

3R – 439

**2014 GWMR
+ CLOSURE
REQUEST**

09 / 30 / 2014



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

ENTERPRISE PRODUCTS OPERATING LLC

September 30, 2014

Submitted via email w/delivery confirmation: Jim.Griswold@state.nm.us

Mr. Jim Griswold, Environmental Bureau Chief
New Mexico Energy, Minerals & Natural Resources
Department - Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Attn: Glenn Von Gonten

**RE: *Final Groundwater Monitoring Report / Closure Request*
K-17/K-Trunk Pipeline Release (3/19/10) 3R-439
Enterprise Field Services, LLC
Section 23, Township 27 North, Range 8 West
San Juan County, New Mexico**

Dear Mr. von Gonten,

Enterprise Field Services, LLC (Enterprise) is submitting the attached report entitled: *Final Groundwater Monitoring Report / Closure Request*, dated September 24, 2014, for the above-referenced site. The site is located in SW ¼ of Section 23, Township 27 North, Range 8 West (GPS Coordinates: 36.552209, -107.652894). A condensate release occurred at a pigging station at this location during March 2010. During excavation of soils affected by this release, it was noted that deeper soils had apparently been affected by historical releases at the location.

Site investigations were conducted during August 2010, and March 2012, to determine the extent of affected soil and to determine if groundwater impacts were present. Affected groundwater was present at one temporary well location (TSW-11) in excess of regulatory standards. An OCD Form C-141 was submitted to the OCD on April 11, 2012 to provide notification of the apparent groundwater impact. Due to the groundwater benzene concentration (25 µg/L at TSW-11), additional groundwater samples were obtained from a properly constructed monitor well (MW-15), which was installed during July 2012. Initial groundwater samples from MW-15 confirmed low constituent concentrations at this location. These concentrations were expected to attenuate natural, and subsequent monitoring results during the last four (4) quarterly monitoring events have confirmed that no monitored constituents remain above laboratory reporting limits.

The attached report presents these findings, and recommends no further actions for the release site. Enterprise agrees with these findings and requests that the NM OCD grant final site closure for this release site.

September 30, 2014
Mr. Jim Griswold, Environmental Bureau Chief
Page Two

If you have any questions regarding the site, or our proposed actions, 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, Remediation

/dep

Attachment

ec: Glenn Von Gonten, New Mexico Oil Conservation Division, Santa Fe, NM
Mark Kelly, Bureau of Land Management, Farmington, NM
Shari Ketcham, Bureau of Land Management, Farmington, NM
Brandon Powell, New Mexico Oil Conservation Division, Aztec, NM
Jonathan Kelly, New Mexico Oil Conservation Division, Aztec, NM
Kyle Summers, APEX Environmental



September 24, 2014

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

Re: Final Groundwater Monitoring Report / Closure Request
K-17/K-Trunk Pipeline Release (3/19/2010) 3R-439
Sec 23, Township 27 North, Range 8 West
San Juan County, NM
Apex Project No. 7030411G015

Dear Mr. Smith:

Apex TITAN, Inc. (Apex) appreciates the opportunity to submit this Final Groundwater Monitoring Report / Closure Request for the Enterprise Field Services, LLC (Enterprise) K-17/K-Trunk pipeline release site, referred to hereinafter as the "Site" or "subject Site". The Site is located in SW ¼ of Section 23, Township 27 North, Range 8 West (36.5521° N, 107.6529° W) in San Juan County, New Mexico.

The Site consists of a pigging station utilized to collect liquids generated during pigging activities on the K-17 pipeline prior to discharge to the K-Trunk pipeline. In addition, corrosion inhibitor and methanol are injected into the K-Trunk pipeline at the Site to prevent corrosion and the freezing of liquids in the pipeline, which would limit the ability of the pig to proceed downstream during maintenance operations. Three (3) natural gas pipelines operated by Enterprise traverse the Site, which is surrounded by native vegetation rangeland periodically interrupted by oil and gas gathering facilities and equipment.

The objective of the groundwater monitoring activities was to further evaluate the magnitude of petroleum hydrocarbon constituents of concern (COCs) in groundwater at the Site, while monitoring the effects of natural attenuation.

The Site is subject to regulatory oversight by the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) Oil Conservation Division (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 New Mexico Administrative Code (NMAC) 19.15.29.11 Remediation Plan. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

Due to the shallow depth to groundwater at the Site and the proximity of Largo Wash, the OCD total ranking score for the site is "30". Based on a Total Ranking Score of 30, the OCD *Remediation Action Levels* (RALs) for soil at the Site are: 10 mg/Kg for benzene, 50 mg/Kg for total benzene, toluene, ethylbenzene, xylenes (BTEX) and 100 mg/Kg for total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO).

In addition, the Water Quality Control Commission (WQCC) *Groundwater Quality Standards* (GQSs) for groundwater are: 10 µg/L for benzene, 750 µg/L for toluene, 750 µg/L for ethylbenzene, and 620 µg/L for total xylenes.

A topographic map is included as Figure 1, an aerial photograph of the Site vicinity is included as Figure 2, and a Site Map is included as Figure 3 of Attachment A.

Background

In August 2010, LT Environmental, Inc. (LTE) advanced ten (10) soil borings (BH1 through BH10) in the vicinity of the petroleum hydrocarbon impacted soils identified during maintenance activities. The soil borings were advanced to depths ranging from 20 to 28 feet below ground surface (bgs). Based on the results of the investigation activities completed by LTE, petroleum hydrocarbon affected soils were identified at the capillary fringe zone (approximately 20 feet bgs) in the immediate vicinity of the K-17/K-Trunk tie-in.

During March 2012, Apex, formerly Southwest Geoscience (SWG), performed a Limited Site Investigation (LSI) at the Site (*Limited Site Investigation & Corrective Action Work Plan* – SWG, April 4, 2012). During the LSI, SWG advanced four (4) soil borings (TSW-11 through TSW-14) in the vicinity of the former pipeline release utilizing a direct push Geoprobe® drilling rig. Additionally, each of these soil borings was completed as a Temporary Sampling Well (TSW) to allow the collection of groundwater samples. Analytical results from the TSW soil samples verified that affected soils were present at the groundwater interface in the vicinity of the release, and analytical results from the groundwater samples identified groundwater impact at the source area. A C-141 was prepared for this release upon the confirmation of groundwater impact (Attachment B).

On July 11, 2012, one (1) soil boring/permanent monitoring well was advanced in the vicinity of the release source to confirm the magnitude of COCs in groundwater, as proposed in the *Limited Site Investigation & Corrective Action Work Plan* (SWG April 4, 2012), utilizing a direct-push Geoprobe® drilling rig. The PID readings from soil boring MW-15 ranged from below detection to 298 parts per million (ppm), with the highest reading near the groundwater interface at depths of 18 to 20 feet bgs. Due to the close proximity of the previously sampled former soil boring TSW-11, soil samples were not collected for laboratory analysis during the advancement of soil boring MW-15. Subsequent to advancement, the soil boring was converted to a permanent monitoring well (MW-15). The proposed chemical oxidation treatment was not performed after benzene concentrations rapidly declined at the source area.

Analytical results from the LTE and Apex investigative activities are provided in Table 1 (Soil) and Table 2 (Groundwater) of Attachment C.

Quarterly Groundwater Monitoring

Apex initiated quarterly groundwater monitoring at the Site on July 23, 2012, 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 was 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 were maintained during the 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.

The groundwater samples were collected once produced groundwater was consistent in color, clarity, pH, dissolved oxygen (DO), oxidation/reduction potential (ORP), temperature and conductivity.

The groundwater samples collected from monitoring well MW-15 were analyzed for TPH GRO/DRO utilizing EPA SW-846 method #8015 and BTEX using EPA SW-846 method #8021.

Quarterly Monitoring Results

Apex compared BTEX concentrations or reporting limits (RLs) associated with the groundwater samples collected from monitoring well MW-15 from July 23rd, 2012 until January 29th, 2013 to the WQCC Groundwater Quality Standards.

The results of the groundwater sample analyses are summarized in Table 2 of Attachment C. The executed chain-of-custody forms and laboratory data sheets are provided in Attachment D.

July 2012 to January 2013

- The groundwater samples collected from monitoring well MW-15 during this time frame exhibited benzene concentrations of ranging from 62 µg/L to 76 µg/L, which exceed the WQCC Groundwater Quality Standard of 10 µg/L.
- The groundwater samples collected from monitoring well MW-15 during this time frame exhibited toluene concentrations ranging from <1.0 µg/L to 150 µg/L, which are below the WQCC Groundwater Quality Standard of 750 µg/L.
- The groundwater samples collected from monitoring well MW-15 during this time frame exhibited ethylbenzene concentrations ranging from 10 µg/L to 27 µg/L, which are below the WQCC Groundwater Quality Standard of 750 µg/L.
- The groundwater samples collected from monitoring well MW-15 during this time frame exhibited total xylenes concentrations ranging from <2.0 µg/L to 200 µg/L, which are below the WQCC Groundwater Quality Standard of 620 µg/L.
- The groundwater samples collected from monitoring well MW-15 during this time frame exhibited combined TPH GRO/DRO concentrations ranging from 0.55 mg/L to 1.3 mg/L.

May 2013 to February 2014

- The groundwater samples collected from monitoring well MW-15 during the last four quarters of sampling did not exhibit benzene concentrations above the laboratory RLs, which are below the WQCC Groundwater Quality Standard of 10 µg/L.
- The groundwater samples collected from monitoring well MW-15 during the last four quarters of sampling did not exhibit toluene concentrations above the laboratory RLs, which are below the WQCC Groundwater Quality Standard of 750 µg/L.
- The groundwater samples collected from monitoring well MW-15 during the last four quarters of sampling did not exhibit ethylbenzene concentrations above the laboratory RLs, which are below the WQCC Groundwater Quality Standard of 750 µg/L.
- The groundwater samples collected from monitoring well MW-15 during the last four quarters of sampling did not exhibit total xylenes concentrations above the laboratory RLs, which are below the WQCC Groundwater Quality Standard of 620 µg/L.
- The groundwater samples collected from monitoring well MW-15 during the last four quarters of sampling did not exhibit combined TPH GRO/DRO concentrations above the laboratory RLs.

Natural Attenuation

Natural attenuation is the process by which contaminants in the environment are degraded, or reduced in concentrations by various means including volatilization, adsorption, desorption, dispersion, dilution, diffusion, biodegradation, and abiotic degradation. Natural attenuation is achieved when one or more of these processes brings about a reduction in the total mass, toxicity, mobility, volume, or concentration of a contaminant. The presence or absence of key indicator parameters will determine the degree to which (if any) natural attenuation will occur. Monitored natural attenuation is the measurement or analysis of key indicator parameters over time to establish trends that document that a reduction in total mass, toxicity, mobility, volume, or concentration of a contaminant is taking place. Indicator parameters such as Oxygen, Conductivity, pH, Temperature, and Oxidation-Reduction Potential were measured in the field during groundwater sampling activities.

Apex has completed a preliminary natural attenuation evaluation based on the historic groundwater data. This preliminary evaluation included the review of the "*Primary Lines of Evidence*" as well as the "*Secondary Lines of Evidence*".

Primary Lines of Evidence

Primary lines of evidence consist of historical groundwater data that demonstrate a clear trend of stable or decreasing COC concentrations in groundwater over time.

- Based on Apex's review of the historical groundwater data, COC concentrations have been stable or declining in the release source area monitoring well (MW-15) following its installation in 2012.

Secondary Lines of Evidence

Secondary lines of evidence consist of geochemical indicators that document certain geochemical signatures or "footprints" in the groundwater that demonstrate (indirectly) the type of natural attenuation process(es) occurring at the affected property and the likelihood of COC destruction.

- **pH:** pH in groundwater can limit natural attenuation by inhibiting microbes from performing bioremediation processes if it drifts substantially from a neutral value of 7. A pH range of 5-9 is generally amenable to bioremediation. The pH associated with the on-site groundwater ranges from 7.1 to 7.5.
- **Dissolved Oxygen:** Microbes can utilize dissolved oxygen (DO) in groundwater as an electron acceptor while undergoing aerobic respiration. Elevated DO levels suggest bioremediation has not occurred whereas depressed levels indicate that it may have. Based on Apex's evaluation of the DO concentrations identified in monitoring well MW-15, dissolved oxygen in the on-site groundwater in the vicinity of the source area is < 1 mg/L, typically ranging from 0.3 mg/L to 0.7 mg/L, which is generally low when compared to other Largo Canyon sites which typically demonstrate DO values of 2.0 mg/L or greater for unaffected groundwater, indicating the likely occurrence of biodegradation/natural attenuation.
- **Redox Potential:** Redox potential provides an indication of which bioremediation process is being utilized. More strongly positive redox potentials correlate to more efficient bioremediation processes. ORP measurements at monitoring well MW-15 have varied considerably since the sampling program was initiated. These variations do not strongly indicate an oxidative or reductive preference.
- **Temperature:** Temperature readings were measured as the water was brought to the surface, as opposed to "down-hole" or "in situ", and thus are more reactive to climatological variations during sampling events and were not correlatable to natural attenuation.

Conclusions

Based on the analytical data, groundwater in the vicinity of monitoring well MW-15 has not exhibited COC concentrations above the laboratory RLs since January 2013. Additionally, DO values indicate the probable consumption of dissolved oxygen in the vicinity of the former release, and pH values are conducive to bioremediation activity.

Apex has the following recommendations:

- **Report the results of groundwater monitoring to the New Mexico OCD;**
- **Request that no further action be required in relation to this release at this time.**

If you should have any questions or comments regarding this letter report, please contact the undersigned at (505) 334-5200.

Sincerely,
Apex TITAN



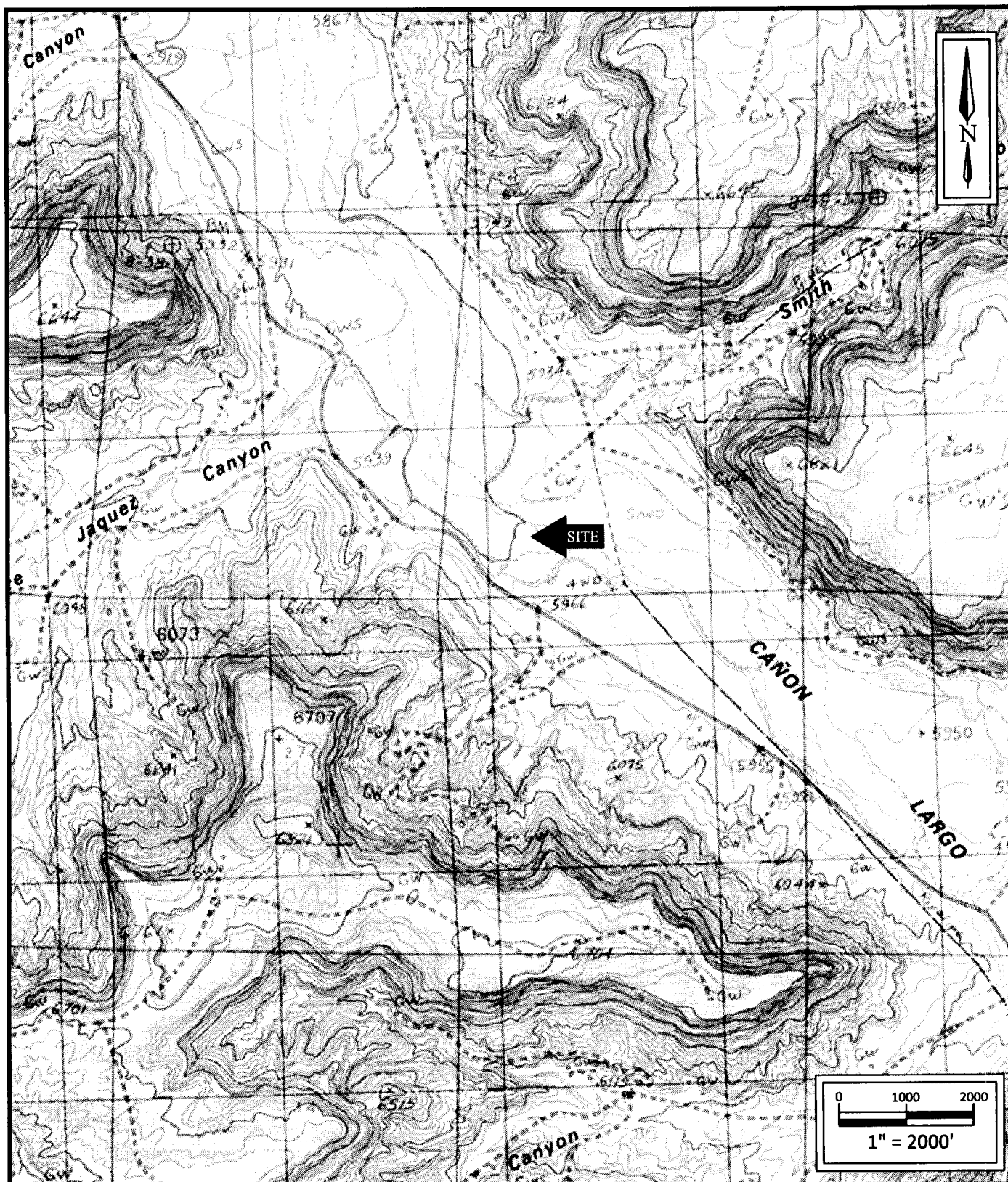
Kyle Summers C.P.G.
Branch Manager / Senior Geologist



Chris B. Mitchell, P.G.
Principal Geologist

ATTACHMENT A

Figures



K-17/K Trunk Release
 S23 T27N R8W
 N36.552209°; W107.652894°
 San Juan County, New Mexico

Project No. 0411015



Apex TITAN, Inc.

606 S. Rio Grande, Suite A
 Aztec, New Mexico 87410
 Phone: (505) 334-5200

www.apexcos.com

A Subsidiary of Apex Companies, LLC

FIGURE 1
USGS Topographic Map
 Fresno Canyon, NM Quadrangle
 Contour Interval = 20 Feet
 1985



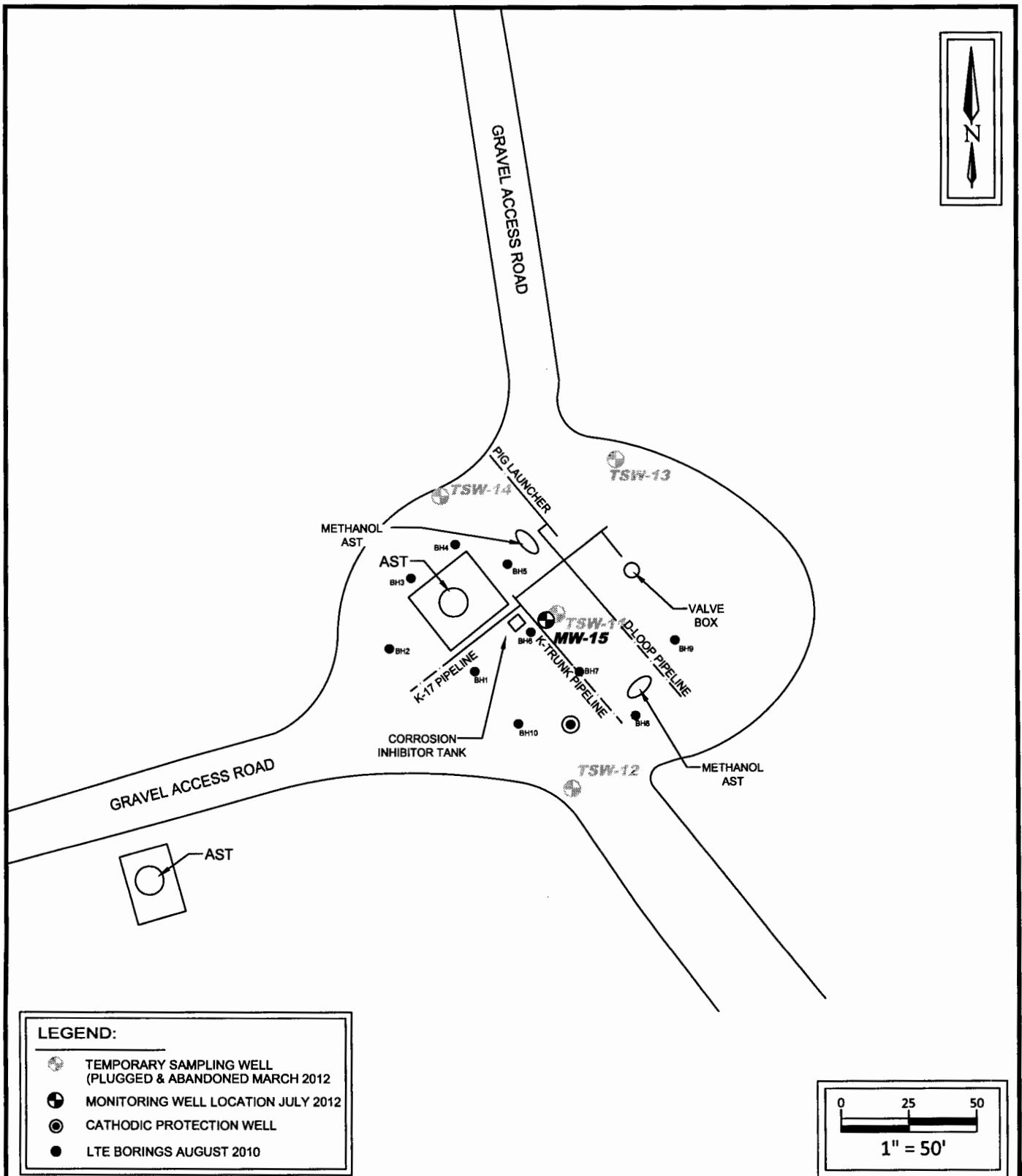
K-17/K Trunk Release
 S23 T27N R8W
 N36.552209°; W107.652894°
 San Juan County, New Mexico

Project No. 0411015



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 800 E. Rio Grande, Suite A
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 www.apextitan.com
 A Subsidiary of Apex Companies, LLC

FIGURE 1
 Site Vicinity Map



K-17/K Trunk Release
 S23 T27N R8W
 N36.552209°; W107.652894°
 San Juan County, New Mexico

Project No. 0411015



Apex TITAN, Inc.
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FIGURE 3
Site Map

ATTACHMENT B

C-141

SANTA FE OFFICE (6W)
ATTN: GLEN VON GORTES

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

X Initial Report ☐ Final Report

Name of Company: Enterprise Field Services, LLC	Contact: Aaron Dailey
Address: 1100 Louisiana Street, Houston, TX 77002	Telephone No.: (505) 559-2286
Facility Name: K-17/K-Loop Release Site	Facility Type: Pipeline

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

Unit Letter	Section 23	Township 27N	Range R8W	Feet from the	North/South Line	Feet from the	East/West Line	County
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Latitude N36.552209

Longitude W107.652894

NATURE OF RELEASE

Type of Release: Natural gas condensate	Volume of Release: Unknown	Volume Recovered: N/A
Source of Release:	Date and Hour of Occurrence	Date and Hour of Discovery
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Not Required	If YES, To Whom? Verbal notification was provided by David Smith to Brandon Powell, Aztec District.	
By Whom?	Date and Hour 4.11.2012 @ 09:30 hours	
Was a Watercourse Reached? <input type="checkbox"/> Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

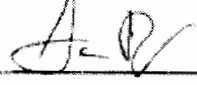
Describe Cause of Problem and Remedial Action Taken.*

On March 19, 2010, Enterprise responded to a condensate release at the K-17/K-Trunk pipeline location, and discovered apparent historical soil impacts at this location. An initial site investigation performed during 2010 indicated that soil impacts were present that exceeded NM OCD remediation standards. It is not known if the initial release discovery, or subsequent site investigation, was reported to the OCD. On March 21, 1012, Enterprise conducted a limited site investigation to determine in soil or groundwater impacts were present at the site requiring further actions. Based on laboratory results received on March 30, 2012, groundwater has been affected at one monitoring location (TSW-11) by benzene concentrations (25 µg/L), which are in excess of the applicable NM WQCC Groundwater Quality Standard (10 µg/L).

Describe Area Affected and Cleanup Action Taken.*

Enterprise is currently preparing a site investigation work plan for OCD approval. The work plan is being designed to ensure that the full extent of affected soil and groundwater at this location are been fully delineated. Remedial actions for the affected area will also be proposed in this work plan.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION		
Printed Name: Aaron Dailey	Approved by Environmental Specialist:		
Title: Scientist, Field Environmental	Approval Date:	Expiration Date:	
E-mail Address: amdailey@eprod.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 4.11.2012	Phone: (505) 427-1719		

* Attach Additional Sheets If Necessary

ATTACHMENT C

Tables



TABLE 2
K-17/K-TRUNK 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
TSW-11	3.21.12	25	75	11	120	0.83	<1.0
TSW-12	3.21.12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
TSW-13	3.21.12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
TSW-14	3.21.12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
MW-15 (replaced TSW-11)	7.23.12	76	150	10	200	1.3	<1.0
	10.30.12	62	3.1	13	<2.0	0.58	<1.0
	1.29.13	75	<1.0	27	4.6	0.55	<1.0
	5.4.13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	8.29.13	<1.0	<1.0	<1.0	<1.0	<0.050	<1.0
	11.19.13	<1.0	<1.0	<1.0	<1.0	<0.050	<1.0
	2.6.14	<1.0	<1.0	<1.0	<1.0	<0.050	<1.0

Note: Concentrations in bold and yellow exceed the applicable OCD Remediation Action Level
NE = Not Established

ATTACHMENT D

Laboratory Data Reports & Chain-of-Custody Documentation



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

August 02, 2012

Kyle Summers

Southwest Geoscience
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (214) 350-5469
FAX (214) 350-2914

RE: K-17

OrderNo.: 1207B00

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/25/2012 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. 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. 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.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1207B00

Date Reported: 8/2/2012

CLIENT: Southwest Geoscience

Client Sample ID: MW-15

Project: K-17

Collection Date: 7/23/2012 2:05:00 PM

Lab ID: 1207B00-001

Matrix: AQUEOUS

Received Date: 7/25/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/27/2012 9:25:54 AM
Surr: DNOP	117	79.5-166		%REC	1	7/27/2012 9:25:54 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1.3	0.050		mg/L	1	7/26/2012 6:38:22 PM
Surr: BFB	113	69.8-119		%REC	1	7/26/2012 6:38:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	76	1.0		µg/L	1	7/26/2012 6:38:22 PM
Toluene	150	10		µg/L	10	7/27/2012 4:06:10 PM
Ethylbenzene	10	1.0		µg/L	1	7/26/2012 6:38:22 PM
Xylenes, Total	200	2.0		µg/L	1	7/26/2012 6:38:22 PM
Surr: 4-Bromofluorobenzene	105	55-140		%REC	1	7/26/2012 6:38:22 PM

Qualifiers: * / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
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
RL Reporting Detection Limit
U Samples with CalcVal < MDL

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1207B00

02-Aug-12

Client: Southwest Geoscience

Project: K-17

Sample ID	MB-3044	SampType:	MBLK	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID:	3044	RunNo:	4457					
Prep Date:	7/26/2012	Analysis Date:	7/27/2012	SeqNo:	124543	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	1.1		1.000		113	79.5	166			

Sample ID	LCS-3044	SampType:	LCS	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSW	Batch ID:	3044	RunNo:	4457					
Prep Date:	7/26/2012	Analysis Date:	7/27/2012	SeqNo:	124598	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.4	1.0	5.000	0	88.6	74	157			
Surr: DNOP	0.46		0.5000		91.4	79.5	166			

Sample ID	LCSD-3044	SampType:	LCSD	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSS02	Batch ID:	3044	RunNo:	4457					
Prep Date:	7/26/2012	Analysis Date:	7/27/2012	SeqNo:	124599	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.3	1.0	5.000	0	85.5	74	157	3.53	23	
Surr: DNOP	0.44		0.5000		88.6	79.5	166	0	0	

Qualifiers:

*X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD 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
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1207B00

02-Aug-12

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML RB	SampType	MBLK	TestCode	EPA Method 8015B: Gasoline Range					
Client ID	PBW	Batch ID	R4462	RunNo	4462					
Prep Date:		Analysis Date	7/26/2012	SeqNo	124647	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	18		20.00		88.3	69.8	119			

Sample ID	2.5UG GRO LCS	SampType	LCS	TestCode	EPA Method 8015B: Gasoline Range					
Client ID	LCSW	Batch ID	R4462	RunNo	4462					
Prep Date:		Analysis Date	7/26/2012	SeqNo	124648	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	75.9	119			
Surr: BFB	17		20.00		84.4	69.8	119			

Sample ID	5ML RB	SampType	MBLK	TestCode	EPA Method 8015B: Gasoline Range					
Client ID	PBW	Batch ID	R4480	RunNo	4480					
Prep Date:		Analysis Date	7/27/2012	SeqNo	125476	Units	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Surr: BFB	19		20.00		95.1	69.8	119			
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Sample ID	2.5UG GRO LCS	SampType	LCS	TestCode	EPA Method 8015B: Gasoline Range					
Client ID	LCSW	Batch ID	R4480	RunNo	4480					
Prep Date:		Analysis Date	7/27/2012	SeqNo	125477	Units	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Surr: BFB	24		20.00		122	69.8	119			S
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Sample ID	1207B00-001AMS	SampType	MS	TestCode	EPA Method 8015B: Gasoline Range					
Client ID	MW-15	Batch ID	R4480	RunNo	4480					
Prep Date:		Analysis Date	7/27/2012	SeqNo	125480	Units	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Surr: BFB	24		20.00		118	69.8	119			
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Sample ID	1207B00-001AMSD	SampType	MSD	TestCode	EPA Method 8015B: Gasoline Range					
Client ID	MW-15	Batch ID	R4480	RunNo	4480					
Prep Date:		Analysis Date	7/27/2012	SeqNo	125481	Units	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Surr: BFB	23		20.00		116	69.8	119	0	0	
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Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD 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
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1207B00

02-Aug-12

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R4462	RunNo:	4462					
Prep Date:		Analysis Date:	7/26/2012	SeqNo:	124682	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	17		20.00		83.0	55	140			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R4462	RunNo:	4462					
Prep Date:		Analysis Date:	7/26/2012	SeqNo:	124683	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	80	120			
Ethylbenzene	21	1.0	20.00	0	105	80	120			
Xylenes, Total	65	2.0	60.00	0	109	80	120			
Surr: 4-Bromofluorobenzene	18		20.00		88.0	55	140			

Sample ID	1207B39-001AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	BatchQC	Batch ID:	R4462	RunNo:	4462					
Prep Date:		Analysis Date:	7/26/2012	SeqNo:	124685	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	110	5.0	100.0	0	110	70.1	118			
Ethylbenzene	110	5.0	100.0	0.6900	106	73.5	117			
Xylenes, Total	330	10	300.0	0	109	73.1	119			
Surr: 4-Bromofluorobenzene	86		100.0		86.1	55	140			

Sample ID	1207B39-001AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	BatchQC	Batch ID:	R4462	RunNo:	4462					
Prep Date:		Analysis Date:	7/26/2012	SeqNo:	124686	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	110	5.0	100.0	0	107	70.1	118	2.89	16.4	
Ethylbenzene	100	5.0	100.0	0.6900	103	73.5	117	2.93	13.5	
Xylenes, Total	320	10	300.0	0	106	73.1	119	3.50	12.9	
Surr: 4-Bromofluorobenzene	96		100.0		95.8	55	140	0	0	

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R4480	RunNo:	4480					
Prep Date:		Analysis Date:	7/27/2012	SeqNo:	125484	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	ND	1.0								
Surr: 4-Bromofluorobenzene	18		20.00		88.5	55	140			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD 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
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1207B00

02-Aug-12

Client: Southwest Geoscience

Project: K-17

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R4480	RunNo:	4480					
Prep Date:		Analysis Date:	7/27/2012	SeqNo:	125485	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	22	1.0	20.00	0	112	80	120			
Surr: 4-Bromofluorobenzene	18		20.00		88.8	55	140			

Sample ID	1207B89-001AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	BatchQC	Batch ID:	R4480	RunNo:	4480					
Prep Date:		Analysis Date:	7/27/2012	SeqNo:	125487	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	200	5.0	100.0	86.13	114	72.3	117			
Surr: 4-Bromofluorobenzene	94		100.0		93.6	55	140			

Sample ID	1207B89-001AMSD			SampType:	MSD		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	BatchQC		Batch ID:	R4480		RunNo:	4480				
Prep Date:			Analysis Date:	7/27/2012		SeqNo:	125488		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	190	5.0	100.0	86.13	107	72.3	117	3.61	13.9		
Surr: 4-Bromofluorobenzene	91		100.0		91.2	55	140	0	0		

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD 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
RL Reporting Detection Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87106
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Southwest Geoscience

Work Order Number: 1207B00

Received by/date:

[Signature] 07/25/12

Logged By: Ashley Gallegos

7/25/2012 10:00:00 AM

[Signature]

Completed By:

Ashley Gallegos

7/25/2012 12:56:14 PM

[Signature]

Reviewed By:

[Signature] 7/25/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ (<2 or >12 unless noted)
15. Is it clear what analyses were requested? Yes ☒ No ☐ Adjusted? ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by: ☐

Special Handling (if applicable)

17. 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:

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

CHAIN OF CUSTODY RECORD

Southwest GEOSCIENCE Environmental & Hydrogeologic Consultants <i>Aztec</i>		Laboratory: <i>Hall</i> Address: <i>ABQ</i> Contact: <i>Andy Freeman</i> Phone: _____ PO/SO #: _____		ANALYSIS REQUESTED <i>BTX 8021</i> <i>TPH GROUNDO 8015</i>		Lab use only Due Date: _____ Temp. of coolers when received (C°): <i>1.0</i> 1 2 3 4 5 Page <i>1</i> of <i>1</i>	
Office Location Project Manager: <i>R. Summers</i> Sampler's Name: <i>Ryle Summers</i>		Project Name: <i>R-17</i> No/Type of Containers: _____ Identifying Marks of Sample(s): <i>PMW-15</i>		No/Type of Containers: _____ VOA: <i>5</i> AG 1 L: _____ 250 ml: _____		Lab Sample ID (Lab Use Only) <i>1307800-001</i>	
Matrix: <i>W</i> Date: <i>7/29/12</i> Time: <i>1405</i>		C o m p: <i>W</i> G r a b: _____ Identifying Marks of Sample(s): _____		No/Type of Containers: _____ VOA: _____ AG 1 L: _____ 250 ml: _____		Lab Sample ID (Lab Use Only) <i>1307800-001</i>	
Turn around time: <i>Normal</i> Relinquished by (Signature): _____ Date: <i>7/30/12</i> Time: <i>1633</i>		25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush <input type="checkbox"/> Received by (Signature): _____ Date: <i>7/30/12</i> Time: <i>1633</i>		Received by (Signature): _____ Date: <i>7/30/12</i> Time: <i>1633</i>		NOTES:	
Relinquished by (Signature): _____ Date: <i>7/30/12</i> Time: <i>1724</i>		Received by (Signature): _____ Date: <i>7/30/12</i> Time: <i>1724</i>		Received by (Signature): _____ Date: <i>7/30/12</i> Time: <i>1724</i>		NOTES:	
Relinquished by (Signature): _____ Date: _____ Time: _____		Received by (Signature): _____ Date: _____ Time: _____		Received by (Signature): _____ Date: _____ Time: _____		NOTES:	
Relinquished by (Signature): _____ Date: _____ Time: _____		Received by (Signature): _____ Date: _____ Time: _____		Received by (Signature): _____ Date: _____ Time: _____		NOTES:	



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

November 06, 2012

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

RE: K-17

OrderNo.: 1210D56

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/31/2012 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. 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. 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.

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 1210D56

Date Reported: 11/6/2012

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Southwest Geoscience**Client Sample ID:** MW-15**Project:** K-17**Collection Date:** 10/30/2012 10:40:00 AM**Lab ID:** 1210D56-001**Matrix:** AQUEOUS**Received Date:** 10/31/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/1/2012 1:55:28 PM
Surr: DNOP	119	79.5-166		%REC	1	11/1/2012 1:55:28 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.58	0.050		mg/L	1	11/5/2012 5:59:24 PM
Surr: BFB	128	51.9-148		%REC	1	11/5/2012 5:59:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	62	1.0		µg/L	1	11/5/2012 5:59:24 PM
Toluene	3.1	1.0		µg/L	1	11/5/2012 5:59:24 PM
Ethylbenzene	13	1.0		µg/L	1	11/5/2012 5:59:24 PM
Xylenes, Total	ND	2.0		µg/L	1	11/5/2012 5:59:24 PM
Surr: 4-Bromofluorobenzene	112	69.7-152		%REC	1	11/5/2012 5:59:24 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1210D56

06-Nov-12

Client: Southwest Geoscience

Project: K-17

Sample ID	MB-4626	SampType:	MBLK	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID:	4626	RunNo:	6627					
Prep Date:	11/1/2012	Analysis Date:	11/1/2012	SeqNo:	191450	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

1.1

1.000

113

79.5

166

Sample ID	LCS-4626	SampType:	LCS	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSW	Batch ID:	4626	RunNo:	6627					
Prep Date:	11/1/2012	Analysis Date:	11/1/2012	SeqNo:	191451	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

93.3

74

157

Surr: DNOP

0.56

0.5000

112

79.5

166

Sample ID	LCSD-4626	SampType:	LCSD	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSS02	Batch ID:	4626	RunNo:	6627					
Prep Date:	11/1/2012	Analysis Date:	11/1/2012	SeqNo:	191452	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)

4.8

1.0

5.000

0

96.2

74

157

3.00

23

Surr: DNOP

0.55

0.5000

110

79.5

166

0

0

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1210D56

06-Nov-12

Client: Southwest Geoscience

Project: K-17

Sample ID: 5ML RB	SampType: MBLK	TestCode: EPA Method 8015B: Gasoline Range								
Client ID: PBW	Batch ID: R6698	RunNo: 6698								
Prep Date:	Analysis Date: 11/5/2012	SeqNo: 193572	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	22		20.00		112	51.9	148			

Sample ID: 2.5UG GRO LCSB	SampType: LCS	TestCode: EPA Method 8015B: Gasoline Range								
Client ID: LCSW	Batch ID: R6698	RunNo: 6698								
Prep Date:	Analysis Date: 11/5/2012	SeqNo: 193573	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.3	75.9	119			
Surr: BFB	25		20.00		124	51.9	148			

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 |
| P Sample pH greater than 2 | R RPD outside accepted recovery limits |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1210D56

06-Nov-12

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R6698	RunNo:	6698					
Prep Date:		Analysis Date:	11/5/2012	SeqNo:	193585	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		105	69.7	152			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R6698	RunNo:	6698					
Prep Date:		Analysis Date:	11/5/2012	SeqNo:	193589	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	88.5	80	120			
Toluene	18	1.0	20.00	0	90.2	80	120			
Ethylbenzene	18	1.0	20.00	0	91.0	80	120			
Xylenes, Total	56	2.0	60.00	0	92.7	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		111	69.7	152			

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 |
| P Sample pH greater than 2 | R RPD outside accepted recovery limits |

Sample Log-In Check List

Client Name:	Southwest Geoscience Aztec	Work Order Number:	1210D56
Received by/date:	LM 10/31/12		
Logged By:	Michelle Garcia	10/31/2012 9:50:00 AM	Michelle Garcia
Completed By:	Michelle Garcia	10/31/2012 12:01:30 PM	Michelle Garcia
Reviewed By:	mg/df	10/31/12	

Chain of Custody

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

Log In

- Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
- 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:	_____		

- Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

CHAIN OF CUSTODY RECORD

Southwest GEO SCIENCE Environmental & Hydrogeologic Consultants Office Location <u>Artec</u>		Laboratory: <u>Hall</u> Address: <u>ABQ</u> Contact: <u>Andy Freeman</u> Phone: _____ PO/ISO #: <u>0411015</u> Sample's Signature: <u>[Signature]</u>		ANALYSIS REQUESTED <u>801/2</u> <u>THH GFD/OFD</u> <u>BTEX</u> <u>8020</u>		Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>1.0</u> 1 2 3 4 5 Page <u>1</u> of <u>1</u>	
		Project Manager: <u>Summer</u> Sample's Name: <u>Ryle Summer</u> Project Name: <u>R-17</u>		No/Type of Containers VOA 1L 250 ml P/O <u>5</u>		Lab Sample ID (Lab Use Only) <u>121005L</u> <u>-001</u>	
Proj. No. <u>0411015</u>		Identifying Marks of Sample(s) <u>W 10/30/12 1040</u> <u>2 MW-15</u>		Date: <u>10/30/12</u> Time: <u>1040</u>		Date: <u>10/30/12</u> Time: <u>1040</u>	
Matrix <u>W</u>		C G o r m a p b		Date: <u>10/30/12</u> Time: <u>1542</u>		Date: <u>10/30/12</u> Time: <u>1542</u>	
Relinquished by (Signature) <u>[Signature]</u>		Received by (Signature) <u>[Signature]</u>		Date: <u>10/30/12</u> Time: <u>1758</u>		Date: <u>10/30/12</u> Time: <u>1758</u>	
Relinquished by (Signature) <u>[Signature]</u>		Received by (Signature) <u>[Signature]</u>		Date: _____ Time: _____		Date: _____ Time: _____	
Relinquished by (Signature) _____		Received by (Signature) _____		Date: _____ Time: _____		Date: _____ Time: _____	
Relinquished by (Signature) _____		Received by (Signature) _____		Date: _____ Time: _____		Date: _____ Time: _____	
Turn around time <u>Normal</u> <input checked="" type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush		NOTES:		Date: _____ Time: _____		Date: _____ Time: _____	

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



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

February 04, 2013

Kyle Summers

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

RE: K-17

OrderNo.: 1301950

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/30/2013 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. 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. 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.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical ReportLab Order **1301950**Date Reported: **2/4/2013****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Southwest Geoscience**Client Sample ID:** MW-15**Project:** K-17**Collection Date:** 1/29/2013 12:00:00 PM**Lab ID:** 1301950-001**Matrix:** AQUEOUS**Received Date:** 1/30/2013 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: MMD
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/1/2013 7:08:37 PM
Surr: DNOP	108	75.4-146		%REC	1	2/1/2013 7:08:37 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.55	0.050		mg/L	1	1/31/2013 3:58:12 PM
Surr: BFB	123	51.9-148		%REC	1	1/31/2013 3:58:12 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	75	1.0		µg/L	1	1/31/2013 3:58:12 PM
Toluene	ND	1.0		µg/L	1	1/31/2013 3:58:12 PM
Ethylbenzene	27	1.0		µg/L	1	1/31/2013 3:58:12 PM
Xylenes, Total	4.6	2.0		µg/L	1	1/31/2013 3:58:12 PM
Surr: 4-Bromofluorobenzene	101	69.7-152		%REC	1	1/31/2013 3:58:12 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301950

04-Feb-13

Client: Southwest Geoscience

Project: K-17

Sample ID	MB-5951	SampType:	MBLK	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID:	5951	RunNo:	8400					
Prep Date:	2/1/2013	Analysis Date:	2/1/2013	SeqNo:	242084	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	1.1		1.000		111	75.4	146			

Sample ID	LCS-5951	SampType:	LCS	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSW	Batch ID:	5951	RunNo:	8400					
Prep Date:	2/1/2013	Analysis Date:	2/1/2013	SeqNo:	242095	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	119	64.4	132			
Surr: DNOP	0.53		0.5000		107	75.4	146			

Sample ID	LCSD-5951	SampType:	LCSD	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSS02	Batch ID:	5951	RunNo:	8400					
Prep Date:	2/1/2013	Analysis Date:	2/1/2013	SeqNo:	242149	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	5.9	1.0	5.000	0	118	64.4	132	1.08	20	
Surr: DNOP	0.61		0.5000		122	75.4	146	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 |
| P Sample pH greater than 2 | R RPD outside accepted recovery limits |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301950

04-Feb-13

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	PBW	Batch ID:	R8394	RunNo:	8394					
Prep Date:		Analysis Date:	1/31/2013	SeqNo:	242013	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

18

20.00

91.0

51.9

148

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	LCSW	Batch ID:	R8394	RunNo:	8394					
Prep Date:		Analysis Date:	1/31/2013	SeqNo:	242014	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

104

73.2

124

Surr: BFB

19

20.00

97.4

51.9

148

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301950

04-Feb-13

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R8394	RunNo:	8394					
Prep Date:		Analysis Date:	1/31/2013	SeqNo:	242029	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	19		20.00		93.8	69.7	152			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R8394	RunNo:	8394					
Prep Date:		Analysis Date:	1/31/2013	SeqNo:	242030	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	20	1.0	20.00	0	99.9	80	120			
Ethylbenzene	20	1.0	20.00	0	101	80	120			
Xylenes, Total	61	2.0	60.00	0	102	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		103	69.7	152			

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 |
| P Sample pH greater than 2 | R RPD outside accepted recovery limits |



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87110
TEL: 505-345-3975 FAX: 505-345-4101
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Southwest Geoscience Work Order Number: 1301950

Received by/date: AG 01/30/13

Logged By: Michelle Garcia 1/30/2013 10:30:00 AM *Michelle Garcia*

Completed By: Michelle Garcia 1/30/2013 10:54:35 AM *Michelle Garcia*

Reviewed By: IO 01/30/2013

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. 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)

17. 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: _____

18. Additional remarks:

19. Cooler Information

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

CHAIN OF CUSTODY RECORD

<h2 style="margin: 0;">Southwest GEOSCIENCE</h2> <p style="margin: 0; font-size: small;">Environmental & Hydrogeologic Consultants</p>		<p style="margin: 0; font-size: x-large;">Office Location</p> <p style="margin: 0; font-size: x-large;">Artec</p>		<p style="margin: 0; font-size: x-large;">Laboratory: Hall</p> <p style="margin: 0; font-size: x-large;">Address: ABQ</p>		<p style="margin: 0; font-size: x-large;">Contact: Freeman</p> <p style="margin: 0; font-size: x-large;">Phone:</p>		<p style="margin: 0; font-size: x-large;">PO/ISO #: 0411015</p> <p style="margin: 0; font-size: x-large;">Samples Name: Kyle Summers</p>		<p style="margin: 0; font-size: x-large;">Project Name: R-17</p>		<p style="margin: 0; font-size: x-large;">No/Type of Containers</p>		<p style="margin: 0; font-size: x-large;">AnalYSIS REQUESTED</p> <p style="margin: 0; font-size: x-large; transform: rotate(-45deg);">BTX 80218 TPH 600/1000 801513</p>		<p style="margin: 0; font-size: x-large;">Lab use only</p> <p style="margin: 0; font-size: x-large;">Due Date:</p>	
		<p style="margin: 0; font-size: x-large;">Temp. of coolers when received (C°): 1.0</p>		<p style="margin: 0; font-size: x-large;">Page: 1 of 1</p>		<p style="margin: 0; font-size: x-large;">Lab Sample ID (Lab Use Only)</p> <p style="margin: 0; font-size: x-large;">1301950-001</p>											

Matrix	Date	Time	Identifying Marks of Sample(s)	Dep't	Dep't	Dep't	VOA	AVG	250	P/O	Lab Sample ID (Lab Use Only)
				mg	mg	mg	1 Lt.	ml			
W	12/29/13	1200	PMW-15				5				1301950-001
<div style="position: relative; width: 100%; height: 100%;"> NFS RS </div>											

Turn around time	Normal	25% Rush	50% Rush	100% Rush	Received by: (Signature)	Date:	Time:	NOTES:
Relinquished by (Signature)					<i>Mattie Wheeler</i>	12/29/13	1447	
Relinquished by (Signature)					<i>Mattie Wheeler</i>	12/29/13	10:30	
Relinquished by (Signature)								
Relinquished by (Signature)								

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*

May 10, 2013

Kyle Summers

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

RE: K-17

OrderNo.: 1305153

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/4/2013 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. 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. 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.

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 1305153

Date Reported: 5/10/2013

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Southwest Geoscience**Client Sample ID:** MW-15**Project:** K-17**Collection Date:** 5/3/2013 12:05:00 PM**Lab ID:** 1305153-001**Matrix:** AQUEOUS**Received Date:** 5/4/2013 12:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: JME
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/9/2013 1:57:37 PM
Surr: DNOP	124	75.4-146		%REC	1	5/9/2013 1:57:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/7/2013 12:02:55 AM
Surr: BFB	91.6	51.5-151		%REC	1	5/7/2013 12:02:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	5/7/2013 12:02:55 AM
Toluene	ND	1.0		µg/L	1	5/7/2013 12:02:55 AM
Ethylbenzene	ND	1.0		µg/L	1	5/7/2013 12:02:55 AM
Xylenes, Total	ND	2.0		µg/L	1	5/7/2013 12:02:55 AM
Surr: 4-Bromofluorobenzene	97.7	69.4-129		%REC	1	5/7/2013 12:02:55 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1305153

10-May-13

Client: Southwest Geoscience

Project: K-17

Sample ID: MB-7293	SampType: MBLK	TestCode: EPA Method 8015D: Diesel Range								
Client ID: PBW	Batch ID: 7293	RunNo: 10338								
Prep Date: 5/6/2013	Analysis Date: 5/7/2013	SeqNo: 295280 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	1.9		2.000		96.8	75.4	146			

Sample ID: LCS-7293	SampType: LCS	TestCode: EPA Method 8015D: Diesel Range								
Client ID: LCSW	Batch ID: 7293	RunNo: 10338								
Prep Date: 5/6/2013	Analysis Date: 5/7/2013	SeqNo: 295287 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.7	1.0	5.000	0	113	89.1	151			
Surr: DNOP	0.53		0.5000		106	75.4	146			

Sample ID: LCSD-7293	SampType: LCSD	TestCode: EPA Method 8015D: Diesel Range								
Client ID: LCSS02	Batch ID: 7293	RunNo: 10338								
Prep Date: 5/6/2013	Analysis Date: 5/7/2013	SeqNo: 295289 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.5	1.0	5.000	0	111	89.1	151	2.44	20	
Surr: DNOP	0.51		0.5000		101	75.4	146	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 |
| 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#: 1305153

10-May-13

Client: Southwest Geoscience

Project: K-17

Sample ID: 5ML RB	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBW	Batch ID: R10327	RunNo: 10327								
Prep Date:	Analysis Date: 5/6/2013	SeqNo: 294734	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	18		20.00		91.5	51.5	151			

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSW	Batch ID: R10327	RunNo: 10327								
Prep Date:	Analysis Date: 5/6/2013	SeqNo: 294737	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.55	0.050	0.5000	0	110	73.2	124			
Surr: BFB	20		20.00		101	51.5	151			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1305153

10-May-13

Client: Southwest Geoscience

Project: K-17

Sample ID: 5ML RB	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBW	Batch ID: R10327	RunNo: 10327								
Prep Date:	Analysis Date: 5/6/2013	SeqNo: 294813		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		102	69.4	129			

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSW	Batch ID: R10327	RunNo: 10327								
Prep Date:	Analysis Date: 5/6/2013	SeqNo: 294818		Units: µg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	80	120			
Toluene	20	1.0	20.00	0	102	80	120			
Ethylbenzene	20	1.0	20.00	0	102	80	120			
Xylenes, Total	62	2.0	60.00	0	103	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		105	69.4	129			

Sample ID: 1305153-001AMS	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: MW-15	Batch ID: R10327	RunNo: 10327								
Prep Date:	Analysis Date: 5/7/2013	SeqNo: 294823		Units: µg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0.3180	91.3	80	120			
Toluene	19	1.0	20.00	0.2760	91.9	80	120			
Ethylbenzene	19	1.0	20.00	0	93.0	80	120			
Xylenes, Total	59	2.0	60.00	0	97.6	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		103	69.4	129			

Sample ID: 1305153-001AMSD	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: MW-15	Batch ID: R10327	RunNo: 10327								
Prep Date:	Analysis Date: 5/7/2013	SeqNo: 294825		Units: µg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0.3180	91.8	80	120	0.612	20	
Toluene	19	1.0	20.00	0.2760	92.2	80	120	0.310	20	
Ethylbenzene	19	1.0	20.00	0	93.7	80	120	0.718	20	
Xylenes, Total	58	2.0	60.00	0	97.3	80	120	0.284	20	
Surr: 4-Bromofluorobenzene	21		20.00		105	69.4	129	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: Southwest Geoscience


Work Order Number: 1305153

RcptNo: 1

Received by/date: AF 05/04/13

Logged By: **Michelle Garcia** 5/4/2013 12:00:00 PM *Michelle Garcia*

Completed By: **Michelle Garcia** 5/6/2013 8:35:07 AM *Michelle Garcia*

Reviewed By:  05/04/13

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

(<2)

Adjusted? _____

Checked by: _____

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified:	Date:
By Whom:	Via: <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	3.5	Good	Yes			

CHAIN OF CUSTODY RECORD

Southwest GEOSCIENCE Environmental & Hydrogeologic Consultants Office Location <u>Aztec</u> Project Manager <u>Summers</u> Sampler's Name <u>Ryle Summers</u>		Laboratory: <u>Hall</u> Address: <u>ABA</u> Contact: <u>Freemua</u> Phone: _____ PO/SO #: <u>04116015</u> Sampler's Signature _____		ANALYSIS REQUESTED <div style="transform: rotate(-45deg); position: relative; height: 100px;"> BTEX 8021 X TPH CRD/RO 8013 </div>	
Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>3.5</u> 1 2 3 4 5 Page <u>1</u> of <u>1</u>		Lab Sample ID (Lab Use Only) <u>1305153-001</u>			

Matrix	Date	Time	C o m p	G r a b	Identifying Marks of Sample(s)	No/Type of Containers				50% Rush	100% Rush	
						Start	End	VOA	A/G			
W	5/3/13	1205	X	PMW-15				5				
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Relinquished by (Signature) _____</p> <p>Date: <u>5/3/13</u> Time: <u>1330</u></p> </div> <div style="text-align: center;"> <p>Relinquished by (Signature) _____</p> <p>Date: <u>5/4/13</u> Time: <u>1203</u></p> </div> </div>												

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

Relinquished by (Signature) _____ Date: _____ Time: _____

Relinquished by (Signature) _____ Date: _____ Time: _____

Relinquished by (Signature) _____ Date: _____ Time: _____

Relinquished by (Signature) _____ Date: _____ Time: _____

NOTES: 3.5°C

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



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

September 06, 2013

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

RE: K-17

OrderNo.: 1308D51

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/30/2013 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1308D51

Date Reported: 9/6/2013

CLIENT: Southwest Geoscience

Client Sample ID: MW-15

Project: K-17

Collection Date: 8/29/2013 9:25:00 AM

Lab ID: 1308D51-001

Matrix: AQUEOUS

Received Date: 8/30/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: JME
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/4/2013 7:39:37 PM	9127
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/4/2013 7:39:37 PM	9127
Surr: DNOP	101	70.1-140		%REC	1	9/4/2013 7:39:37 PM	9127
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/4/2013 10:28:31 PM	R13082
Surr: BFB	96.5	51.5-151		%REC	1	9/4/2013 10:28:31 PM	R13082
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	9/4/2013 10:28:31 PM	R13082
Toluene	ND	1.0		µg/L	1	9/4/2013 10:28:31 PM	R13082
Ethylbenzene	ND	1.0		µg/L	1	9/4/2013 10:28:31 PM	R13082
Xylenes, Total	ND	2.0		µg/L	1	9/4/2013 10:28:31 PM	R13082
Surr: 4-Bromofluorobenzene	104	85-136		%REC	1	9/4/2013 10:28:31 PM	R13082

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	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#: 1308D51

06-Sep-13

Client: Southwest Geoscience

Project: K-17

Sample ID	MB-9127	SampType	MBLK	TestCode	EPA Method 8015D: Diesel Range					
Client ID	PBW	Batch ID	9127	RunNo	13058					
Prep Date	9/3/2013	Analysis Date	9/4/2013	SeqNo	373341	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.95		1.000		94.8	70.1	140			

Sample ID	LCS-9127	SampType	LCS	TestCode	EPA Method 8015D: Diesel Range					
Client ID	LCSW	Batch ID	9127	RunNo	13058					
Prep Date	9/3/2013	Analysis Date	9/4/2013	SeqNo	373342	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	5.5	1.0	5.000	0	110	73.3	145			
Surr: DNOP	0.42		0.5000		83.8	70.1	140			

Sample ID	LCSD-9127	SampType	LCSD	TestCode	EPA Method 8015D: Diesel Range					
Client ID	LCSS02	Batch ID	9127	RunNo	13058					
Prep Date	9/3/2013	Analysis Date	9/4/2013	SeqNo	373343	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	5.7	1.0	5.000	0	114	73.3	145	3.07	20	
Surr: DNOP	0.44		0.5000		87.0	70.1	140	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 for VOA and TOC only. |
| 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#: 1308D51

06-Sep-13

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML RB	SampType	MBLK	TestCode	EPA Method 8015D: Gasoline Range					
Client ID	PBW	Batch ID	R13082	RunNo	13082					
Prep Date:		Analysis Date	9/4/2013	SeqNo	373373	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	19		20.00		95.1	51.5	151			

Sample ID	2.5UG GRO LCS	SampType	LCS	TestCode	EPA Method 8015D: Gasoline Range					
Client ID	LCSW	Batch ID	R13082	RunNo	13082					
Prep Date:		Analysis Date	9/4/2013	SeqNo	373374	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.0	80	120			
Surr: BFB	20		20.00		101	51.5	151			

Sample ID	1308D51-001AMS	SampType	MS	TestCode	EPA Method 8015D: Gasoline Range					
Client ID	MW-15	Batch ID	R13082	RunNo	13082					
Prep Date:		Analysis Date	9/4/2013	SeqNo	373393	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.4	67.7	128			
Surr: BFB	21		20.00		104	51.5	151			

Sample ID	1308D51-001AMSD	SampType	MSD	TestCode	EPA Method 8015D: Gasoline Range					
Client ID	MW-15	Batch ID	R13082	RunNo	13082					
Prep Date:		Analysis Date	9/4/2013	SeqNo	373399	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	96.3	67.7	128	1.12	20	
Surr: BFB	21		20.00		106	51.5	151	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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1308D51

06-Sep-13

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R13082	RunNo:	13082					
Prep Date:		Analysis Date:	9/4/2013	SeqNo:	373436	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		105	85	136			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R13082	RunNo:	13082					
Prep Date:		Analysis Date:	9/4/2013	SeqNo:	373437	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	20	1.0	20.00	0	102	80	120			
Ethylbenzene	20	1.0	20.00	0	102	80	120			
Xylenes, Total	64	2.0	60.00	0	106	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		107	85	136			

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 for VOA and TOC only. |
| 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: 1308D51

RcptNo: 1

Received by/date:	<i>[Signature]</i>	08/30/13
Logged By:	Lindsay Mangin	8/30/2013 10:00:00 AM
Completed By:	Lindsay Mangin	8/30/2013 1:05:45 PM
Reviewed By:	<i>mg</i>	08/30/13

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 $>0^{\circ}\text{C}$ 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:	_____		

- Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.9	Good	Yes			

CHAIN OF CUSTODY RECORD

<h2 style="margin: 0;">Southwest GEOSCIENCE</h2> <p style="margin: 0;">Environmental & Hydrogeologic Consultants</p>				Laboratory: <u>14911</u> Address: <u>Abq</u>				ANALYSIS REQUESTED <u>BTX 8021</u> <u>TRH GRD/00 8015</u>				Lab use only Due Date: _____											
				Office Location: <u>Artec</u>				Contact: <u>Freeman</u> Phone: _____				Temp. of coolers when received (C°): <u>49</u> 1 2 3 4 5 Page <u>1</u> of <u>1</u>											
Project Manager: <u>Summers</u> Sampler's Name: <u>Ryle Summers</u>				PO/SO #: <u>04116015</u> Sampler's Signature: <u>[Signature]</u>				No/Type of Containers <u>5</u>				Lab Sample ID (Lab Use Only) <u>1308D51-001</u>											
Proj. No: <u>04116015</u> Project Name: <u>K-17</u>				Identifying Marks of Sample(s): <u>18W-15</u>																			
Matrix		Date		Time		C o m p		G r a b		Identifying Marks of Sample(s)		Depth		Depth		VOA		A/G		250 ml		P/O	
W		8/29/13		0925		X		18W-15		18W-15		5		5		5		5		5		5	
<p style="font-size: 2em; margin: 0;">APG</p> <p style="font-size: 2em; margin: 0;">RS</p>																							
Turn around time		Normal		25% Rush		50% Rush		100% Rush															
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Date:		Time:		NOTES:											
[Signature]		8/29/13		1210		[Signature]		8/29/13		1240													
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Date:		Time:													
[Signature]		8/29/13		1757		[Signature]		8/29/13		1800													
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Date:		Time:													
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Date:		Time:													
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Date:		Time:													
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Date:		Time:													
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Date:		Time:													
Matrix Container		WW - Wastewater		VOA - 40 ml vial		W - Water		S - Soil		SD - Solid		L - Liquid		A - Air Bag		C - Charcoal tube		SL - sludge		O - Oil		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 27, 2013

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

RE: K-17

OrderNo.: 1311991

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 11/21/2013 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1311991

Date Reported: 11/27/2013

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Southwest Geoscience**Client Sample ID:** MW-15**Project:** K-17**Collection Date:** 11/19/2013 11:10:00 AM**Lab ID:** 1311991-001**Matrix:** AQUEOUS**Received Date:** 11/21/2013 9:50:00 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	11/25/2013 6:35:13 PM	10460
Surr: DNOP	117	70.1-140		%REC	1	11/25/2013 6:35:13 PM	10460
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/22/2013 4:08:50 PM	R15041
Surr: BFB	99.1	80.4-118		%REC	1	11/22/2013 4:08:50 PM	R15041
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	11/22/2013 4:08:50 PM	R15041
Toluene	ND	1.0		µg/L	1	11/22/2013 4:08:50 PM	R15041
Ethylbenzene	ND	1.0		µg/L	1	11/22/2013 4:08:50 PM	R15041
Xylenes, Total	ND	2.0		µg/L	1	11/22/2013 4:08:50 PM	R15041
Surr: 4-Bromofluorobenzene	106	85-136		%REC	1	11/22/2013 4:08:50 PM	R15041

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	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#: 1311991

27-Nov-13

Client: Southwest Geoscience

Project: K-17

Sample ID	MB-10460	SampType	MBLK	TestCode	EPA Method 8015D: Diesel Range					
Client ID	PBW	Batch ID	10460	RunNo	15015					
Prep Date	11/21/2013	Analysis Date	11/25/2013	SeqNo	434392	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	1.1		1.000		107	70.1	140			

Sample ID	LCS-10460	SampType	LCS	TestCode	EPA Method 8015D: Diesel Range					
Client ID	LCSW	Batch ID	10460	RunNo	15015					
Prep Date	11/21/2013	Analysis Date	11/25/2013	SeqNo	434404	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	73.3	145			
Surr: DNOP	0.52		0.5000		104	70.1	140			

Sample ID	LCSD-10460	SampType	LCSD	TestCode	EPA Method 8015D: Diesel Range					
Client ID	LCSS02	Batch ID	10460	RunNo	15015					
Prep Date	11/21/2013	Analysis Date	11/25/2013	SeqNo	434671	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.1	1.0	5.000	0	122	73.3	145	13.9	20	
Surr: DNOP	0.59		0.5000		118	70.1	140	0	0	

Sample ID	LCSD-10517	SampType	LCSD	TestCode	EPA Method 8015D: Diesel Range					
Client ID	LCSS02	Batch ID	10517	RunNo	15015					
Prep Date	11/25/2013	Analysis Date	11/25/2013	SeqNo	434703	Units	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	0.52		0.5000		103	70.1	140	0	0	

Sample ID	LCS-10517	SampType	LCS	TestCode	EPA Method 8015D: Diesel Range					
Client ID	LCSW	Batch ID	10517	RunNo	15015					
Prep Date	11/25/2013	Analysis Date	11/25/2013	SeqNo	434704	Units	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	0.55		0.5000		111	70.1	140			

Sample ID	MB-10517	SampType	MBLK	TestCode	EPA Method 8015D: Diesel Range					
Client ID	PBW	Batch ID	10517	RunNo	15015					
Prep Date	11/25/2013	Analysis Date	11/25/2013	SeqNo	434705	Units	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	1.1		1.000		109	70.1	140			

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311991

27-Nov-13

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML-RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R15041	RunNo:	15041					
Prep Date:		Analysis Date:	11/22/2013	SeqNo:	434271	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	20		20.00		97.6	80.4	118			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R15041	RunNo:	15041					
Prep Date:		Analysis Date:	11/22/2013	SeqNo:	434272	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	101	80	120			
Surr: BFB	21		20.00		107	80.4	118			

Sample ID	1311991-001A MS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	MW-15	Batch ID:	R15041	RunNo:	15041					
Prep Date:		Analysis Date:	11/22/2013	SeqNo:	434281	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	0.02140	99.6	67.7	128			
Surr: BFB	22		20.00		109	80.4	118			

Sample ID	1311991-001A MSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	MW-15	Batch ID:	R15041	RunNo:	15041					
Prep Date:		Analysis Date:	11/22/2013	SeqNo:	434282	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	0.02140	101	67.7	128	1.45	20	
Surr: BFB	22		20.00		109	80.4	118	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 for VOA and TOC only. |
| 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#: 1311991

27-Nov-13

Client: Southwest Geoscience

Project: K-17

Sample ID	5ML-RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R15041	RunNo:	15041					
Prep Date:		Analysis Date:	11/22/2013	SeqNo:	434285	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		108	85	136			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R15041	RunNo:	15041					
Prep Date:		Analysis Date:	11/22/2013	SeqNo:	434286	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.8	80	120			
Toluene	19	1.0	20.00	0	94.6	80	120			
Ethylbenzene	19	1.0	20.00	0	95.1	80	120			
Xylenes, Total	58	2.0	60.00	0	96.0	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		112	85	136			

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 for VOA and TOC only.
- RL Reporting Detection Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Southwest Geoscience

Work Order Number: 1311991

RcptNo: 1

Received by/date:	<i>mg</i>	<i>11/21/13</i>
Logged By:	Michelle Garcia	11/21/2013 9:50:00 AM <i>Michelle Garcia</i>
Completed By:	Michelle Garcia	11/21/2013 4:44:42 PM <i>Michelle Garcia</i>
Reviewed By:	<i>[Signature]</i>	<i>11/22/2013</i>

Chain of Custody

- | | | | |
|--|---|-----------------------------|---|
| 1. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 2. Is Chain of Custody complete? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 3. How was the sample delivered? | <u>Courier</u> | | |

Log In

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

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

Special Handling (if applicable)

- | | | | |
|---|------------------------------|-----------------------------|--|
| 16. Was client notified of all discrepancies with this order? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
|---|------------------------------|-----------------------------|--|

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	1.0	Good	Yes			



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

February 12, 2014

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

RE: K-17

OrderNo.: 1402276

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/7/2014 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1402276

Date Reported: 2/12/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Southwest Geoscience**Client Sample ID:** MW-15**Project:** K-17**Collection Date:** 2/6/2014 10:15:00 AM**Lab ID:** 1402276-001**Matrix:** AQUEOUS**Received Date:** 2/7/2014 10:30:00 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	2/11/2014 3:12:04 AM	11582
Surr: DNOP	105	62.7-145		%REC	1	2/11/2014 3:12:04 AM	11582
EPA METHOD 8015D: GASOLINE RANGE							Analyst: JMP
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/10/2014 3:35:41 PM	R16645
Surr: BFB	91.3	80.4-118		%REC	1	2/10/2014 3:35:41 PM	R16645
EPA METHOD 8021B: VOLATILES							Analyst: JMP
Benzene	ND	1.0		µg/L	1	2/10/2014 3:35:41 PM	R16645
Toluene	ND	1.0		µg/L	1	2/10/2014 3:35:41 PM	R16645
Ethylbenzene	ND	1.0		µg/L	1	2/10/2014 3:35:41 PM	R16645
Xylenes, Total	ND	2.0		µg/L	1	2/10/2014 3:35:41 PM	R16645
Surr: 4-Bromofluorobenzene	107	85-136		%REC	1	2/10/2014 3:35:41 PM	R16645

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH 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#: 1402276

12-Feb-14

Client: Southwest Geoscience

Project: K-17

Sample ID	LCS-11582		SampType:	LCS		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	LCSW		Batch ID:	11582		RunNo:	16624			
Prep Date:	2/7/2014		Analysis Date:	2/10/2014		SeqNo:	479060		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.2	1.0	5.000	0	103	73.3	145			
Surr: DNOP	0.49		0.5000		98.0	62.7	145			

Sample ID	LCSD-11582		SampType:	LCSD		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	LCSS02		Batch ID:	11582		RunNo:	16624			
Prep Date:	2/7/2014		Analysis Date:	2/10/2014		SeqNo:	479064		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.8	1.0	5.000	0	95.2	73.3	145	7.98	20	
Surr: DNOP	0.45		0.5000		90.5	62.7	145	0	0	

Sample ID	MB-11582		SampType:	MBLK		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	PBW		Batch ID:	11582		RunNo:	16624			
Prep Date:	2/7/2014		Analysis Date:	2/10/2014		SeqNo:	479110		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	0.90		1.000		89.8	62.7	145			

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#: 1402276

12-Feb-14

Client: Southwest Geoscience

Project: K-17

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R16645	RunNo:	16645					
Prep Date:		Analysis Date:	2/10/2014	SeqNo:	479083	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.4	80	120			
Surr: BFB	18		20.00		88.0	80.4	118			

Sample ID	1402276-001AMS		SampType:	MS		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	MW-15		Batch ID:	R16645		RunNo:	16645				
Prep Date:			Analysis Date:	2/10/2014		SeqNo:	479093		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	99.5	67.7	128				
Surr: BFB	20		20.00		100	80.4	118				

Sample ID	1402276-001AMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	MW-15		Batch ID:	R16645		RunNo:	16645				
Prep Date:			Analysis Date:	2/10/2014		SeqNo:	479094		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.2	67.7	128	2.32	20		
Surr: BFB	20		20.00		98.8	80.4	118	0	0		

Sample ID	B25	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R16645	RunNo:	16645					
Prep Date:		Analysis Date:	2/10/2014	SeqNo:	479180	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	18		20.00		90.8	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#: 1402276

12-Feb-14

Client: Southwest Geoscience

Project: K-17

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R16645	RunNo:	16645					
Prep Date:		Analysis Date:	2/10/2014	SeqNo:	479098	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	104	80	120			
Ethylbenzene	21	1.0	20.00	0	106	80	120			
Xylenes, Total	64	2.0	60.00	0	107	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		106	85	136			

Sample ID	1402276-001AMS			SampType:	MS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	MW-15			Batch ID:	R16645		RunNo:	16645			
Prep Date:				Analysis Date:	2/10/2014		SeqNo:	479106		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	19	1.0	20.00	0	94.1	73.4	119				
Toluene	19	1.0	20.00	0	94.8	80	120				
Ethylbenzene	19	1.0	20.00	0	95.3	80	120				
Xylenes, Total	58	2.0	60.00	0	96.8	80	120				
Surr: 4-Bromofluorobenzene	22		20.00		110	85	136				

Sample ID	1402276-001AMSD			SampType:	MSD		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	MW-15		Batch ID:	R16645		RunNo:	16645				
Prep Date:			Analysis Date:	2/10/2014		SeqNo:	479107		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	19	1.0	20.00	0	94.2	73.4	119	0.159	20		
Toluene	19	1.0	20.00	0	93.3	80	120	1.62	20		
Ethylbenzene	19	1.0	20.00	0	95.0	80	120	0.357	20		
Xylenes, Total	58	2.0	60.00	0	95.9	80	120	1.00	20		
Surr: 4-Bromofluorobenzene	23		20.00		116	85	136	0	0		

Sample ID	B25	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R16645	RunNo:	16645					
Prep Date:		Analysis Date:	2/10/2014	SeqNo:	479179	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	85	136			

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: Southwest Geoscience

Work Order Number: 1402276

RcptNo: 1

Received by/date:

Logged By:

Ashley Gallegos

2/7/2014 10:30:00 AM

Completed By:

Ashley Gallegos

2/7/2014 1:13:26 PM

Reviewed By:

AT 02/10/14

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 ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

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

Special Handling (If applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Not Present			

CHAIN OF CUSTODY RECORD

<h2 style="margin: 0;">Southwest GEOSCIENCE</h2> <p style="margin: 0; font-size: small;">Environmental & Hydrogeologic Consultants</p>				<p style="margin: 0; font-size: small;">Lab use only</p> <p style="margin: 0; font-size: small;">Due Date:</p>													
<p style="margin: 0; font-size: small;">Office Location <u>ALTEC, NM</u></p>				<p style="margin: 0; font-size: small;">Temp. of coolers when received (C°):</p> <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> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				1	2	3	4	5					
1	2	3	4	5													
<p style="margin: 0; font-size: small;">Project Manager <u>Kyle Samaras</u></p>				<p style="margin: 0; font-size: small;">Page <u>1</u> of <u>1</u></p>													
<p style="margin: 0; font-size: small;">Laboratory: <u>HALL</u></p>				<p style="margin: 0; font-size: small;">ANALYSIS REQUESTED</p> <p style="margin: 0; font-size: small;">BTEX 5021 PM 8015 PRO/GR</p>													
<p style="margin: 0; font-size: small;">Address: <u>ABQ</u></p>																	
<p style="margin: 0; font-size: small;">Contact: <u>FREEMAN</u></p>																	
<p style="margin: 0; font-size: small;">Phone: _____</p>																	
<p style="margin: 0; font-size: small;">PO/ISO #: _____</p>				<p style="margin: 0; font-size: small;">Lab Sample ID (Lab Use Only)</p> <p style="margin: 0; font-size: small;">1408276001</p>													
<p style="margin: 0; font-size: small;">Project Name <u>K-17</u></p>				<p style="margin: 0; font-size: small;">No/Type of Containers</p>													
<p style="margin: 0; font-size: small;">Identifying Marks of Sample(s)</p>				<p style="margin: 0; font-size: small;">VOA</p> <p style="margin: 0; font-size: small;">AG 1 L</p> <p style="margin: 0; font-size: small;">250 ml</p> <p style="margin: 0; font-size: small;">P/O</p>													
<p style="margin: 0; font-size: small;">Matrix Date Time</p>				<p style="margin: 0; font-size: small;">X MW-15</p>													
<p style="margin: 0; font-size: small;">W 2-6-14 1015</p>				<p style="margin: 0; font-size: small;">X</p>													
<p style="margin: 0; font-size: small;">Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush</p>				<p style="margin: 0; font-size: small;">Relinquished by (Signature)</p> <p style="margin: 0; font-size: small;">Date: <u>2-6-14</u> Time: <u>1130</u></p>													
<p style="margin: 0; font-size: small;">Relinquished by (Signature)</p> <p style="margin: 0; font-size: small;">Date: <u>2-6-14</u> Time: <u>1251</u></p>				<p style="margin: 0; font-size: small;">Relinquished by (Signature)</p> <p style="margin: 0; font-size: small;">Date: <u>2-6-14</u> Time: <u>1251</u></p>													
<p style="margin: 0; font-size: small;">Relinquished by (Signature)</p> <p style="margin: 0; font-size: small;">Date: <u>2-6-14</u> Time: <u>1710</u></p>				<p style="margin: 0; font-size: small;">Relinquished by (Signature)</p> <p style="margin: 0; font-size: small;">Date: <u>2-6-14</u> Time: <u>1030</u></p>													
<p style="margin: 0; font-size: small;">Relinquished by (Signature)</p> <p style="margin: 0; font-size: small;">Date: _____ Time: _____</p>				<p style="margin: 0; font-size: small;">Relinquished by (Signature)</p> <p style="margin: 0; font-size: small;">Date: _____ Time: _____</p>													
<p style="margin: 0; font-size: small;">Matrix Container</p> <p style="margin: 0; font-size: small;">WW - Wastewater VOA - 40 ml vial</p>				<p style="margin: 0; font-size: small;">W - Water A/G - Amber / Or Glass 1 Liter</p> <p style="margin: 0; font-size: small;">S - Soil SD - Solid 250 ml - Glass wide mouth</p> <p style="margin: 0; font-size: small;">L - Liquid 250 ml - Glass wide mouth</p> <p style="margin: 0; font-size: small;">A - Air Bag</p> <p style="margin: 0; font-size: small;">C - Charcoal tube P/O - Plastic or other</p> <p style="margin: 0; font-size: small;">SL - sludge O - Oil</p>													