the semi-annual groundwater monitoring activities completed at the site during February and November 2014, to further evaluate the concentrations of constituents of concern (COCs) in groundwater at the site. Based on available data, affected soil is still present at the site. A portion of the Lateral K-7 pipeline is being exposed to replace sections of the pipeline. Remaining impacted soils with concentrations exceeding regulatory standards are scheduled to be excavated, and transported to an approved landfarm for disposal/treatment. Based on the information presented in the attached report, Enterprise recommends: the replacement of monitoring well MW-5; the continued delineation of the groundwater plume to the north and east; the evaluation of total dissolved solids concentrations in groundwater at the site; and, continued semi-annual groundwater monitoring at the site to monitor natural attenuation of COCs in groundwater.

Enterprise appreciates the OCD's continued assistance and guidance with this project. Should you have any questions, comments or concerns, or require additional information, please feel free to contact me any time at 713-381-8780, or at gemiller@eprod.com.

Sincerely,

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

Rodney M. Sartor, REM
Director, Environmental

/dep
Attachment

cc: Ms. Shari Ketcham – Farmington, NMec:
Ms. Liz Scaggs – Apex, Aztec, NM



**ANNUAL GROUNDWATER MONITORING REPORT
(February and November 2014 Sampling Events)**

Property:

**Lateral K-7 Pipeline Release (8/30/2012)
NW 1/4, S27 T26N R7W
Rio Arriba County, New Mexico
OCD RP: 3R-451**

April 27, 2015
Apex Project No. 7030414G012

Prepared for:

**Enterprise Field Services, LLC
P.O. Box 4324
Houston, Texas 77210-4324
Attn: Mr. Gregory E. Miller, P.G.**

Prepared by:

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 'Elizabeth Scaggs'.

Elizabeth Scaggs, P.G.
Division Director



***Annual Groundwater Monitoring Report
(February and November 2014 Sampling Events)
Lateral K-7 Pipeline Release (8/30/2012)
Executive Summary***

The Lateral K-7 (8/30/2012) pipeline release site is located within the Enterprise Field Services, LLC (Enterprise) pipeline right-of-way (ROW) in the northwest (NW) 1/4 of Section 27, Township 26 North, Range 7 West, in Rio Arriba County, New Mexico (36.46422N, 107.56505W), referred to hereinafter as the "Site" or "subject Site". The Site is located on public land managed by the United States Bureau of Land Management (BLM). The Site is surrounded by native vegetation rangeland periodically interrupted by oil and gas production and gathering facilities, including three Enterprise natural gas gathering pipelines which traverse the area from approximately north to south. A release of natural gas condensate was discovered at the Site on August 30, 2012.

During September 2012, field screening of soil samples collected from the repair excavation and four (4) test pits advanced outside the excavation indicated hydrocarbon affected soils were present at the release Site. During November 2012, Animas Environmental Services, LLC (AES) advanced eight (8) soil borings (SB-1 through SB-8) at the Site to delineate the extent of hydrocarbon affected soil and potentially impacted groundwater. Samples collected the soil borings exhibited concentrations of constituents of concern (COCs) above New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) *Remediation Action Levels (RALs)* in soils and above the New Mexico Water Quality Control Commission (WQCC) *Groundwater Quality Standards (GQSs)* in groundwater. During October 2013, AES advanced five (5) additional soil borings which were completed as groundwater monitoring wells. Concentrations of COCs were identified groundwater samples above WQCC GQSs.

Semi-annual groundwater monitoring events were conducted on February 18, 2014, by AES, and on November 11, 2014, by Apex TITAN, Inc. (Apex) to further evaluate groundwater COC concentrations over time. Findings and recommendations based on these activities are as follows:

- **The groundwater samples collected from monitoring wells MW-1, MW-3, and MW-5 during February 2014 and monitoring wells MW-1 and MW-3 during November 2014 exhibited benzene concentrations ranging from 11 micrograms per liter (µg/L) to 54 µg/L, which exceed the WQCC GQS of 10 µg/L.**
- **Based on available data, affected soil is still present at the Site. A portion of the Lateral K-7 pipeline is being exposed to replace sections of the pipeline. Remaining impacted soils with COC concentrations exceeding OCD RALs are scheduled to be excavated, and transported to the Envirotech, Inc. landfarm for disposal/treatment.**
- **Replace MW-5 (unusable due to obstruction by bailer lodged in well casing) and continue delineation of the groundwater COC plume to the north and east;**
- **Evaluate total dissolved solids concentrations in groundwater at the Site; and,**
- **Continue semi-annual groundwater monitoring at the Site to monitor natural attenuation of COCs in groundwater.**

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**ANNUAL GROUNDWATER MONITORING REPORT
(February and November 2014 Sampling Events)**

Lateral K-7 Pipeline Release (8/30/2012)

NW 1/4, S27 T26N R7W
Rio Arriba County, New Mexico
OCD RP: 3R-451

Apex Project No. 7030414G012

1.0 INTRODUCTION

1.1 Site Description & Background

The Lateral K-7 (8/30/2012) pipeline release site is located within the Enterprise Field Services, LLC (Enterprise) pipeline right-of-way (ROW) in the northwest (NW) 1/4 of Section 27, Township 26 North, Range 7 West, in Rio Arriba County, New Mexico (36.46422N, 107.56505W), referred to hereinafter as the "Site" or "subject Site". The Site is located on public land managed by the United States Bureau of Land Management (BLM). The Site is surrounded by native vegetation rangeland periodically interrupted by oil and gas production and gathering facilities, including three Enterprise natural gas gathering pipelines which traverse the area from approximately north to south. A release of natural gas condensate was discovered at the Site on August 30, 2012.

On September 4, 2012, Enterprise initiated excavation activities at the Site in an effort to locate the point of release and repair the Lateral K-7 pipeline. Two corrosion holes (approximately 7.5 feet apart) were identified and repaired. Animas Environmental Services, LLC (AES) collected five (5) discrete soil samples from the walls and base of the excavation, along with eight (8) discrete samples from four (4) test pits advanced outside the excavation. The samples were field screened utilizing a photoionization detector (PID). The soil samples exhibited organic vapor concentrations ranging from 103 parts per million (ppm) to 8,304 ppm (*Release Report for the Lateral K-7 September 2012 Release, dated September 26, 2012 – AES*).

During November 2012, AES advanced eight (8) soil borings (SB-1 through SB-8) at the Site to further delineate the extent of hydrocarbon affected soil and potentially impacted groundwater. Based on laboratory analytical results of soil and groundwater samples collected from the soil borings, 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) (*Continued Site Assessment Report, dated February 25, 2013 – AES*).

During October 2013, five (5) additional soil borings were advanced by AES in the area of the former K-7 release to further delineate the extent of impact to soils and groundwater. Subsequent to advancement, all five (5) of the soil borings were completed as groundwater monitoring wells (MW-1 through MW-5). Based on the results of soil and groundwater sampling activities, COC concentrations were identified in soil above the New Mexico EMNRD OCD RALs and in groundwater above the New Mexico WQCC GQSS (*Groundwater Investigation Report, dated March 19, 2014 – AES*).

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 EMNROD OCD rules, specifically New Mexico Administrative Code (NMAC) 19.15.29 *Release Notification*. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

The Site location is depicted on Figure 1 of Appendix A which was reproduced from a portion of 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 event was to further evaluate COC concentrations in groundwater at the Site.

1.3 Standard of Care, Limitations & Reliance

Apex TITAN, Inc.'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 on February 18, 2014, by AES, and on November 11, 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). Each monitoring well was purged of three casing volumes, or until effectively dry, utilizing a disposable bailer. Subsequent to the completion of the purging process and the recovery of groundwater to near static levels, one (1) groundwater sample was collected from each monitoring well.

Monitor well MW-5 was not sampled during the November 2014 sampling event due to a bailer becoming lodged within the well casing during the purging process.

Groundwater samples were collected in laboratory supplied containers and placed on ice in a cooler secured with a custody seal. The samples collected during February 2014 were shipped under proper chain-of-custody to ALS Environmental in Houston, Texas (ALS did not provide custody seals for the sample containers), while the samples collected during November 2014 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 benzene, toluene, ethylbenzene and xylenes (BTEX) utilizing EPA SW-846 Method #8021. The sample containers for organic analyses were pre-preserved with HCl for the February 2014 sampling event and HgCl₂ for the November 2014 sampling event.

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

Analysis	Sample Media	No. of Samples (February/November)	EPA Method
BTEX	Groundwater	5/4	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 north-northwest. The calculated gradient during the February and November 2014 monitoring events averages approximately 0.008 ft/ft across the Site.

Groundwater measurements collected during the February and November 2014 gauging events are presented with TOC elevations in Table 2 (Appendix B). Groundwater gradient maps for the February and November 2014 events are included as Figure 4A and 4B, respectively (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 *Release Notification*. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

5.1 Groundwater Samples

Apex compared BTEX concentrations or laboratory reporting limits (RLs) associated with the groundwater samples collected from monitoring wells during the February 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" as defined in 19.15.2 NMAC *General Provisions for Oil and Gas Operations* due to potentially elevated Total Dissolved Solids (TDS) concentrations. TDS concentrations have not yet been established for groundwater at this site and will be evaluated during the next semi-annual monitoring event. 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.

February 2014:

Benzene, Toluene, Ethylbenzene, and Xylenes

The groundwater samples collected from monitoring wells MW-1, MW-3, and MW-5 exhibited benzene concentrations ranging from 21 micrograms per liter ($\mu\text{g/L}$) (MW-3) to 54 $\mu\text{g/L}$ (MW-5), which exceeded the WQCC GQS of 10 $\mu\text{g/L}$. The groundwater samples collected from the remaining monitoring wells exhibited benzene concentrations below laboratory RLs, which are below the WQCC GQS of 10 $\mu\text{g/L}$.

The groundwater samples collected from the monitoring wells MW-1, MW-3, and MW-5 exhibited toluene concentrations ranging from 33 $\mu\text{g/L}$ (MW-3) to 200 $\mu\text{g/L}$ (MW-5), which are below the WQCC GQS of 750 $\mu\text{g/L}$. The groundwater samples collected from the remaining 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, and MW-5 exhibited ethylbenzene concentrations of 4 $\mu\text{g/L}$ and 10 $\mu\text{g/L}$, respectively, 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-3, and MW-5 exhibited xylenes concentrations ranging from 21 $\mu\text{g/L}$ (MW-3) to 150 $\mu\text{g/L}$ (MW-5), 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 $\mu\text{g/L}$.

No data qualifier flags were associated with the February 2014 analytical results.

November 2014:

Benzene, Toluene, Ethylbenzene, and Xylenes

Monitoring well MW-5 was not sampled due to an obstruction (lodged bailer) in the well casing. The groundwater samples collected from monitoring wells MW-1 and MW-3 exhibited

benzene concentrations of 39 µg/L and 11 µg/L, respectively, which exceeded the WQCC GQS of 10 µg/L. The groundwater samples collected from the monitoring wells MW-2 and MW-4 exhibited benzene concentrations below laboratory RLs, which are below the WQCC GQS of 10 µg/L.

The groundwater samples collected from monitoring wells MW-1 and MW-3 exhibited toluene concentrations of 240 µg/L and 26 µg/L, respectively, which are below the WQCC GQS of 750 µg/L. The groundwater samples collected from monitoring wells MW-2 and MW-4 exhibited toluene concentrations below the laboratory RLs, which are below the WQCC GQS of 750 µg/L.

The groundwater sample collected from monitoring well MW-1 exhibited an ethylbenzene concentration of 10 µg/L, which is below the WQCC GQS of 750 µg/L. The groundwater samples collected from monitoring wells MW-2 through MW-4 exhibited ethylbenzene concentrations below the laboratory RLs, which are below the WQCC GQS of 750 µg/L.

The groundwater samples collected from monitoring wells MW-1 and MW-3 exhibited xylenes concentrations of 170 µg/L and 18 µg/L, respectively, which are below the WQCC GQS of 620 µg/L. The groundwater samples collected from monitoring wells MW-2 and MW-4 did not exhibit xylenes concentrations above the laboratory RLs, which are below the WQCC GQS of 620 µg/L.

No data qualifier flags were associated with the November 2014 analytical results.

6.0 FINDINGS

Semi-annual groundwater monitoring events were conducted at the Lateral K-7 pipeline release (8/30/2012) site during February and November 2014. The Site is located in the NW 1/4 of Section 27, Township 26 North, Range 7 West, in Rio Arriba County, New Mexico (36.46422N, 107.56505W). The Site is surrounded by native vegetation rangeland periodically interrupted by oil and gas production and gathering facilities, including three Enterprise natural gas gathering pipelines which traverse the area from approximately north to south. A release was discovered at the Site on August 30, 2012. The objective of the groundwater monitoring events was to further evaluate the concentrations of COCs in groundwater.

- The groundwater flow direction at the Site is generally towards the north-northwest, with an approximate gradient of 0.008 ft/ft across the Site.
- The groundwater samples collected from monitoring wells MW-1, MW-3, and MW-5 during the February and monitoring wells MW-1 and MW-3 during the November 2014 sampling events exhibited benzene concentrations ranging from 11 µg/L to 54 µg/L, which exceed the WQCC GQS of 10 µg/L.
- The groundwater samples collected from monitoring wells MW-2 and MW-4 during the February and November 2014 sampling events did not exhibit benzene concentrations above the WQCC GQS.
- The groundwater samples collected from monitoring wells MW-1 through MW-5 during the February 2014 and MW-1 through MW-4 during the November 2014 sampling events did not exhibit toluene, ethylbenzene, or xylenes concentrations above the respective WQCC GQSs.

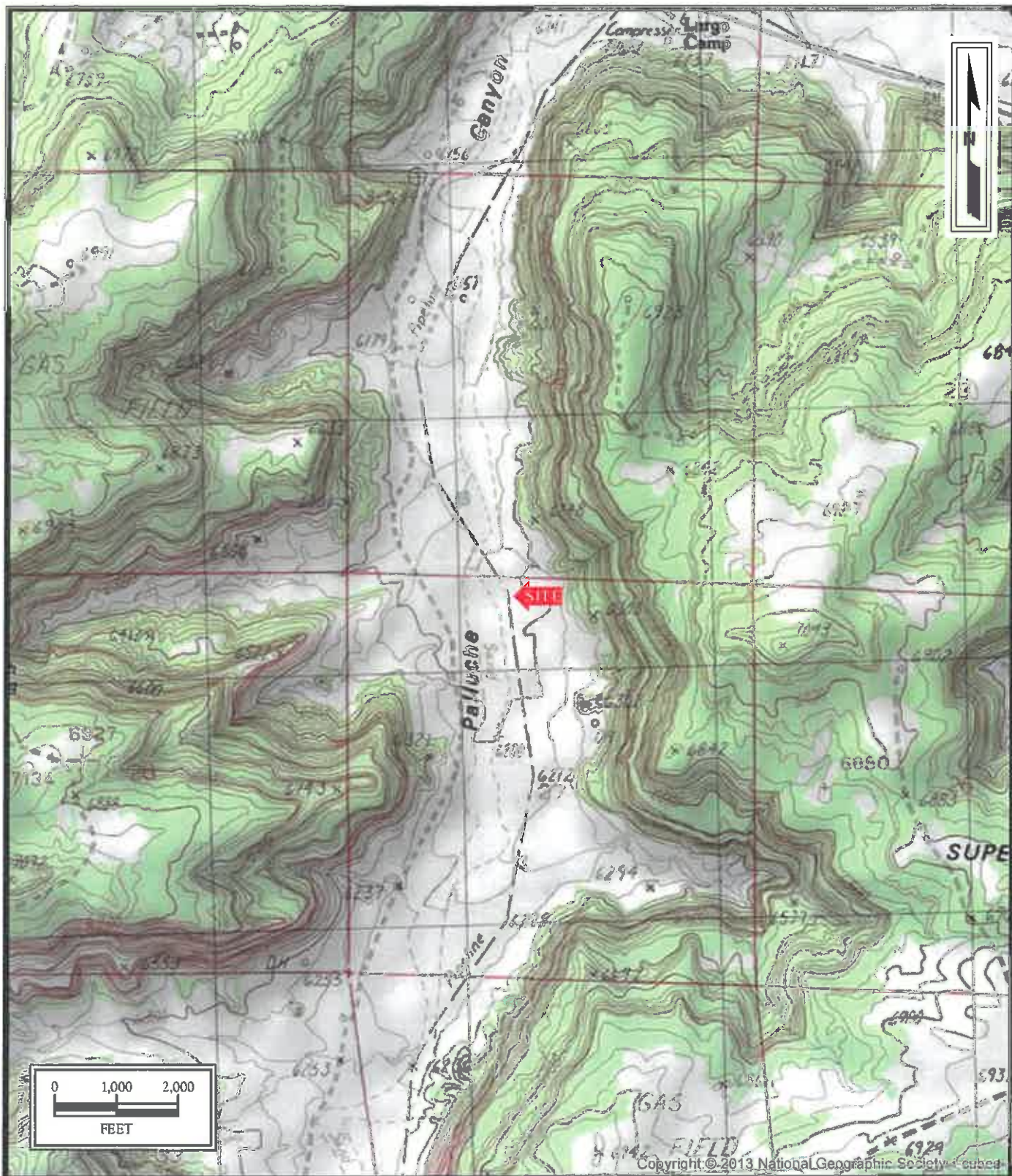
7.0 RECOMMENDATIONS

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

- **Report the groundwater monitoring results to the OCD;**
- **Based on available data, affected soil is still present at the Site. A portion of the Lateral K-7 pipeline is being exposed to replace sections of the pipeline. Remaining impacted soils with COC concentrations exceeding OCD RALs are scheduled to be excavated, and transported to the Envirotech, Inc. landfarm for disposal/treatment.**
- **Replace MW-5 (unusable due to obstruction by bailer lodged in well casing) and continue delineation of the groundwater COC plume to the north and east;**
- **Evaluate TDS concentrations in groundwater at the Site; and,**
- **Continue semi-annual groundwater monitoring at the Site to monitor natural attenuation of COCs in groundwater.**

APPENDIX A

Figures



Lateral K-7 (09/04/12)
Pipeline Release
 NW1/4 S27 T26N R7W
 Rural Rio Arriba County, New Mexico
 36.46422N, 107.56505W

Project No. 7030414G012.001



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FIGURE 1
Topographic Map
 Smouse Mesa, NM Quadrangle
 1985



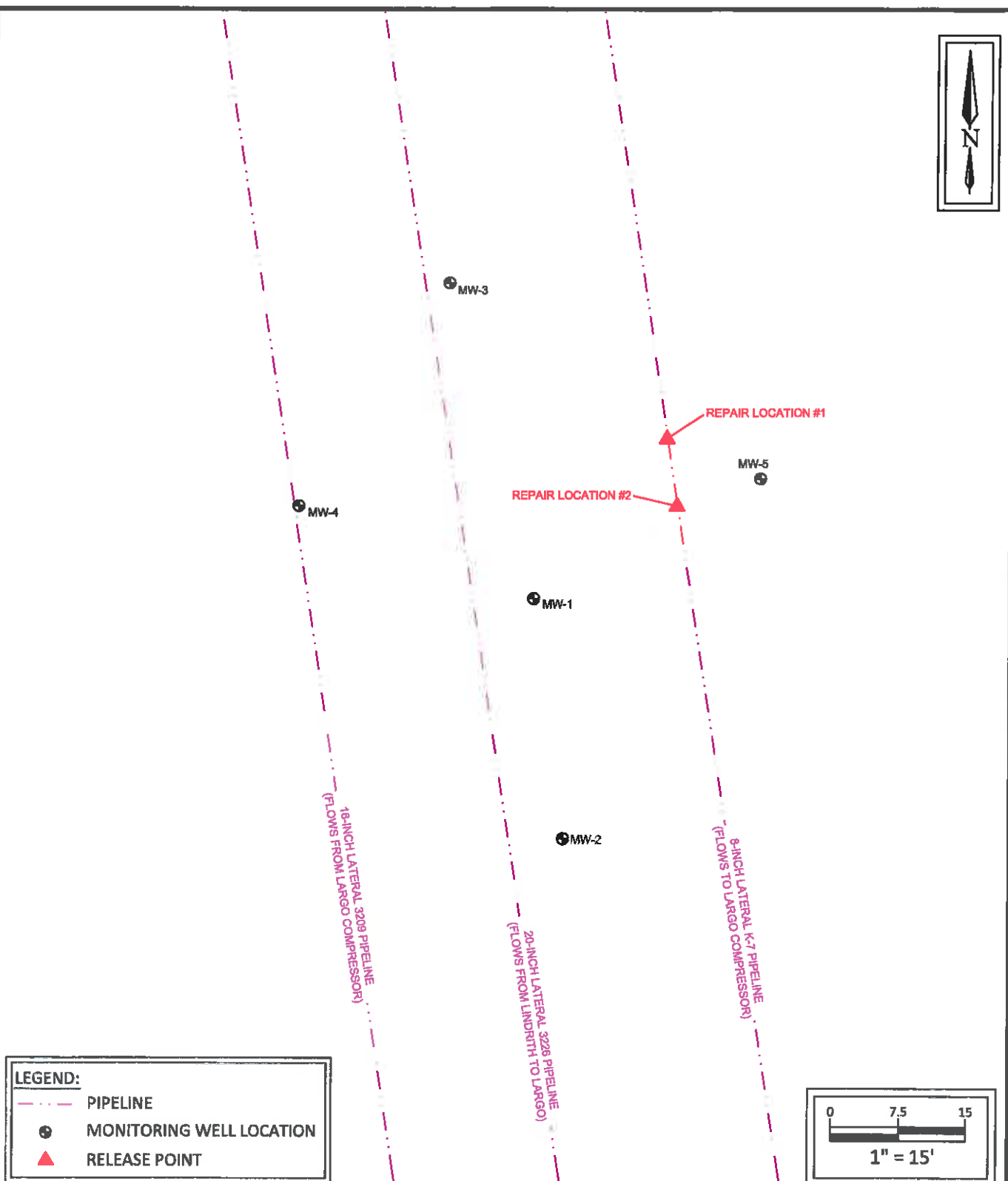
Lateral K-7 (09/04/12)
Pipeline Release
 NW1/4 S27 T26N R7W
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FIGURE 2
Site Vicinity Map



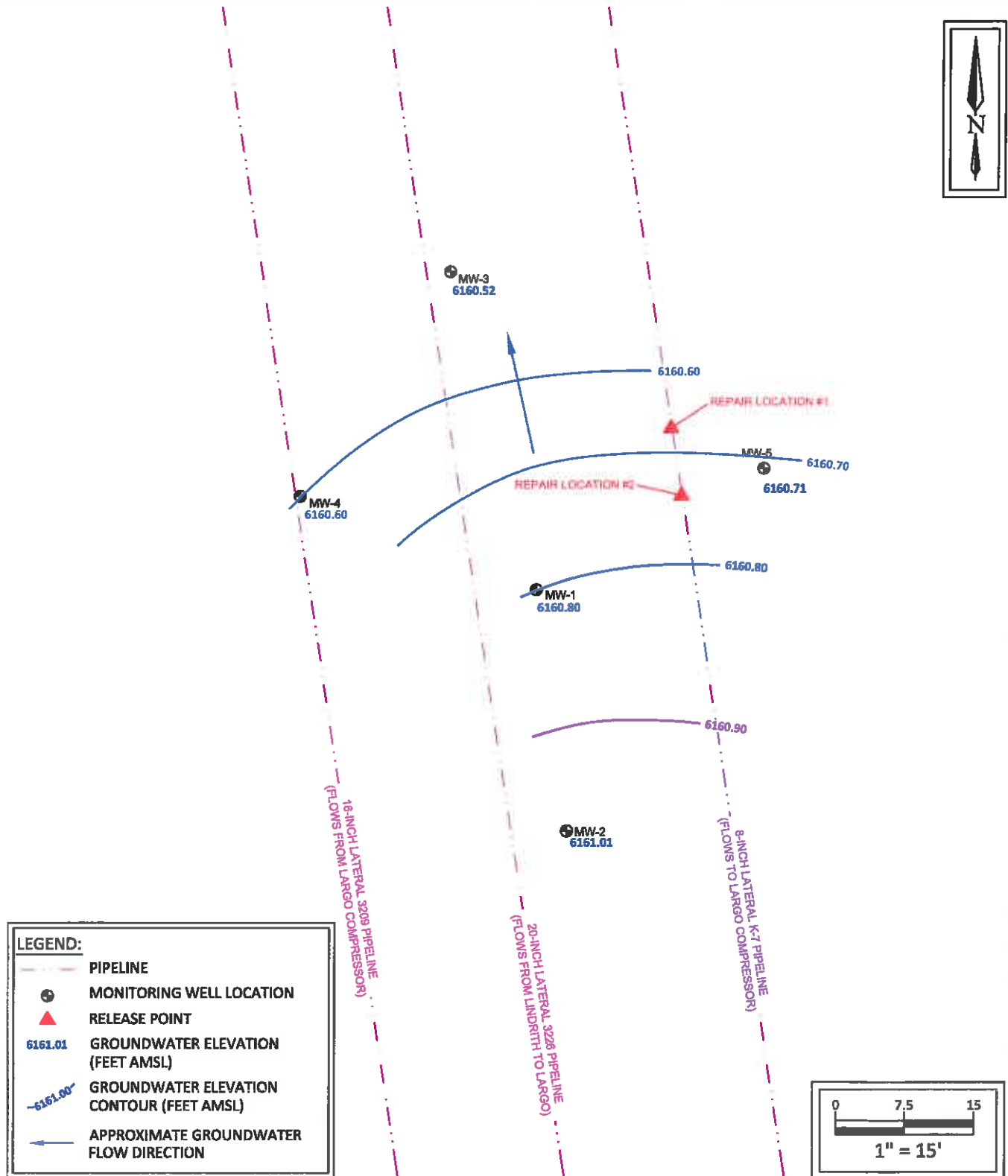
Lateral K-7 (09/04/12) Pipeline Release
NW1/4 S27 T26N R7W
Rural Rio Arriba County, New Mexico
36.46422N, 107.56505W

Project No. 7030414G012.001



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FIGURE 3
Site Map with
Monitoring Well Locations



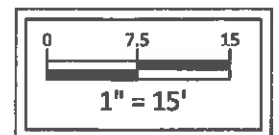
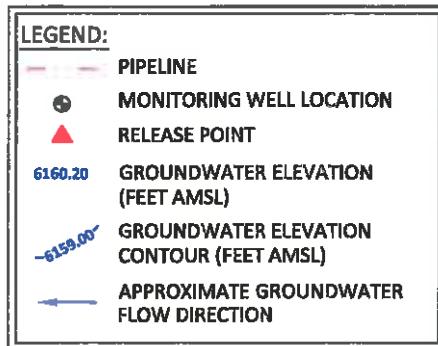
Lateral K-7 (09/04/12) Pipeline Release
NW1/4 S27 T26N R7W
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36.46422N, 107.56505W

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FIGURE 4A
Groundwater Gradient Map
February 2014



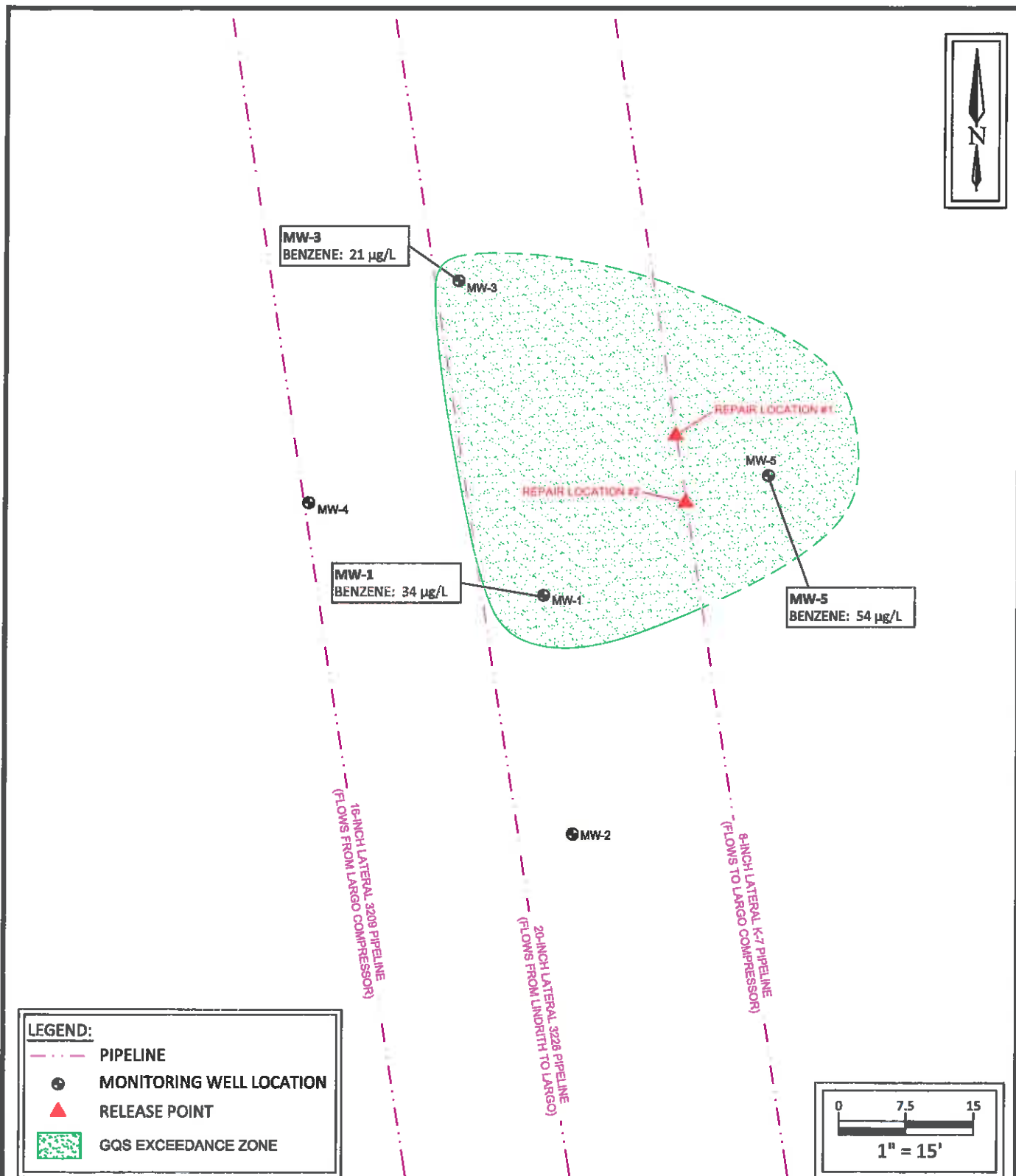
Lateral K-7 (09/04/12) Pipeline Release
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FIGURE 4B
Groundwater Gradient Map
November 2014

Project No. 7030414G012.001



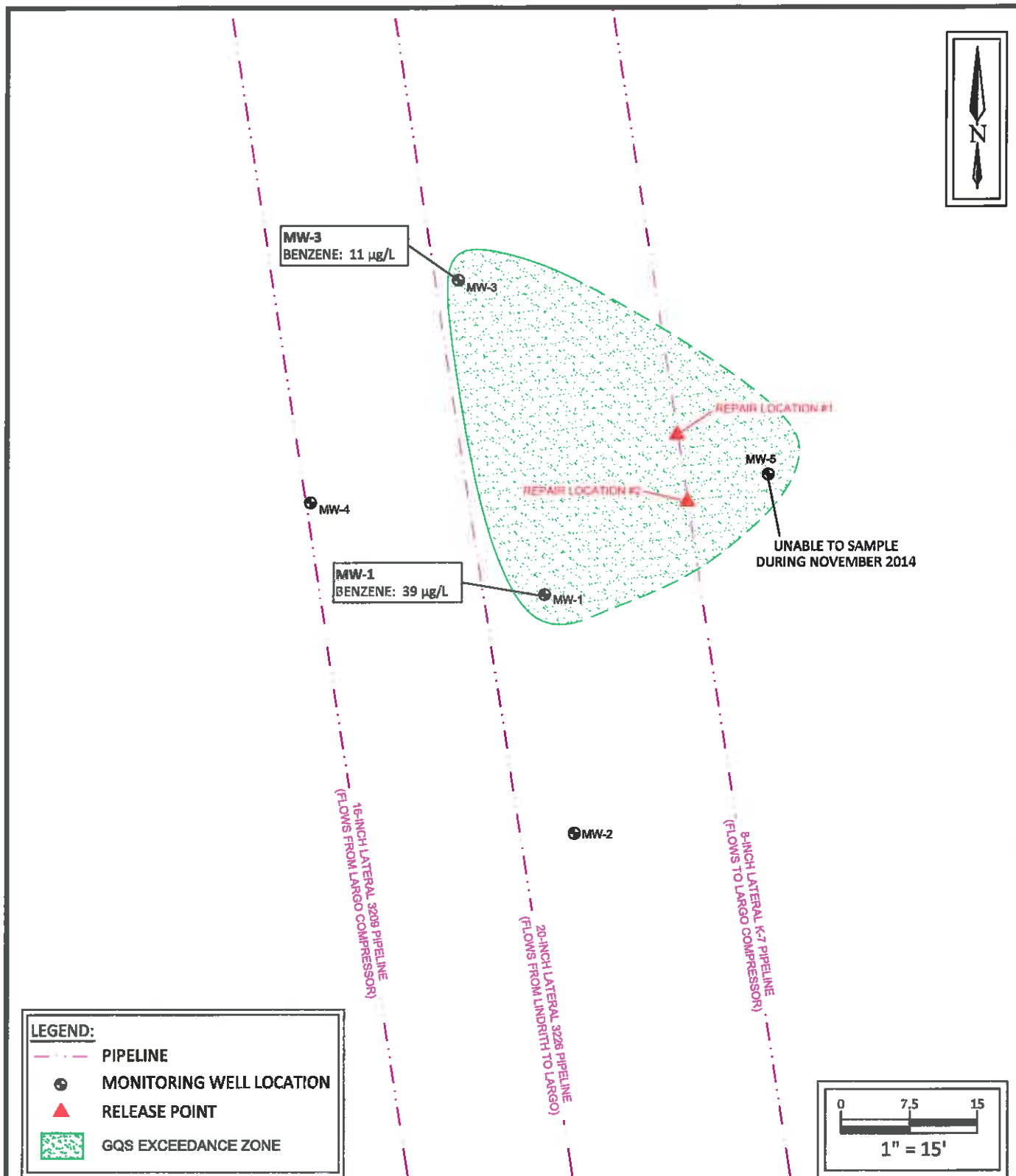
Lateral K-7 (09/04/12) Pipeline Release
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Project No. 7030414G012.001



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FIGURE 5A
Groundwater GQS
Exceedance Zone Map
February 2014



Lateral K-7 (09/04/12) Pipeline Release
NW1/4 S27 T26N R7W
Rural Rio Arriba County, New Mexico
36.46422N, 107.56505W

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FIGURE 5B
Groundwater GQS
Exceedance Zone Map
November 2014

APPENDIX B

Tables

TABLE 1
Lateral K-7 September 2012 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-1	11.20.13	35	140	5.3	77	0.69	<1.0
	2.18.14	34	96	4	58	NA	NA
	11.11.14	39	240	10	170	NA	NA
MW-2	11.20.13	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	2.18.14	<1.0	<1.0	<1.0	<3.0	NA	NA
	11.11.14	<1.0	<1.0	<1.0	<2.0	NA	NA
MW-3	11.20.13	15	31	<2.0	17	0.25	<1.0
	2.18.14	21	33	<1.0	21	NA	NA
	11.11.14	11	26	<1.0	18	NA	NA
MW-4	11.20.13	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	2.18.14	<1.0	<1.0	<1.0	<3.0	NA	NA
	11.11.14	<1.0	<1.0	<1.0	<2.0	NA	NA
MW-5	11.20.13	90	340	9.6	200	1.7	<1.0
	2.18.14	54	200	10	150	NA	NA
	11.11.14	Unable to remove bailer from well					

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

NA = Not Analyzed

NAPL = Non-aqueous phase liquid

<1.0 = the numeral ("1,0") identifies the laboratory reporting limit

TABLE 2
Lateral K-7 September 2012 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	11.20.13	ND	29.34	ND	6190.12	6160.78
	2.18.14	ND	29.32	ND	6190.12	6160.80
	11.11.14	ND	30.14	ND	6190.12	6159.98
MW-2	11.20.13	ND	29.19	ND	6190.18	6160.99
	2.18.14	ND	29.17	ND	6190.18	6161.01
	11.11.14	ND	29.98	ND	6190.18	6160.20
MW-3	11.20.13	ND	29.61	ND	6190.11	6160.50
	2.18.14	ND	29.59	ND	6190.11	6160.52
	11.11.14	ND	30.41	ND	6190.11	6159.70
MW-4	11.20.13	ND	28.67	ND	6189.25	6160.58
	2.18.14	ND	28.65	ND	6189.25	6160.60
	11.11.14	ND	29.49	ND	6189.25	6159.76
MW-5	11.20.13	ND	30.38	ND	6191.06	6160.68
	2.18.14	ND	30.35	ND	6191.06	6160.71
	11.11.14	ND	31.20	ND	6191.06	6159.86

BTOC - below top of casing

TOC - top of casing

AMSL - average mean sea level

ND-Not Detected

APPENDIX C

Laboratory Data Sheets & Chain of Custody Documentation



26-Feb-2014

Heather Woods
Animas Environmental Services
624 E. Comanche
Farmington, NM 87401

Tel: (505) 436-2064
Fax: (505) 324-2022

Re: Lateral K-7 Sept 2012 Pipeline Release

Work Order: **1402921**

Dear Heather,

ALS Environmental received 6 samples on 20-Feb-2014 08:45 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Junoke M. Lawal

Joni S. Blankfield
Project Manager



Certificate No: T104704231-13-12

ADDRESS 10450 Stancil Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental Services

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTS RIGHT

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Work Order: 1402921

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1402921-01	MW-1	Water		2/18/2014 10:46	2/20/2014 08:45	<input type="checkbox"/>
1402921-02	MW-2	Water		2/18/2014 12:05	2/20/2014 08:45	<input type="checkbox"/>
1402921-03	MW-3	Water		2/18/2014 12:55	2/20/2014 08:45	<input type="checkbox"/>
1402921-04	MW-4	Water		2/18/2014 13:40	2/20/2014 08:45	<input type="checkbox"/>
1402921-05	MW-5	Water		2/18/2014 14:20	2/20/2014 08:45	<input type="checkbox"/>
1402921-06	VBLKW-140212	Water		2/18/2014	2/20/2014 08:45	<input type="checkbox"/>

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Work Order: 1402921

Case Narrative

A Trip Blank was received however, it was not listed on the chain of custody for analysis. The Trip Blank was logged for BTEX (8021) analysis per the Analytical Request Form.

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Sample ID: MW-1
Collection Date: 2/18/2014 10:46 AM

Work Order: 1402921
Lab ID: 1402921-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			SW8021B			Analyst: DNR
m,p-Xylene	41		2	ug/L	1	2/25/2014 02:18 PM
o-Xylene	16		1	ug/L	1	2/25/2014 02:18 PM
Benzene	34		1	ug/L	1	2/25/2014 02:18 PM
Toluene	96		1	ug/L	1	2/25/2014 02:18 PM
Ethylbenzene	4		1	ug/L	1	2/25/2014 02:18 PM
Xylenes, Total	58		3	ug/L	1	2/25/2014 02:18 PM
Surr: 4-Bromofluorobenzene	108		75-129	%REC	1	2/25/2014 02:18 PM
Surr: Trifluorotoluene	91.9		75-130	%REC	1	2/25/2014 02:18 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental**Date:** 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Sample ID: MW-2
Collection Date: 2/18/2014 12:05 PM

Work Order: 1402921
Lab ID: 1402921-02
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			SW8021B			Analyst: DNR
m,p-Xylene	ND		2	ug/L	1	2/25/2014 02:36 PM
o-Xylene	ND		1	ug/L	1	2/25/2014 02:36 PM
Benzene	ND		1	ug/L	1	2/25/2014 02:36 PM
Toluene	ND		1	ug/L	1	2/25/2014 02:36 PM
Ethylbenzene	ND		1	ug/L	1	2/25/2014 02:36 PM
Xylenes, Total	ND		3	ug/L	1	2/25/2014 02:36 PM
Surr: 4-Bromofluorobenzene	107		75-129	%REC	1	2/25/2014 02:36 PM
Surr: Trifluorotoluene	94.9		75-130	%REC	1	2/25/2014 02:36 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Sample ID: MW-3
Collection Date: 2/18/2014 12:55 PM

Work Order: 1402921
Lab ID: 1402921-03
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			SW8021B			Analyst: DNR
m,p-Xylene	10		2	ug/L	1	2/25/2014 02:53 PM
o-Xylene	11		1	ug/L	1	2/25/2014 02:53 PM
Benzene	21		1	ug/L	1	2/25/2014 02:53 PM
Toluene	33		1	ug/L	1	2/25/2014 02:53 PM
Ethylbenzene	ND		1	ug/L	1	2/25/2014 02:53 PM
Xylenes, Total	21		3	ug/L	1	2/25/2014 02:53 PM
Surr: 4-Bromofluorobenzene	110		75-129	%REC	1	2/25/2014 02:53 PM
Surr: Trifluorotoluene	98.0		75-130	%REC	1	2/25/2014 02:53 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Sample ID: MW-4
Collection Date: 2/18/2014 01:40 PM

Work Order: 1402921
Lab ID: 1402921-04
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			SW8021B			Analyst: DNR
m,p-Xylene	ND		2	ug/L	1	2/25/2014 03:10 PM
o-Xylene	ND		1	ug/L	1	2/25/2014 03:10 PM
Benzene	ND		1	ug/L	1	2/25/2014 03:10 PM
Toluene	ND		1	ug/L	1	2/25/2014 03:10 PM
Ethylbenzene	ND		1	ug/L	1	2/25/2014 03:10 PM
Xylenes, Total	ND		3	ug/L	1	2/25/2014 03:10 PM
Surr: 4-Bromofluorobenzene	106		75-129	%REC	1	2/25/2014 03:10 PM
Surr: Trifluorotoluene	93.2		75-130	%REC	1	2/25/2014 03:10 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Sample ID: MW-5
Collection Date: 2/18/2014 02:20 PM

Work Order: 1402921
Lab ID: 1402921-05
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			SW8021B			Analyst: DNR
m,p-Xylene	110		2	ug/L	1	2/25/2014 03:28 PM
o-Xylene	42		1	ug/L	1	2/25/2014 03:28 PM
Benzene	54		1	ug/L	1	2/25/2014 03:28 PM
Toluene	200		1	ug/L	1	2/25/2014 03:28 PM
Ethylbenzene	10		1	ug/L	1	2/25/2014 03:28 PM
Xylenes, Total	150		3	ug/L	1	2/25/2014 03:28 PM
Surr: 4-Bromofluorobenzene	109		75-129	%REC	1	2/25/2014 03:28 PM
Surr: Trifluorotoluene	101		75-130	%REC	1	2/25/2014 03:28 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
Sample ID: VBLKW-140212
Collection Date: 2/18/2014

Work Order: 1402921
Lab ID: 1402921-06
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			SW8021B			Analyst: DNR
m,p-Xylene	ND		2	ug/L	1	2/25/2014 03:45 PM
o-Xylene	ND		1	ug/L	1	2/25/2014 03:45 PM
Benzene	ND		1	ug/L	1	2/25/2014 03:45 PM
Toluene	ND		1	ug/L	1	2/25/2014 03:45 PM
Ethylbenzene	ND		1	ug/L	1	2/25/2014 03:45 PM
Xylenes, Total	ND		3	ug/L	1	2/25/2014 03:45 PM
Surr: 4-Bromofluorobenzene	108		75-129	%REC	1	2/25/2014 03:45 PM
Surr: Trifluorotoluene	94.2		75-130	%REC	1	2/25/2014 03:45 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Work Order: 1402921
Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID R161865 Test Name: BTEX by SW8021B						
1402921-01A	MW-1	Water	2/18/2014 10:46:00 AM			2/25/2014 02:18 PM
1402921-02A	MW-2		2/18/2014 12:05:00 PM			2/25/2014 02:36 PM
1402921-03A	MW-3		2/18/2014 12:55:00 PM			2/25/2014 02:53 PM
1402921-04A	MW-4		2/18/2014 1:40:00 PM			2/25/2014 03:10 PM
1402921-05A	MW-5		2/18/2014 2:20:00 PM			2/25/2014 03:28 PM
1402921-06A	VBLKW-140212		2/18/2014			2/25/2014 03:45 PM

ALS Environmental

Date: 26-Feb-14

Client: Animas Environmental Services
Work Order: 1402921
Project: Lateral K-7 Sept 2012 Pipeline Release

QC BATCH REPORT

Batch ID: **R161865** Instrument ID **BTEX1** Method: **SW8021B**

MBLK		Sample ID: BBLKW1-140225-R161865				Units: µg/L		Analysis Date: 2/25/2014 12:00 PM		
Client ID:		Run ID: BTEX1_140225A				SeqNo: 3542035		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	ND	2.0								
o-Xylene	ND	1.0								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene		31.89	1.0	30	0	106	75-129	0		
Surr: Trifluorotoluene		28.41	1.0	30	0	94.7	75-130	0		

LCS		Sample ID: BLCSS1-140225-R161865				Units: µg/L		Analysis Date: 2/25/2014 11:25 AM		
Client ID:		Run ID: BTEX1_140225A				SeqNo: 3542034		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	39.37	2.0	40	0	98.4	75-125				
o-Xylene	20.11	1.0	20	0	101	75-125				
Benzene	17.64	1.0	20	0	88.2	75-126				
Toluene	18.58	1.0	20	0	92.9	75-125				
Ethylbenzene	19.28	1.0	20	0	96.4	75-125				
Xylenes, Total	59.48	3.0	60	0	99.1	75-125				
Surr: 4-Bromofluorobenzene		31.37	1.0	30	0	105	75-129	0		
Surr: Trifluorotoluene		27.89	1.0	30	0	93	75-130	0		

MS		Sample ID: 1402884-01AMS				Units: µg/L		Analysis Date: 2/25/2014 12:34 PM		
Client ID:		Run ID: BTEX1_140225A				SeqNo: 3542037		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	46.61	2.0	40	0	117	75-125				
o-Xylene	23.8	1.0	20	0	119	75-125				
Benzene	20.12	1.0	20	0	101	75-126				
Toluene	21.86	1.0	20	0	109	75-125				
Ethylbenzene	23.23	1.0	20	0	116	75-125				
Xylenes, Total	70.41	3.0	60	0	117	75-125				
Surr: 4-Bromofluorobenzene		31.55	1.0	30	0	105	75-129	0		
Surr: Trifluorotoluene		28.09	1.0	30	0	93.6	75-130	0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 2

Client: Animas Environmental Services
Work Order: 1402921
Project: Lateral K-7 Sept 2012 Pipeline Release

QC BATCH REPORT

Batch ID: **R161865** Instrument ID **BTEX1** Method: **SW8021B**

MSD	Sample ID: 1402884-01AMSD				Units: µg/L			Analysis Date: 2/25/2014 12:52 PM		
Client ID:	Run ID: BTEX1_140225A				SeqNo: 3542038		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	46.12	2.0	40	0	115	75-125	46.61	1.07	20	
o-Xylene	23.48	1.0	20	0	117	75-125	23.8	1.35	20	
Benzene	19.82	1.0	20	0	99.1	75-126	20.12	1.49	20	
Toluene	21.64	1.0	20	0	108	75-125	21.86	1.05	20	
Ethylbenzene	22.94	1.0	20	0	115	76-125	23.23	1.26	20	
Xylenes, Total	69.6	3.0	60	0	116	75-125	70.41	1.17	20	
Surr: 4-Bromofluorobenzene	32.5	1.0	30	0	108	75-129	31.55	2.99	20	
Surr: Trifluorotoluene	28.85	1.0	30	0	96.2	75-130	28.09	2.67	20	

The following samples were analyzed in this batch:

1402921-01A	1402921-02A	1402921-03A
1402921-04A	1402921-05A	1402921-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Animas Environmental Services
Project: Lateral K-7 Sept 2012 Pipeline Release
WorkOrder: 1402921

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
ug/L	Micrograms per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: ANIMAS ENVIRONMENTAL SER

Date/Time Received: 20-Feb-14 08:45

Work Order: 1402921

Received by: LOT

Checklist completed by Salvador A. Yanez
eSignature

21-Feb-14
Date

Reviewed by: Joni S. Blankfield
eSignature

21-Feb-14
Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.3c/1.3c c/u</u>		
Cooler(s)/Kit(s):	<u>5806</u>		
Date/Time sample(s) sent to storage:	<u>2/21/2014 11:06</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u></u>		
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



ANIMAS ENVIRONMENTAL SERVICES: Animas Environmental Services

cocid: 101516


Project: Lateral K-7 Sept 2012 Pipeline Release


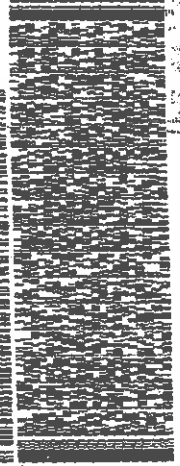
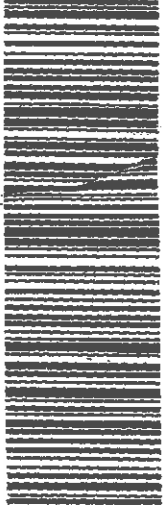



Note:

1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

 ALS Environmental 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5856 Fax. +1 281 530 5887	CUSTODY SEAL Date: <u>2/19/2014</u> Time: <u>1000</u> Name: <u>Dr. Scott Sprague</u> Company: <u>ALS Environmental Services</u>		Seal Broken By: <u>[Signature]</u> Date: <u>2/19/14</u>
--	---	--	--

SHIP DATE: 18FEB14 ACTG: 180214 ORG: 180214 BILL RECIPIENT	ORIGIN ID-FMNA UNITED STATES US TO CLIENT ALS LABORATORY GROUP 10450 STANCLIFF RD STE 210 HOUSTON TX 77099 (281) 530-5856 REF:	FedEx Express  	THU - 20 FEB AR STANDARD OVERNIGHT 77099 TX-US IAH XH SGRA TRK 8042 5199 1600 
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 ALS Environmental 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5856 Fax. +1 281 530 5887	CUSTODY SEAL Date: <u>2/19/2014</u> Time: <u>1000</u> Name: <u>Dr. Scott Sprague</u> Company: <u>ALS</u>		Seal Broken By: <u>[Signature]</u> Date: <u>2/19/14</u>
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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 19, 2014

Heather Woods
Apex Titan, Inc.
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (505) 716-2787
FAX (214) 350-2914

RE: Lateral K-7 August 2012

OrderNo.: 1411591

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 4 sample(s) on 11/15/2014 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'.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order: 1411591

Date Reported: 11/19/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Apex Titan, Inc.
Project: Lateral K-7 August 2012

Lab Order: 1411591**Lab ID:** 1411591-001**Collection Date:** 11/11/2014 12:20:00 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	39	1.0		µg/L	1	11/18/2014 11:37:45 AM	R2261E
Toluene	240	10		µg/L	10	11/18/2014 2:48:31 PM	R2261E
Ethylbenzene	10	1.0		µg/L	1	11/18/2014 11:37:45 AM	R2261E
Xylenes, Total	170	2.0		µg/L	1	11/18/2014 11:37:45 AM	R2261E
Surr: 4-Bromofluorobenzene	108	66.6-167		%REC	1	11/18/2014 11:37:45 AM	R2261E

Lab ID: 1411591-002**Collection Date:** 11/11/2014 11:28:00 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	11/18/2014 2:21:12 PM	R2261E
Toluene	ND	1.0		µg/L	1	11/18/2014 2:21:12 PM	R2261E
Ethylbenzene	ND	1.0		µg/L	1	11/18/2014 2:21:12 PM	R2261E
Xylenes, Total	ND	2.0		µg/L	1	11/18/2014 2:21:12 PM	R2261E
Surr: 4-Bromofluorobenzene	104	66.6-167		%REC	1	11/18/2014 2:21:12 PM	R2261E

Lab ID: 1411591-003**Collection Date:** 11/11/2014 1:20:00 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	11	1.0		µg/L	1	11/17/2014 2:55:12 PM	R22597
Toluene	26	1.0		µg/L	1	11/17/2014 2:55:12 PM	R22597
Ethylbenzene	ND	1.0		µg/L	1	11/17/2014 2:55:12 PM	R22597
Xylenes, Total	18	2.0		µg/L	1	11/17/2014 2:55:12 PM	R22597
Surr: 4-Bromofluorobenzene	110	66.6-167		%REC	1	11/17/2014 2:55:12 PM	R22597

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

Analytical Report

Lab Order: 1411591

Date Reported: 11/19/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Apex Titan, Inc.
Project: Lateral K-7 August 2012**Lab Order:** 1411591**Lab ID:** 1411591-004**Collection Date:** 11/11/2014 11:00:00 AM**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	11/17/2014 3:22:31 PM	R22597
Toluene	ND	1.0		µg/L	1	11/17/2014 3:22:31 PM	R22597
Ethylbenzene	ND	1.0		µg/L	1	11/17/2014 3:22:31 PM	R22597
Xylenes, Total	ND	2.0		µg/L	1	11/17/2014 3:22:31 PM	R22597
Surr: 4-Bromofluorobenzene	107	66.6-167		%REC	1	11/17/2014 3:22:31 PM	R22597

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 4
	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#: 1411591

19-Nov-14

Client: Apex Titan, Inc.

Project: Lateral K-7 August 2012

Sample ID	5ML RB	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles						
Client ID:	PBW	Batch ID: R22597		RunNo: 22597						
Prep Date:		Analysis Date: 11/17/2014		SeqNo: 666092		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		106	66.6	167			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R22597	RunNo:	22597					
Prep Date:		Analysis Date:	11/17/2014	SeqNo:	666093	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	80	120			
Toluene	21	1.0	20.00	0	105	80	120			
Ethylbenzene	21	1.0	20.00	0	107	80	120			
Xylenes, Total	65	2.0	60.00	0	108	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		105	66.6	167			

Sample ID	1411591-001AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	MW-1	Batch ID:	R22597	RunNo:	22597					
Prep Date:		Analysis Date:	11/17/2014	SeqNo:	666096	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	73	1.0	20.00	39.05	172	80	120			S
Toluene	260	1.0	20.00	191.9	336	80	120			ES
Ethylbenzene	34	1.0	20.00	10.11	117	79.7	126			
Xylenes, Total	250	2.0	60.00	165.4	138	80	120			S
Sum: 4-Bromofluorobenzene	22		20.00		108	66.6	167			

Sample ID	1411591-001AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles							
Client ID:	MW-1	Batch ID:	R22597	RunNo:	22597							
Prep Date:		Analysis Date:	11/17/2014	SeqNo:	666097	Units:	µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Benzene	76	1.0	20.00	39.05	184	80	120	3.37	20	S		
Toluene	260	1.0	20.00	191.9	364	80	120	2.11	20	ES		
Ethylbenzene	34	1.0	20.00	10.11	121	79.7	126	2.38	20			
Xylenes, Total	250	2.0	60.00	165.4	145	80	120	1.66	20	S		
Sum: 4-Bromofluorobenzene	22		20.00		111	66.6	167	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 | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411591

19-Nov-14

Client: Apex Titan, Inc.

Project: Lateral K-7 August 2012

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R22618	RunNo:	22618					
Prep Date:		Analysis Date:	11/18/2014	SeqNo:	667135	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								
Sum: 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:	R22618	RunNo:	22618					
Prep Date:		Analysis Date:	11/18/2014	SeqNo:	667136	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	92.5	80	120			
Toluene	19	1.0	20.00	0	95.8	80	120			
Ethylbenzene	19	1.0	20.00	0	96.1	80	120			
Xylenes, Total	62	2.0	60.00	0	103	80	120			
Sum: 4-Bromofluorobenzene	21		20.00		105	66.6	167			

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: **APEX AZTEC**

Work Order Number: **1411591**

RcptNo: **1**

Received by/date:	AF	11/15/14
Logged By:	Lindsay Mangin	11/15/2014 10:00:00 AM
Completed By:	Lindsay Mangin	11/17/2014 9:08:34 AM
Reviewed By:	CS	11/17/14

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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


Person Notified:	Date:		
By Whom:	Via: <input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	4.5	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: _____		ANALYSIS REQUESTED 		Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>4.50</u> 1 2 3 4 5 Page <u>1</u> of <u>1</u>								
Project Manager <u>HEATHER WOODS</u> Sampler's Name <u>AARON BRYANT</u>		POISO #: _____ Sample's Signature <u>[Signature]</u>												
Proj. No. <u>70304146012</u>		Project Name <u>LATECAL K-7 AUGUST 2012</u>		No/Type of Containers										
Matrix	Date	Time	Comp	G	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	11-11-14	1220	X		MW-1			3						1411591-001
I		1128			MW-2			I						-002
I		1320			MW-3			I						-003
I		1100			MW-4			I						-004
 AFE AR 														
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: <u>11-13-14</u>		Time: <u>1420</u>		Received by (Signature)		Date: <u>11/13/14</u>		Time: <u>1420</u>		NOTES: <u>Enterprise rate billed to Apex</u>		
Relinquished by (Signature)		Date: <u>11-14-14</u>		Time: <u>1409</u>		Received by (Signature)		Date: <u>11/14/14</u>		Time: <u>1409</u>				
Relinquished by (Signature)		Date: <u>11/14/14</u>		Time: <u>1728</u>		Received by (Signature)		Date: <u>11/15/14</u>		Time: <u>16:59</u>				
Relinquished by (Signature)		Date: _____		Time: _____		Received by (Signature)		Date: _____		Time: _____				
Matrix	Container	WW - Wastewater	VOA - 40 ml vial	W - Water	S - Soil	SD - Solid	250 ml - Glass wide mouth	L - Liquid	A - Air Bag	C - Charcoal tube	P/O - Plastic or other	SL - sludge	O - Oil	