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GWMR

11/26/2012

ENTERPRISE PRODUCTS OPERATING LLC

RECEIVED OCD November 26, 2012

Return Receipt Requested 7010 1870 0001 2945 1879

Mr. Glenn von Gonter χ_{112} DEC -3 A 9: 16 New Mexico Energy, Minerals & Natural Resources Department - Oil Conservation Division 1220 South St. Francis Drive Santa Fe. New Mexico 87505

Attn: Jim Griswold

Re: Quarterly Groundwater Monitoring Report (September 2012 Event)

K-51 Pipeline Release Site **Off County Road 537**

NE 1/4 Section 34 & NW 1/4, Sec 35, T26N, R6W

Rio Arriba County, New Mexico

Dear Mr. Von Gonten:

Enterprise Field Services, LLC (Enterprise) is submitting two (2) copies of the enclosed report entitled: Quarterly Groundwater Monitoring Report (September 2012 Event) for the K-51 release site. This report documents the results of the September 2012 quarterly groundwater monitoring event conducted at the release site. Remedial actions are being conducted at the site in response to a natural gas condensate release occurring on April 13, 2010.

During this monitoring event, dissolved-phase benzene concentrations exceeding applicable Water Quality Control Commission (WQCC) Groundwater Quality Standards was present at one monitor well location (MW-1), and one monitor well (MW-19) contained measurable accumulations of phase-separated hydrocarbon (PSH). Enterprise has installed a sorbent sock at this location to absorb PSH. The presence of PSH at this location appears to be associated with a former drip valve.

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

Sincerely

David R. Smith, P.G.

Sr. Environmental Scientist

Rodney M. Sartor, REM Manager, Remediation

/dep

Enclosures (2) - Quarterly Groundwater Monitoring Report (September 2012 Event)

CC: Brandon Powell, New Mexico Oil Conservation Division, Aztec, NM

Bill Liess, Bureau of Land Management, Farmington, NM

Jim Griswold - New Mexico Oil Conservation Division, Santa Fe, NM ec:

Sherrie Landon - Bureau of Land Management, Farmington, NM

Chris Mitchell - Southwest Geoscience, San Antonio, TX Kyle Summers - Southwest Geoscience, Farmington, NM

QUARTERLY GROUNDWATER MONITORING REPORT (September 2012 Event)

Property:

K-51 Pipeline Release Sections 34 and 35, T26N, R6W Rio Arriba County, New Mexico SWG Project No. 0410003 November 6, 2012

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

PREPARED BY:

Kyle Summers, C.P.G. Senior Geologist/

Manager, Four Corners Office

B. Chris Mitchell, P.G. Principal Geoscientist

Southwest

606 S. Rio Grande Avenue Unit A, Downstairs West Aztec, NM 87410

Ph: (505) 334-5200 Fax: (505) 334-5204



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QUARTERLY GROUNDWATER MONITORING REPORT (September 2012 Event)

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

SWG Project No. 0410003

1.0 INTRODUCTION

1.1 Site Description & Background

The K-51 pipeline release site is located at the boundary of Sections 34 and 35, Township 26 North, Range 6 West, in Rio Arriba County, New Mexico, referred to hereinafter as the "Site" or "subject Site". The Site consists of silty/sandy canyon bottomland with native grasses, and is crossed by a natural gas pipeline operated by Enterprise Field Services, LLC (Enterprise).

On April 13, 2010, approximately 10 barrels of natural gas condensate were released from the Enterprise natural gas gathering pipeline at the Site, due to internal corrosion. Subsequent to the completion of excavation and off-site disposal of petroleum hydrocarbon affected soils, confirmation soil samples were collected from the excavation by Souder, Miller and Associates (SMA). In addition, one (1) groundwater sample was collected from the groundwater which recharged into the excavation. The excavation was then backfilled with unaffected soils.

In June 2010, eight (8) soil borings (BH-1 through BH-8) were advanced on-site by LT Environmental (LTE). Subsequent to advancement, four (4) of the soil borings were converted to groundwater monitoring wells (MW-1 through MW-4) (Subsurface Investigation Report, dated August 9, 2010 – LTE). Based on the results of soil and groundwater sampling activities, constituent of concern (COC) concentrations were identified in soil above the New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) Remediation Action Levels (RALs) and in groundwater above the New Mexico Water Quality Control Commission (WQCC) Groundwater Quality Standards (GQSs).

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

Based on the distribution of COCs in groundwater, a former drip valve may have been a historic source of petroleum hydrocarbon impact to groundwater in the vicinity of monitoring well MW-14. During March 2012, three (3) additional soil borings (MW-18,



MW-19 and MW-20) were advanced in and around the former drip valve area to further evaluate the extent COCs in groundwater as a result of the release (*Supplemental Site Investigation & Corrective Action Work Plan. dated April 23. 2012 – SWG*). Soil boring MW-18 was advanced to the west of the former drip valve, hydrogeologically crossgradient, and soil borings MW-19 and MW-20 were advanced to the north and northwest of the drip valve, hydrogeologically down-gradient. Based on the results of quarterly groundwater monitoring from March 2012, the groundwater samples collected from monitoring wells MW-19 and MW-20 exhibited benzene concentrations at levels above the New Mexico WOCC GOSs.

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD. To address activities related to condensate releases, the New Mexico OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically NMAC 19.15.30 Remediation. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

The Site location is depicted on Figure 1 of Appendix A which was reproduced from a portion of the United States Geological Survey (USGS) 7.5-minute series topographic map.

1.2 Scope of Work

The objective of the groundwater monitoring event was to further evaluate the concentrations of COCs in groundwater at the Site.

A Site Vicinity Map is included as Figure 2, and a Site Map, which indicates the approximate locations of the monitoring wells in relation to pertinent structures and general Site boundaries, is included as Figure 3 of Appendix A.

1.3 Standard of Care & Limitations

The findings and recommendations contained in this report represent SWG's professional opinions based upon information derived from on-Site activities and other services performed under this scope of work and were arrived at in accordance with currently acceptable professional standards. The findings were based upon analytical provided independent laboratory. **Evaluations** by an geologic/hydrogeologic conditions at the Site for the purpose of this investigation are made from a limited number of available data points (i.e. soil borings and ground water samples) and site wide subsurface conditions may vary from these data points. SWG makes no warranties, express or implied, as to the services performed hereunder. Additionally, SWG does not warrant the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties).

This report is based upon a specific scope of work requested by Enterprise. The agreement between SWG and Enterprise outlines the scope of work, and only those tasks specifically authorized by that agreement or outlined in this report were performed. This report has been prepared for the intended use of Enterprise, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the express written authorization of Enterprise and SWG.

SWG Project No. 0410003 November 6, 2012



2.0 SAMPLING PROGRAM

A quarterly groundwater sampling event was conducted on September 19th and 20th, 2012 by Kyle Summers, a SWG environmental professional.

SWG's groundwater sampling program consisted of the following:

 Collection of one groundwater sample from each monitoring well utilizing low-flow sampling techniques. Due to equipment malfunction (peristaltic pump), monitoring wells MW-1, MW-14, MW-18, and MW-20 were purged and sampled utilizing disposable bailers.

Prior to sample collection, SWG gauged the depth to fluids in each monitoring well using an interface probe capable of detecting light non-aqueous phase liquids (LNAPL). LNAPL was identified in monitoring well MW-19 during the gauging activities, and as a result, this well was not sampled during this event.

Prior to sample collection, monitoring wells MW-2 through MW-12, and MW-16 and MW-17 were micro-purged utilizing low-flow sampling techniques. Low-flow refers to the velocity with which groundwater enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface which can be affected by flow regulators or restrictions. Water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective is to pump in a manner that minimizes stress (drawdown) to the system, to the extent practical, taking into account established Site sampling objectives. Flow rates on the order of 0.1 to 0.5 L/min will be maintained during sampling activities, using dedicated sampling equipment.

The utilization of low-flow minimal drawdown techniques enables the isolation of the screened interval groundwater from the overlying stagnant casing water. The pump intake is placed within the screened interval such that the groundwater recovered is drawn in directly from the formation with little mixing of casing water or disturbance to the sampling zone.

The low-flow groundwater samples were collected from each monitoring well once produced groundwater was consistent in color, clarity, pH, DO, ORP, temperature and conductivity.

Monitoring wells MW-1, MW-14, MW-18, and MW-20 were purged of three (3) casing volumes or bailed dry utilizing a disposable bailer, and sampled following groundwater recharge.

Monitoring well MW-13 appears to be inundated with roots, and was not sampled during this event.

Groundwater samples were collected in laboratory prepared $HgCl_2$ preserved containers, sealed with custody tape and placed on ice in a cooler secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico.

SWG Project No. 0410003 November 6, 2012



3.0 LABORATORY ANALYTICAL PROGRAM

The groundwater samples collected from the monitoring wells during the groundwater sampling event were analyzed for total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO) utilizing EPA method SW-846#8015M, and benzene, toluene, ethylbenzene and xylenes (BTEX) utilizing EPA method SW-846 #8021B.

A summary of the analysis, sample type, number of samples and EPA-approved methods are presented on the following table:

Analysis	Sample Type	No. of Samples	Method
TPH GRO/DRO	Groundwater	1 1	SW-846# 8015M
BTEX	Groundwater	11	SW-846# 8021B

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

4.0 GROUNDWATER FLOW DIRECTION

The monitoring wells have been surveyed to determine top-of-casing (TOC) elevations. Prior to sample collection, SWG gauged the depth to fluids in each monitoring well. The groundwater flow direction at the Site is generally towards the west-northwest. The observed gradient during this monitoring event was approximately 0.006 ft/ft across the Site.

Groundwater measurements collected during the most recent gauging event in September 2012 are presented with TOC elevations in Table 2, Appendix B. A groundwater gradient map depicting the most recent gauging data is included as Figure 4 (Appendix A).

5.0 DATA EVALUATION

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD. To address activities related to crude oil/condensate related releases, the New Mexico EMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the EMNRD/OCD rules, specifically NMAC 19.15.30 Remediation. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.



5.1 Groundwater Samples

SWG compared BTEX concentrations or laboratory reporting limits (RLs) associated with the groundwater samples collected from monitoring wells during the September 2012 sampling event to the New Mexico WQCC *Groundwater Quality Standards*. The results of the groundwater sample analyses are summarized in Table 1 of Appendix B. A Groundwater Quality Exceedance Zone map is provided as Figure 5 of Appendix A.

Benzene, Toluene, Ethylbenzene, and Xylenes

The groundwater samples collected from monitoring wells MW-2, MW-3, MW-4, MW-11, MW-12, MW-14, MW-16, MW-17, MW-18, and MW-20 during the September 2012 sampling event did not exhibit benzene, toluene, ethylbenzene or xylenes concentrations above the respective WQCC *Groundwater Quality Standards*.

The groundwater sample collected from monitoring well MW-1 during the September 2012 sampling event exhibited a benzene concentration of 45 µg/L, which exceed the WQCC *Groundwater Quality Standard* of 10 µg/L.

TPH GRO/DRO

The groundwater samples collected from monitoring wells MW-2, MW-3, MW-11, MW-12, MW-16, MW-17, MW-18, and MW-20 did not exhibit TPH GRO concentrations above the laboratory RLs during the September 2012 sampling event. TPH DRO concentrations were not identified above the laboratory RLs in any of the sampled wells.

The groundwater samples collected from monitoring wells MW-1, MW-4, and MW-14 exhibited TPH GRO concentrations ranging from 0.1 mg/L to 0.84 mg/L. The highest GRO concentration during the September 2012 sampling event was observed in the groundwater sample from monitoring well MW-4.

6.0 FINDINGS

During September 2012, SWG conducted a quarterly groundwater monitoring event at the K-51 Pipeline release site. The Site is located at the boundary of Sections 34 and 35, Township 26 North, Range 6 West, in Rio Arriba County, New Mexico. The Site consists of silty/sandy canyon bottomland with native grasses, and is crossed by a natural gas pipeline operated by Enterprise. The objective of the groundwater monitoring event was to further evaluate the concentrations of COCs in groundwater at the Site.

- During the completion of the sampling event, one (1) groundwater sample was
 collected from each monitoring well that did not exhibit LNAPL utilizing either
 low-flow sampling techniques or purge and sample (disposable bailer) sampling
 techniques. Additionally, monitoring well MW-13 exhibited an obstruction
 (believed to be roots) in the well. At this time monitoring well MW-13 is not in a
 critical location for COC evaluation, and will not be sampled during this quarterly
 event.
- The groundwater samples collected from monitoring wells MW-2, MW-3, MW-4, MW-11, MW-12, MW-14, MW-16, MW-17, MW-18, and MW-20 during the



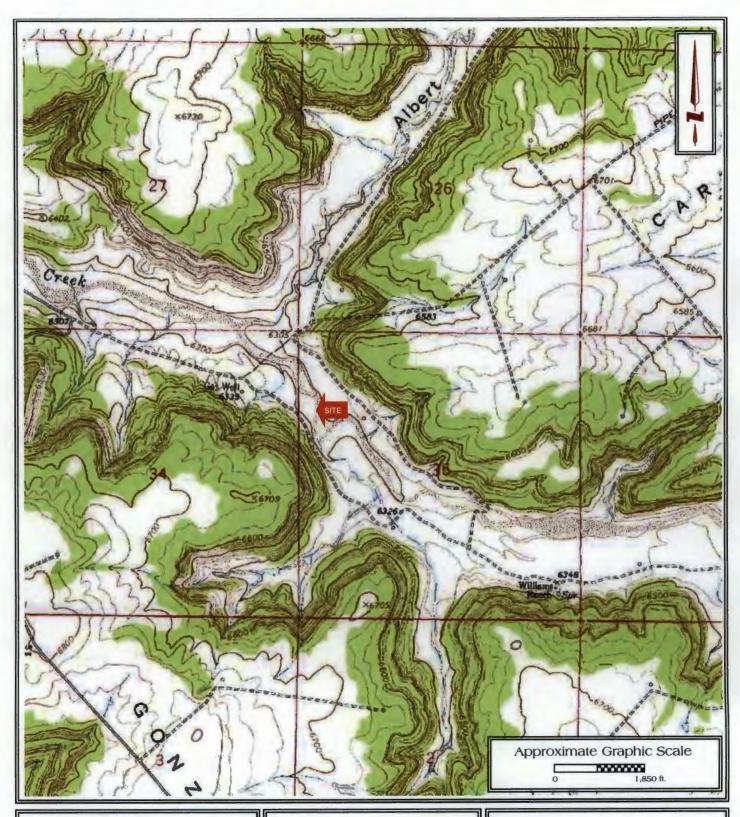
September 2012 sampling event did not exhibit benzene, toluene, ethylbenzene or xylenes concentrations above the respective WQCC *Groundwater Quality Standards*.

- During the September 2012 event, monitoring wells MW-4 and MW-14 did not
 exhibit benzene in excess of the WQCC GQS as they had during the previous
 sampling event in June 2012. These variations may be due, in part, to the
 potentiometric groundwater surface being at its lowest recorded level.
- The groundwater sample collected from monitoring well MW-1during the September 2012 sampling event exhibited a benzene concentration of 45 µg/L, which exceed the WQCC *Groundwater Quality Standard* of 10 µg/L.
- LNAPL was measured at a thickness of 0.02 feet in monitoring well MW-19 during this event.
- Based on analytical results, the COCs in groundwater at the Site continue to demonstrate general decreases in concentrations.

7.0 RECOMMENDATIONS

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

- Report the groundwater monitoring results to the OCD,
- Place a sorbent hydrophobic sock in monitoring well MW-19, and;
- Continue monitoring groundwater at the site.



K-51 Pipeline Release

N36° 26' 47.77"; W107° 26' 46.04"

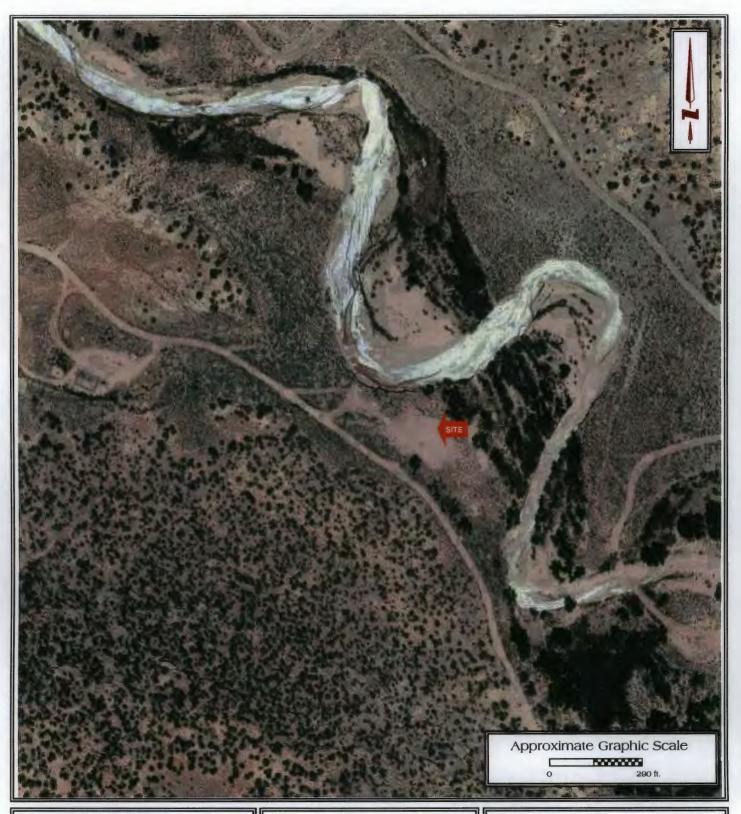
Off County Road 537

Rio Arriba, New Mexico

Southwest

FIGURE 1

Topographic Map Gonzales Mesa, NM Quadrangle Contour Interval - 10 Feet



K-51 Pipeline Release

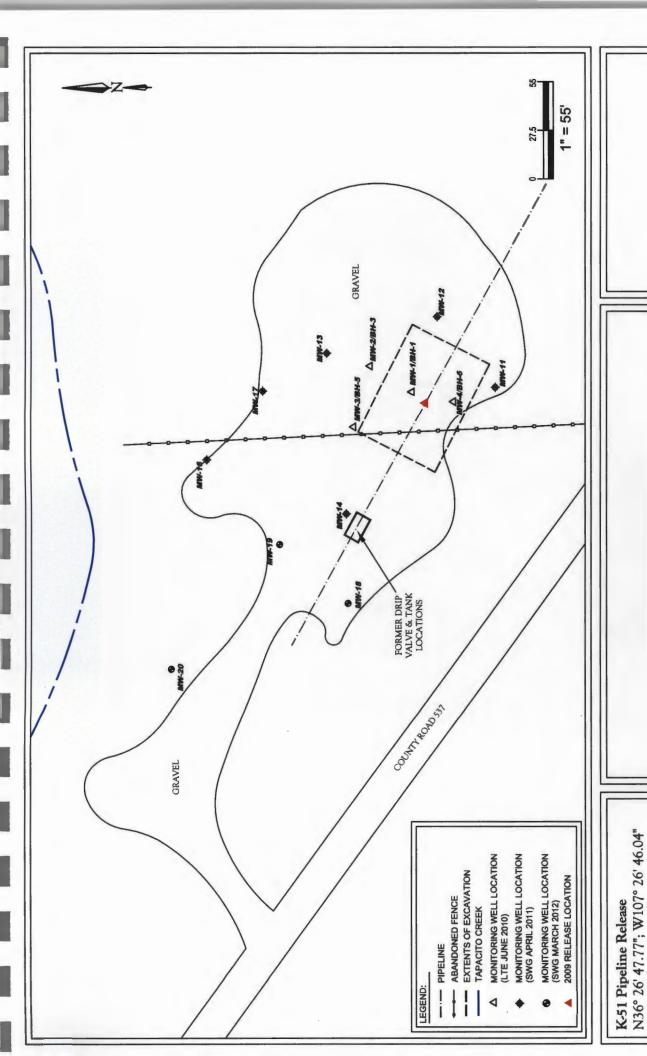
N36° 26' 47.77"; W107° 26' 46.04"

Off County Road 537

Rio Arriba, New Mexico

Southwest Seescience FIGURE 2

Site Vicinity Map 2012 Aerial Photograph

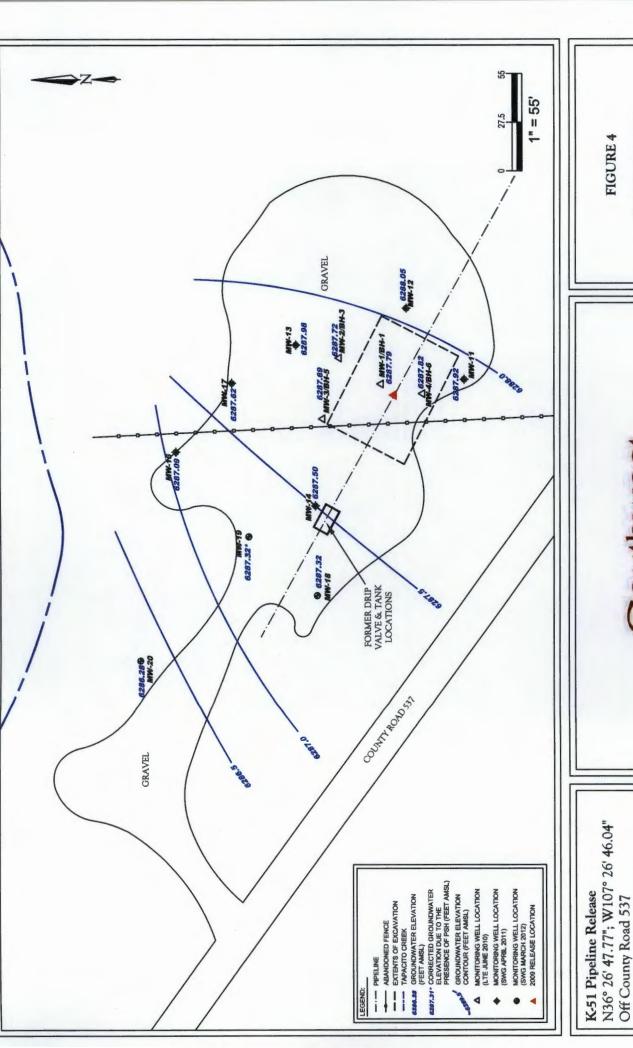


Southwest

FIGURE 3 SITE MAP

Rio Ariba County, New Mexico

Off County Road 537



GROUNDWATER GRADIENT MAP

Southwest

SEPTEMBER 19, 2012

Rio Ariba County, New Mexico

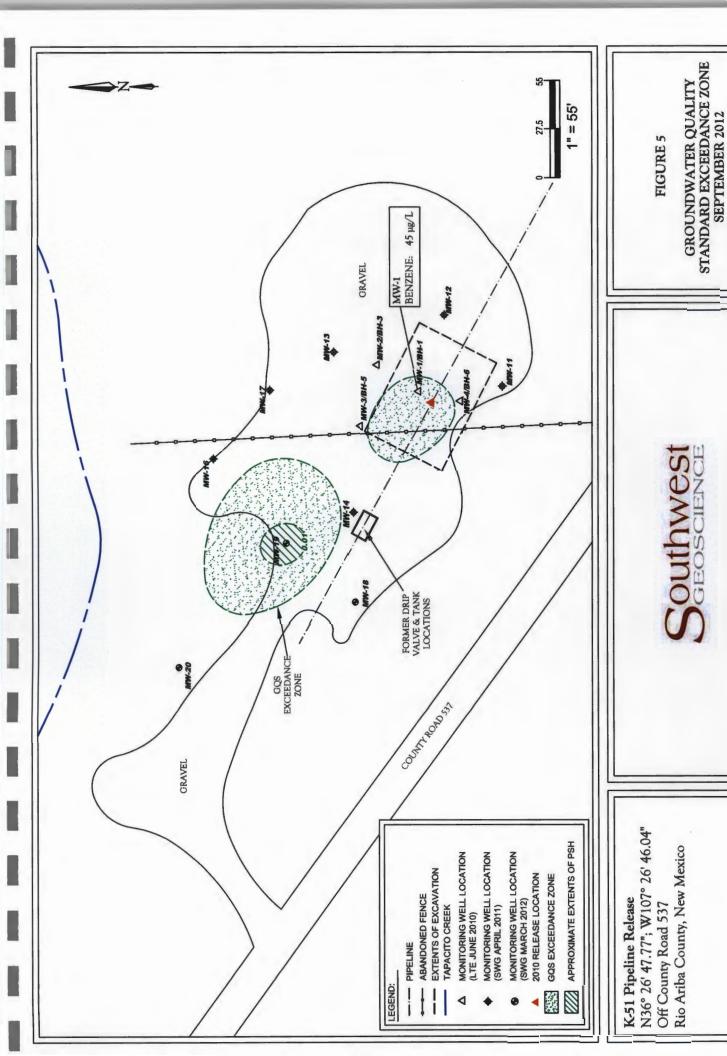




TABLE 1 K-51 PIPELINE RELEASE GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene	Toluene	Ethylbenzene	Xylenes	TPH	TPH
	1 - 1 - 3	(µg/L)	(µg/L)	(µg/L)	(µg/L)	GRO (mg/L)	DRO (mg/L)
Commmission Gr	er Quality Control oundwater Quality dards	10	750	750	620	NE	NE
		SMA	Sample - Oper	Excavation		-	
Excavation	4.21.10	7,000	13,000	540	5,200	NA	NA
			Monitoring 1	Wells			
	6.21.10	8,400	1,300	560	4,200	NA	NA
	9.24.10	2,300	28	200	520	8.4	<1.0
	4.21.11	430	<20	120	60	2.1	<1.0
	6.21.11	820	370	33	140	5.1	130
MW-1	9.22.11	690	1,200	120	1,200	8.9	30
	12.13.11	260	250	54	650	3.4	<1.0
	3.20.12	280	230	94	550	3.5	<1.0
	6.19.12	300	<5.0	81	96	1.7	<1.0
	9.20.12*	45	3.4	15	23	0.45	<1.0
	6.21.10	200	53	14	96	NA	NA
	9.24.10	2.3	<1.0	<1.0	<2.0	< 0.050	<1.0
1	4.21.11	3.3	<1.0	<1.0	<2.0	0.065	<1.0
	6.21.11	2.2	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-2	9.22.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.21.10	640	57	72	1,000	NA	NA
	9.24.10	150	<1.0	16	28	0.48	<1.0
	4.21.11	52	<1.0	17	10	0.25	<1.0
	6.21.11	62	14	13	160	0.67	<1.0
MW-3	9.22.11	3	<1.0	8.7	<2.0	0.066	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	3.20.12	1.3	<1.0	1.9	<2.0	< 0.050	<1.0
	6.19.12	3.1	<1.0	1.4	<2.0	< 0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.21.10	3,600	10,000	600	6,600	NA	NA
0	9.24.10	870	870	260	1,600	12	1
	4.21.11	670	<20	520	790	6.3	<1.0
	6.21.11	17	22	36	77	0.64	1.1
MW-4	9.22.11	62	140	220	820	3.8	1.2
	12.13.11	84	<20	430	490	2.6	<1.0
	3.20.12	36	<20	1,100	1,400	6.5	<1.0
	6.19.12	37	<5.0	250	350	2.2	<1.0
	9.19.12	9.4	1.4	74	97	0.84	<1.0



TABLE 1 K-51 PIPELINE RELEASE GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene	Toluene	Ethylbenzene	Xylenes	TPH	TPH
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	GRO	DRO
M	LI LI LI LI					(mg/L)	(mg/L)
Commmission Gr	er Quality Control coundwater Quality dards	10	750	750	620	NE	NE
	4.21.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-11	12.13.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.21.11	1.9	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.21.11	4.6	<1.0	<1.0	<2.0	0.063	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-12	12.13.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.19.12	1.7	<1.0	<1.0	<2.0	< 0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	4.21.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
1	6.21.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
MW-13	12.13.11	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	< 0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.20.12	NS	NS	NS	NS	NS	NS
	4.21.11	2,800	<100	280	720	8.7	<1.0
	6.21.11	470	<10	37	210	1.9	<1.0
	9.22.11	540	<10	100	36	1.7	<1.0
MW-14	12.13.11	220	<10	110	<20	1.0	<1.0
	3.20.12	660	<5.0	240	15	2.9	<1.0
	6.19.12	660	<5.0	300	100	3.4	<1.0
	9.20.12*	7.3	<1.0	<1.0	<2.0	0.1	<1.0
	4.21.11	4.4	<2.0	<2.0	<4.0	<0.10	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	0.065	<1.0
MW-16	12.13.11	<1.0	<1.0	<1.0	<2.0	0.12	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	4.21.11	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	6.21.11	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-17	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
1	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
7	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-18	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.20.12*	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	250	56	310	3,900	16	5.3
MW-19	6.19.12	NAPL	NAPL	NAPL	NAPL	NA	NA
14144-18	9.19.12	NAPL	NAPL	NAPL	NAPL	NA NA	NA NA



TABLE I K-51 PIPELINE RELEASE GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (m@/L)	TPH DRO (mg/L)
Commission Gr	er Quality Control oundwater Quality dards	10	750	750	620	NE	NE
	3.20.12	35	<1.0	- 1.1	3.3	0.14	<1.0
MW-20	6.19.12	3.4	<1.0	<1.0	<2.0	< 0.050	<1.0
	9.20.12*	4.7	<1.0	<1.0	<2.0	< 0.050	<1.0

Note: Concentrations in **bold** and yellow exceed the applicable OCD Remediation Action Level

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

NA = Not Analyzed

NS = Not Sampled

NE = Not Established

NAPL = Non-aqueous phase liquid



TABLE 2 K 51 Pipeline Release GROUNDWATER ELEVATIONS

G21.11 ND	- 	energy of the second					
9,22,11 ND						6300.89	6289.09
3.20.12 ND							6287.97
6.19.12 ND	MW-I						6288.44
9.19.12			_				6288.76
### A 1-1-1 ND 10-55 ND 6290-82 6280-72 ### 621-11 ND 11-86 ND 6287-76 ### 922-11 ND 11-86 ND 6288-74 ### 12-13-11 ND 11-86 ND 6288-74 ### 13-20-12 ND 10-95 ND 6288-74 ### 13-20-12 ND 10-95 ND 6288-74 ### 13-20-12 ND 11-10 ND 6288-74 ### 13-20-12 ND 11-10 ND 6288-74 ### 13-20-12 ND 11-10 ND 6300-22 6288-72 ### 13-20-12 ND 11-10 ND 6288-73 ### 13-20-12 ND 11-10 ND 6288-73 ### 13-20-12 ND 11-10 ND 6300-91 6288-70 ### 13-20-12 ND 11-10 ND 6300-91 6288-70 ### 13-20-12 ND 12-12 ND 6300-91 6288-70 ### 13-20-12 ND 12-13 ND 6300-91 6288-70 ### 13-20-12 ND 12-10 ND 6300-91 6288-70 ### 13-20-12 ND 12-20 ND 6300-91 6288-70 ### 13-20-12 ND 1							
MW-2						6299.82	6289.27
MW-2							6287.95
320.12 ND 10.95 ND 6288.81	MW-2						
G. G. G. G. G. G. G. G.				_			
A			ND				6288.18
Heart Hear							6287.72
MW-3 9.22.11 ND 11.80 ND 6.288.73 3.20.12 ND 11.80 ND 6.288.33 6.19.12 ND 11.80 ND 6.288.33 6.19.12 ND 12.53 ND 6.288.63 9.19.12 ND 12.53 ND 6.288.63 9.22.11 ND 12.90 ND 6.288.63 9.22.11 ND 12.45 ND 6.288.63 6.19.12 ND 13.09 ND 6.288.63 6.21.11 ND 11.98 ND 6.288.63 6.21.11 ND 11.98 ND 6.288.63 6.21.11 ND 12.40 ND 6.288.63 6.21.11 ND 13.07 ND 6.288.83 6.21.11 ND 12.55 ND 6.288.83 6.21.11 ND 12.25 ND 6.288.83 6.21.11 ND 12.25 ND 6.288.83 6.21.11 ND 12.23 ND 6.288.83 6.21.11 ND 12.23 ND 6.288.83 6.21.11 ND 12.23 ND 6.288.83 6.21.11 ND 9.42 ND 6.288.63 6.21.11 ND 9.42 ND 6.288.63 6.21.11 ND 10.82 ND 6.288.83 6.21.11 ND 10.82 ND 6.288.83 6.21.11 ND 10.82 ND 6.288.83 6.21.11 ND 10.83 ND 6.288.83 6.21.11 ND 10.85 ND 6.288.83 6.21.11 ND 10.82 ND 6.288.83 6.21.11 ND 10.82 ND 6.288.83 6.21.11 ND 10.83 ND 6.288.83 6.21.11 ND 10.85 ND 6.288.83 6.21.11 ND 10.85 ND 6.288.83 6.21.11 ND 10.13 ND 6.288.83 6.21.11 ND 10.13 ND 6.288.83 6.21.11 ND 10.15 ND 6.288.73 6.21.11 ND 9.59 ND 6.288.83 6.21.11 ND 9.59 ND 6.288.76 6.21.11 ND 12.28 ND 6.288.76 6.21.11 ND 12.28 ND 6.288.76 6.21.11 ND 13.33 ND 6.288.76 6.21.11 ND 12.28 ND 6.288.76 6.21.11 ND						6300.22	
							6287.77
6.19.12 ND 12.22 ND G228.00	MW-3			-			6288.33
9.19.12 ND					_		6288.62
MW-4 G21.11 ND 12.18 ND G288.73						6300.91	
MW-4 12.13.11 ND 12.45 ND 6288.56		6.21.11	ND	12.18	ND		6288.73
3.20.12 ND	MW 4						
G.19.12 ND 12.72 ND 6288.18	MW-4						
9.19.12 ND 13.09 ND 6301.19 6287.82							6288.19
MW-11 6.21.11 ND		9.19.12	ND	13.09	ND		6287.82
MW-11 MW-11 12.13.11 ND						6301.19	
MW-11 12.13.11 ND							
6.19.12 ND 12.93 ND 6288.26 9.19.12 ND 13.27 ND 6299.08 6299.12 4.21.11 ND 8.96 ND 6299.08 6299.08 6299.12 9.22.11 ND 10.82 ND 6288.26 9.22.11 ND 10.82 ND 6288.26 3.20.12 ND 9.41 ND 6288.95 61.91.2 ND 10.09 ND 6288.96 6289.07 6288.05 6280.12 ND 11.03 ND 6288.05 6280.12 ND 10.09 ND 6288.05 6281.11 ND 9.07 ND 6298.27 6288.05 6281.11 ND 9.07 ND 6298.27 6288.05 6281.11 ND 9.51 ND 6288.12 6281.11 ND 9.59 ND 6288.12 6288.13 6289.12 6289.12 6289.12 6289.13 6289.1	MW-11						6288.64
9.19 12		3.20.12		12.26			6288.93
MW-12 A							6288.26
MW-12 6.21.11 ND						6299.08	
MW-12 MW-12 MW-12 MW-12 MW-12 MW-13 MW-13 MW-13 MW-13 MW-14 MW-14 MW-14 MW-14 MW-14 MW-14 MW-14 MW-16 MW-16 MW-16 MW-16 MW-16 MW-16 MW-16 MW-16 MW-16 MW-17 MW-17 MW-17 MW-17 MW-17 MW-17 MW-17 MW-18 MW-19 MMW-19 MW-19 MMW-19 MW-19 MMW-19 MM						0299.00	
3.20.12 ND		9.22.11	ND	10.82	ND		6288.26
6,19.12 ND 10.09 ND 6288.99	MW-12						6288.95
9.19.12 ND							
MW-13 MW-13 12.13.11 ND 9.51 ND 6288.76							6288.05
MW-13 9.22.11 ND 10.15 ND 6288.12		4.21.11	ND	9.07	ND	6298.27	6289.20
MW-13 12.13.11 ND 9.59 ND 6288.68 3.20.12 ND 9.35 ND 6288.18 9.19.12 ND 10.09 ND 6288.18 9.19.12 ND 10.29 ND 6301.20 6288.66 6.21.11 ND 12.54 ND 6301.20 6288.66 9.22.11 ND 13.53 ND 6287.67 MW-14 12.13.11 ND 13.11 ND 6288.09 6.19.12 ND 13.42 ND 6288.75 9.19.12 ND 13.70 ND 6287.50 9.19.12 ND 12.26 ND 6287.68 9.22.11 ND 12.26 ND 6287.68 9.22.11 ND 12.26 ND 6287.61 9.22.11 ND 12.26 ND 6287.61 9.22.11 ND 12.26 ND 6287.61 9.22.11 ND 12.27 ND 6287.61 9.22.11 ND 12.28 ND 6287.61 9.22.11 ND 12.28 ND 6287.61 9.19.12 ND 12.71 ND 6287.61 9.19.12 ND 12.80 ND 6287.61 9.19.12 ND 12.80 ND 6287.61 9.19.12 ND 12.80 ND 6287.61 9.22.11 ND 9.90 ND 6298.57 6286.67 6.21.11 ND 9.56 ND 6287.74 6.21.11 ND 10.83 ND 6287.74 9.22.11 ND 10.83 ND 6287.76 9.22.11 ND 10.81 ND 6287.76 9.19.12 ND 17.45 ND 6303.80 6287.13 MW-18 61.912 ND 17.45 ND 6303.80 6287.13 MW-19 6.19.12 ND 15.69 ND 6303.80 6287.53 MW-19 6.19.12 16.25 16.32 0.07 6287.52 9.19.12 ND 15.69 ND 6303.80 6287.52 9.19.12 ND 15.69 ND 6303.80 6287.52 9.19.12 ND 15.69 ND 6312.59 6286.77 9.19.12 ND 15.69 ND 6312.59 6286.77 9.19.12 ND 25.82 ND 6312.59 6286.77							6288.76
3.20.12 ND 9.35 ND 6288.92	MW-13						
6.19.12 ND 10.09 ND 6288.18 9.19.12 ND 10.29 ND 6287.08 4.21.11 ND 12.88 ND 6301.20 6288.66 6.21.11 ND 12.88 ND 6301.20 6288.68 6.21.11 ND 12.88 ND 6287.73 9.22.11 ND 13.53 ND 6288.40 3.20.12 ND 12.80 ND 6288.40 6.19.12 ND 13.42 ND 6287.50 9.19.12 ND 13.42 ND 6287.83 9.22.11 ND 12.06 ND 6299.89 6287.83 6.21.11 ND 12.26 ND 6287.30 9.22.11 ND 12.57 ND 6287.30 12.13.11 ND 12.28 ND 6287.61 12.13.11 ND 12.24 ND 6287.61 13.20.12 ND 12.24 ND 6287.65 6.19.12 ND 12.71 ND 6287.09 9.19.12 ND 12.80 ND 6287.69 9.19.13 ND 12.80 ND 6287.69 9.22.11 ND 12.80 ND 6287.60 9.22.11 ND 10.81 ND 6287.74 12.13.11 ND 10.31 ND 6288.67 9.22.11 ND 10.12 ND 6288.76 9.19.12 ND 10.12 ND 6288.76 9.19.12 ND 10.81 ND 6287.62 9.19.12 ND 10.95 ND 6287.62 9.19.12 ND 17.42 ND 6287.32 MW-18 6.19.12 ND 17.42 ND 6287.33 MW-19 6.19.12 ND 17.45 ND 6287.33 MW-19 6.19.12 ND 15.69 ND 6303.80 6288.11 MW-19 6.19.12 ND 15.69 ND 6303.80 6288.11 MW-19 6.19.12 ND 15.69 ND 6303.80 6287.32 9.19.12 ND 15.69 ND 6312.59 6287.32 9.19.12 ND 15.69 ND 6312.59 6287.32 9.19.12 ND 25.82 ND 6312.59 6286.77							
MW-14 A		6.19.12					6288.18
MW-14 6.21.11 ND					_		6287.98
MW-14 9.22.11 ND 13.53 ND 6287.67 12.13.11 ND 13.11 ND 6288.40 6.19.12 ND 13.42 ND 6287.50 9.19.12 ND 13.70 ND 6299.89 6287.50 4.21.11 ND 12.06 ND 6299.89 6287.63 9.22.11 ND 12.57 ND 6287.63 9.22.11 ND 12.57 ND 6287.63 9.22.11 ND 12.28 ND 6287.63 3.20.12 ND 12.71 ND 6287.63 6.19.12 ND 12.71 ND 6287.65 6.19.12 ND 12.80 ND 6298.57 6.21.11 ND 9.56 ND 6298.57 6.21.11 ND 9.56 ND 6298.57 6.21.11 ND 10.83 ND 6287.74 6.21.11 ND 10.83 ND 6287.65 6.19.12 ND 10.81 ND 6288.45 6.19.12 ND 10.81 ND 6288.45 6.19.12 ND 10.81 ND 6287.62 9.19.12 ND 10.81 ND 6287.62 9.19.12 ND 17.45 ND 6303.80 6287.13 MW-18 6.19.12 ND 17.45 ND 6303.80 6287.13 MW-19 10.91 16.49 ND 6312.59 6286.77 9.19.12 ND 15.69 ND 6312.59 6286.77						6301.20	
MW-14 12.13.11 ND 13.11 ND 6288.09 3.20.12 ND 12.80 ND 6287.78 9.19.12 ND 13.70 ND 6299.89 6287.50 4.21.11 ND 12.06 ND 6299.89 6287.63 9.22.11 ND 12.26 ND 6287.61 9.22.11 ND 12.57 ND 6287.61 9.22.11 ND 12.28 ND 6287.61 3.20.12 ND 12.24 ND 6287.61 6.19.12 ND 12.80 ND 6287.61 9.19.12 ND 12.80 ND 6287.09 4.21.11 ND 9.90 ND 6298.57 6.21.11 ND 9.90 ND 6298.57 6.21.11 ND 9.56 ND 6287.74 9.22.11 ND 10.83 ND 6287.74 12.13.11 ND 10.83 ND 6287.74 12.13.11 ND 10.81 ND 6288.26 9.19.12 ND 10.81 ND 6287.62 9.19.12 ND 10.95 ND 6287.62 9.19.12 ND 10.95 ND 6287.62 9.19.12 ND 17.45 ND 6287.32 MW-18 61.91.2 ND 15.69 ND 6303.80 6288.15 9.19.12 ND 15.69 ND 6303.80 6288.15 9.19.12 ND 15.69 ND 6303.80 6288.15 9.19.12 ND 15.69 ND 6303.50 6287.52 9.19.12 ND 15.69 ND 6303.50 6287.52 9.19.12 ND 15.69 ND 6303.50 6287.52 9.19.12 ND 15.49 0.02 6287.32 9.19.12 ND 15.49 0.02 6287.32 9.19.12 ND 25.82 ND 6312.59 6286.77							
6.19.12 ND 13.42 ND 6287.78	MW-14	12.13.11	ND	13.11	ND		6288.09
9.19.12 ND 13.70 ND 6299.89 6287.50 4.21.11 ND 12.06 ND 6299.89 6287.63 6.21.11 ND 12.26 ND 6287.63 9.22.11 ND 12.26 ND 6287.63 MW-16 12.13.11 ND 12.28 ND 6287.63 6.19.12 ND 12.71 ND 6287.65 6.19.12 ND 12.71 ND 6287.09 9.19.12 ND 12.80 ND 6298.57 6288.67 6.21.11 ND 9.90 ND 6298.57 6288.67 6.21.11 ND 9.90 ND 6298.57 6288.67 6.21.11 ND 10.83 ND 6287.74 12.13.11 ND 10.83 ND 6287.74 12.13.11 ND 10.81 ND 6288.26 6.19.12 ND 10.12 ND 6288.45 6.19.12 ND 10.81 ND 6288.76 9.19.12 ND 10.95 ND 6288.76 9.19.12 ND 10.95 ND 6287.76 13.20.12 ND 10.95 ND 6287.76 9.19.12 ND 10.95 ND 6287.76 9.19.12 ND 17.45 ND 6303.80 6287.32 MW-18 61.91.2 ND 17.45 ND 6303.80 6288.15 9.19.12 ND 15.69 ND 6303.80 6288.15							6288.40
MW-16 A							6287.78
MW-16 621.11 ND		4.21.11				6299.89	6287.83
MW-16 12.13.11 ND 12.28 ND 6287.61 3.20.12 ND 12.24 ND 6287.01 6.19.12 ND 12.24 ND 6287.09 9.19.12 ND 12.80 ND 6288.57 6.21.11 ND 9.90 ND 6298.57 6288.07 9.22.11 ND 9.56 ND 6289.01 9.22.11 ND 10.83 ND 6287.74 MW-17 12.13.11 ND 10.31 ND 6288.26 6.19.12 ND 10.12 ND 6288.26 6.19.12 ND 10.95 ND 6287.76 9.19.12 ND 10.95 ND 6304.77 6287.35 MW-18 61.912 ND 17.42 ND 6287.35 9.19.12 ND 17.45 ND 6303.80 6288.11 MW-19 6.19.12 ND 15.69 ND 6303.80 6288.11 MW-19 6.19.12 ND 16.49 0.02 6287.32 9.19.12 ND 25.82 ND 6312.59 6286.77				12.26			
3.20.12 ND 12.24 ND 6287.65	MW-16						
6.19.12 ND 12.71 ND 6287.18 9.19.12 ND 12.80 ND 6287.09 4.21.11 ND 9.56 ND 6298.57 6.21.11 ND 9.56 ND 6298.57 9.22.11 ND 10.83 ND 6287.74 12.13.11 ND 10.31 ND 6288.26 3.20.12 ND 10.81 ND 6288.76 6.19.12 ND 10.81 ND 6287.76 9.19.12 ND 10.95 ND 6287.62 MW-18 6.19.12 ND 17.45 ND 6287.32 MW-19 3.20.12 ND 15.69 ND 6303.80 6288.13 MW-19 6.19.12 16.25 16.32 0.07 6287.52 9.19.12 16.47 16.49 0.02 6287.35 3.20.12 ND 25.82 ND 6312.59 6286.77							6287.65
MW-17 4.21.11 ND 9.90 ND 6298.57 6288.67 6.21.11 ND 9.56 ND 6288.57 9.22.11 ND 10.83 ND 6287.74 12.13.11 ND 10.31 ND 6288.26 3.20.12 ND 10.12 ND 6288.26 6.19.12 ND 10.81 ND 6287.76 9.19.12 ND 10.95 ND 6287.62 3.20.12 ND 16.60 ND 6304.77 6288.17 MW-18 3.20.12 ND 17.42 ND 6287.35 9.19.12 ND 17.45 ND 6287.35 9.19.12 ND 15.69 ND 6303.80 6288.11 MW-19 3.20.12 ND 15.69 ND 6303.80 6287.32 9.19.12 16.25 16.32 0.07 6287.32 9.19.12 16.47 16.49 0.02 6287.32 9.19.12 ND 25.82 ND 6312.59 6286.77		6.19.12	ND	12.71	ND		6287.18
MW-17 6.21.11 ND 9.56 ND 6289.01 9.22.11 ND 10.83 ND 6287.74 12.13.11 ND 10.81 ND 6288.26 3.20.12 ND 10.12 ND 6288.45 6.19.12 ND 10.81 ND 6287.76 9.19.12 ND 10.95 ND 6304.77 6288.17 MW-18 6.19.12 ND 17.42 ND 6287.32 9.19.12 ND 17.45 ND 6287.32 MW-19 6.19.12 ND 15.69 ND 6303.80 6288.13 MW-19 6.19.12 16.25 16.32 0.07 6287.52 9.19.12 16.47 16.49 0.02 6287.32 3.20.12 ND 25.82 ND 6312.59 6286.77						6206.57	6287.09
MW-17 9,22,11 ND 10,83 ND 6287,74						6298.57	
MW-17							6287.74
6.19.12 ND 10.81 ND 6287.76 9.19.12 ND 10.95 ND 6304.77 6288.17 MW-18 6.19.12 ND 17.42 ND 6287.32 9.19.12 ND 17.45 ND 6303.80 6288.13 MW-19 6.19.12 I6.25 16.32 0.07 6287.32 9.19.12 16.47 16.49 0.02 6287.32 3.20.12 ND 25.82 ND 6312.59 6286.77	MW-17						6288.26
MW-18 9.19.12 ND 10.95 ND 6287.62 MW-18 6.19.12 ND 16.60 ND 6304.77 6288.17 MW-19 7.19 7.42 ND 6287.35 MW-19 7.19 7.45 ND 6303.80 6287.13 MW-19 7.19 7.19 7.19 MW-19 7.19							
MW-18 3.20.12 ND 16.60 ND 6304.77 6288.17							6287.76
MW-19 9.19.12 ND 17.45 ND 6287.32 3.20.12 ND 15.69 ND 6303.80 6288.11 MS-19.12 16.25 16.32 0.07 6287.52 9.19.12 16.47 16.49 0.02 6287.32 3.20.12 ND 25.82 ND 6312.59 6286.77						6304.77	6288.17
MW-19 3.20.12 ND 15.69 ND 6303.80 6288.11 MW-19 6.19.12 16.25 16.32 0.07 6287.52 9.19.12 16.47 16.49 0.02 6287.32 3.20.12 ND 25.82 ND 6312.59 6286.77	MW-18						6287.35
MW-19 6.19.12 16.25 16.32 0.07 6287.52 9.19.12 16.47 16.49 0.02 6287.32 3.20.12 ND 25.82 ND 6312.59 6286.77						6202.00	
9.19.12 16.47 16.49 0.02 6287.32 3.20.12 ND 25.82 ND 6312.59 6286.77	MW-19					6303.80	
3.20.12 ND 25.82 ND 6312.59 6286.77						.,	6287.32
MW-20 6.19.12 ND 26.30 ND 6286.20						6312.59	
	MW-20	6.19.12		26.30	ND		6286.29 6286.28

BTOC - below top of casing
AMSL - above mean sea level
TOC - top of casing
• - corrected for presence of phase-sepated hydrocarbon using a site-specific density correction factor of 0.63
ND - Not Detected



APPENDIX C

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

October 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-51 OrderNo.: 1209947

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 11 sample(s) on 9/21/2012 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

andel

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

1209947-001

Client Sample ID: MW-11

Project: K-51

Lab ID:

Collection Date: 9/19/2012 11:00:00 AM

Collection Da

Matrix: AQUEOUS

Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	SE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 3:51:00 PM
Surr: DNOP	124	79.5-166	%REC	1	9/24/2012 3:51:00 PM
EPA METHOD 8015B: GASOLINE RA	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 2:45:08 AM
Surr: BFB	85.0	69.8-119	%REC	1	9/23/2012 2:45:08 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	1.0	μg/L	1	9/23/2012 2:45:08 AM
Toluene	ND	1.0	μg/L	1	9/23/2012 2:45:08 AM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 2:45:08 AM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 2:45:08 AM
Surr: 4-Bromofluorobenzene	78.3	69.7-152	%REC	1	9/23/2012 2:45:08 AM

- 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
 - Spike Recovery outside accepted recovery limits 1 of 17

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: MW-12

Project: K-51

Collection Date: 9/19/2012 11:35:00 AM

Lab ID: 1209947-002

Matrix: AQUEOUS Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE	•				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 4:16:04 PM
Surr: DNOP	126	79.5-166	%REC	1	9/24/2012 4:16:04 PM
EPA METHOD 8015B: GASOLINE RAI	NGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 3:15:11 AM
Surr: BFB	82.3	69.8-119	%REC	1	9/23/2012 3:15:11 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	1.0	μg/L	1	9/23/2012 3:15:11 AM
Toluene	ND	1.0	μg/L	1	9/23/2012 3:15:11 AM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 3:15:11 AM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 3:15:11 AM
Surr: 4-Bromofluorobenzene	76.6	69.7-152	%REC	1	9/23/2012 3:15:11 AM

- 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
- Spike Recovery outside accepted recovery limits

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Project: K-51

Lab ID:

1209947-003

Client Sample ID: MW-2

Collection Date: 9/19/2012 12:30:00 PM

Matrix: AQUEOUS Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 4:41:26 PM
Surr: DNOP	123	79.5-166	%REC	1	9/24/2012 4:41:26 PM
EPA METHOD 8015B: GASOLINE R	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 3:45:28 AM
Surr: BFB	99.1	69.8-119	%REC	1	9/23/2012 3:45:28 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	1.0	μg/L	1	9/23/2012 3:45:28 AM
Toluene	ND	1.0	μg/L	1	9/23/2012 3:45:28 AM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 3:45:28 AM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 3:45:28 AM
Surr: 4-Bromofluorobenzene	92.6	69.7-152	%REC	1	9/23/2012 3:45:28 AM

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

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

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: MW-3

Project: K-51

Collection Date: 9/19/2012 1:05:00 PM

Lab ID: 1209947-004

Matrix: AQUEOUS

Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 5:06:32 PM
Surr: DNOP	126	79.5-166	%REC	1	9/24/2012 5:06:32 PM
EPA METHOD 8015B: GASOLINE R	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 4:15:32 AM
Surr: BFB	97.5	69.8-119	%REC	1	9/23/2012 4:15:32 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	1.0	μg/L	1	9/23/2012 4:15:32 AM
Toluene	ND	1.0	μg/L	1	9/23/2012 4:15:32 AM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 4:15:32 AM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 4:15:32 AM
Surr: 4-Bromofluorobenzene	91.8	69.7-152	%REC	1	9/23/2012 4:15:32 AM

- 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 4 of 17

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Project: K-51 1209947-005 Lab ID:

Client Sample ID: MW-17

Collection Date: 9/19/2012 1:40:00 PM

Matrix: AQUEOUS Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 5:31:38 PM
Surr: DNOP	121	79.5-166	%REC	1	9/24/2012 5:31:38 PM
EPA METHOD 8015B: GASOLINE RA	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 12:40:38 PM
Surr: BFB	90.0	69.8-119	%REC	1	9/23/2012 12:40:38 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	1.0	μg/L	1	9/23/2012 12:40:38 PM
Toluene	ND	1.0	μg/L	1	9/23/2012 12:40:38 PM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 12:40:38 PM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 12:40:38 PM
Surr: 4-Bromofluorobenzene	83.9	69.7-152	%REC	1	9/23/2012 12:40:38 PM

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

- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits 5 of 17

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

K-51 1209947-006 Lab ID:

Project:

Client Sample ID: MW-16

Collection Date: 9/19/2012 2:30:00 PM

Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	GE .				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 6:22:05 PM
Surr: DNOP	128	79.5-166	%REC	1	9/24/2012 6:22:05 PM
EPA METHOD 8015B: GASOLINE RA	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 1:10:41 PM
Surr: BFB	80.5	69.8-119	%REC	1	9/23/2012 1:10:41 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	1.0	μg/L	1	9/23/2012 1:10:41 PM
Toluene	ND	1.0	μg/L	1	9/23/2012 1:10:41 PM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 1:10:41 PM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 1:10:41 PM
Surr: 4-Bromofluorobenzene	76.7	69.7-152	%REC	1	9/23/2012 1:10:41 PM

Matrix: AQUEOUS

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- Sample pH greater than 2
- RLReporting Detection Limit

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

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Project: K-51

Lab ID: 1209947-007

Client Sample ID: MW-4

Collection Date: 9/19/2012 3:45:00 PM

Matrix: AQUEOUS Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 6:47:27 PM
Surr: DNOP	125	79.5-166	%REC	1	9/24/2012 6:47:27 PM
EPA METHOD 8015B: GASOLINE R.	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	0.84	0.050	mg/L	1	9/24/2012 6:15:05 PM
Surr: BFB	108	69.8-119	%REC	1	9/24/2012 6:15:05 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	9.4	1.0	μg/L	1	9/24/2012 6:15:05 PM
Toluene	1.4	1.0	μg/L	1	9/24/2012 6:15:05 PM
Ethylbenzene	74	1.0	μg/L	1	9/24/2012 6:15:05 PM
Xylenes, Total	97	2.0	μg/L	1	9/24/2012 6:15:05 PM
Surr: 4-Bromofluorobenzene	91.9	69.7-152	%REC	1	9/24/2012 6:15:05 PM

- 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 7 of 17

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: MW-18

Project: K-51 **Collection Date:** 9/20/2012 8:30:00 AM

Lab ID: 1209947-008

Matrix: AQUEOUS

Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 7:12:33 PM
Surr: DNOP	126	79.5-166	%REC	1	9/24/2012 7:12:33 PM
EPA METHOD 8015B: GASOLINE R.	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 2:41:16 PM
Surr: BFB	102	69.8-119	%REC	1	9/23/2012 2:41:16 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	1.0	μg/L	1	9/23/2012 2:41:16 PM
Toluene	ND	1.0	μg/L	1	9/23/2012 2:41:16 PM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 2:41:16 PM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 2:41:16 PM
Surr: 4-Bromofluorobenzene	96.3	69.7-152	%REC	1	9/23/2012 2:41:16 PM

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

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

 Page 8 of 17

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Project: K-51

1209947-009 Lab ID:

Client Sample ID: MW-1

Collection Date: 9/20/2012 9:00:00 AM

Matrix: AQUEOUS Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANG	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 7:37:38 PM
Surr: DNOP	128	79.5-166	%REC	1	9/24/2012 7:37:38 PM
EPA METHOD 8015B: GASOLINE R	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	0.45	0.050	mg/L	1	9/24/2012 7:15:34 PM
Surr: BFB	104	69.8-119	%REC	1	9/24/2012 7:15:34 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	45	1.0	μg/L	1	9/24/2012 7:15:34 PM
Toluene	3.4	1.0	μg/L	1	9/24/2012 7:15:34 PM
Ethylbenzene	15	1.0	μg/L	1	9/24/2012 7:15:34 PM
Xylenes, Total	23	2.0	μg/L	1	9/24/2012 7:15:34 PM
Surr: 4-Bromofluorobenzene	89.0	69.7-152	%REC	1	9/24/2012 7:15:34 PM

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

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

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: MW-20

Project: K-51 Collection Date: 9/20/2012 9:20:00 AM

Lab ID: 1209947-010

Matrix: AQUEOUS

Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RAN	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 8:02:49 PM
Surr: DNOP	135	79.5-166	%REC	1	9/24/2012 8:02:49 PM
EPA METHOD 8015B: GASOLINE R	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/23/2012 4:11:46 PM
Surr: BFB	81.5	69.8-119	%REC	1	9/23/2012 4:11:46 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	4.7	1.0	μg/L	1	9/23/2012 4:11:46 PM
Toluene	ND	1.0	μg/L	1	9/23/2012 4:11:46 PM
Ethylbenzene	ND	1.0	μg/L	1	9/23/2012 4:11:46 PM
Xylenes, Total	ND	2.0	μg/L	1	9/23/2012 4:11:46 PM
Surr: 4-Bromofluorobenzene	76.5	69.7-152	%REC	1	9/23/2012 4:11:46 PM

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

- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - RPD outside accepted recovery limits
 - Spike Recovery outside accepted recovery limits 10 of 17

Lab Order 1209947

Date Reported: 10/2/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: MW-14

Project: K-51 Collection Date: 9/20/2012 10:30:00 AM

Lab ID: 1209947-011

Matrix: AQUEOUS

Received Date: 9/21/2012 10:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RAN	GE				Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/24/2012 8:27:55 PM
Surr: DNOP	130	79.5-166	%REC	1	9/24/2012 8:27:55 PM
EPA METHOD 8015B: GASOLINE R	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	0.13	0.050	mg/L	1	9/24/2012 10:16:29 PM
Surr: BFB	97.9	69.8-119	%REC	1	9/24/2012 10:16:29 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	7.3	1.0	μg/L	1	9/24/2012 10:16:29 PM
Toluene	ND	1.0	μg/L	1	9/24/2012 10:16:29 PM
Ethylbenzene	ND	1.0	μg/L	1	9/24/2012 10:16:29 PM
Xylenes, Total	ND	2.0	μg/L	1	9/24/2012 10:16:29 PM
Surr: 4-Bromofluorobenzene	89.8	69.7-152	%REC	1	9/24/2012 10:16:29 PM

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

- Analyte detected in the associated Method Blank В
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits 11 of 17

Hall Environmental Analysis Laboratory, Inc.

WO#:

1209947

02-Oct-12

Client:

Southwest Geoscience

Project: K-51									
Sample ID MB-3896	SampType: MBLK	TestCode: EPA Method	TestCode: EPA Method 8015B: Diesel Range						
Client ID: PBW	Batch ID: 3896	RunNo: 5718							
Prep Date: 9/24/2012	Analysis Date: 9/24/2012	SeqNo: 164361	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	115 79.5	166						
Sample ID LCS-3896	SampType: LCS	TestCode: EPA Method	8015B: Diesel Range						
Client ID: LCSW	Batch ID: 3896	RunNo: 5718							
Prep Date: 9/24/2012	Analysis Date: 9/24/2012	SeqNo: 164573	Units: mg/L						
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual					
Diesel Range Organics (DRO)	3.8 1.0 5.000	0 76.7 74	157						
Surr: DNOP	0.54 0.5000	108 79.5	166						
Sample ID LCSD-3896	SampType: LCSD	TestCode: EPA Method	8015B: Diesel Range						
Client ID: LCSS02	Batch ID: 3896	RunNo: 5718							
Prep Date: 9/24/2012	Analysis Date: 9/24/2012	SeqNo: 164574	Units: mg/L						
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual					
Diesel Range Organics (DRO)	3.8 1.0 5.000	0 75.0 74	157 2.27	23					
Surr: DNOP	0.57 0.5000	114 79.5	166 0	0					

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

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

Hall Environmental Analysis Laboratory, Inc.

WO#:

1209947

02-Oct-12

Client:

Southwest Geoscience

Project:	K-51	a Geoscien									
Sample ID	5ML RB	SampTy	pe: ME	BLK	Tes	tCode: El	PA Method	8015B: Gaso	line Rang	e	
Client ID:	PBW	Batch	ID: R5	693	F	RunNo: 5	693				
Prep Date:		Analysis Da	ate: 9/	22/2012	8	SeqNo: 1	63570	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		16		20.00		77.6	69.8	119			
Sample ID	2.5UG GRO LCS	SampTy	ype: LC	s	Tes	tCode: El	PA Method	8015B: Gaso	line Rang	е	
Client ID:	LCSW	Batch	ID: R5	693	F	RunNo: 5	693				
Prep Date:		Analysis Da	ate: 9/	22/2012	S	SeqNo: 1	63571	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	0.47	0.050	0.5000	0	94.4	75.9	119			
Surr: BFB		16		20.00		81.6	69.8	119			
Sample ID	5ML RB	SampTy	ype: ME	BLK	Tes	tCode: El	PA Method	8015B: Gaso	line Rang	e	
Client ID:	PBW	Batch	ID: R5	708	F	RunNo: 5	708				
Prep Date:		Analysis Da	ate: 9/	23/2012	8	SeqNo: 1	64089	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	ND	0.050				,				
Surr: BFB		18		20.00		91.3	69.8	119			
Sample ID	2.5UG GRO LCS	SampTy	ype: LC	s	Tes	tCode: El	PA Method	8015B: Gaso	line Rang	е	
Client ID:	LCSW	Batch	ID: R5	708	F	RunNo: 5	708				
Prep Date:		Analysis Da	ate: 9/	23/2012	8	SeqNo: 1	64091	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	0.48	0.050	0.5000	0	95.6	75.9	119			
Surr: BFB		15		20.00		77.5	69.8	119		***	
Sample ID	1209947-005AMS	SampTy	ype: M \$	3	Tes	tCode: El	PA Method	8015B: Gaso	line Rang	e	
Client ID:	MW-17	Batch	ID: R5	708	F	RunNo: 5	7 08				
Prep Date:		Analysis Da	ate: 9/	23/2012	S	SeqNo: 1	64093	Units: mg/L			
Analyte		Result	PQL	SPK_value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	e Organics (GRO)	0.43	0.050	0.5000	0	85.1	63.5	131			
Surr: BFB		15		20.00	_	75.0	69.8	119			
Sample ID	1209947-005A M SE	SampTy	уре: М .	SD	Tes	tCode: El	PA Method	8015B: Gaso	line Rang	e	
Client ID:	MW-17	Batch	ID: R5	708	F	RunNo: 5	708				
		Analysis Da	ate: 9/	23/2012	8	SeqNo: 1	64094	Units: mg/L			
Prep Date:								l limbl imit	0/ DDD	DDDI iit	01
Prep Date: Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte	e Organics (GRO)	Result 0.44	PQL 0.050	SPK value 0.5000	SPK Ref Val	%REC 87.8	63.5	131	3.10	16.7	Quai

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

RPD outside accepted recovery limits

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1209947

02-Oct-12

Client:

Southwest Geoscience

Project:

K-51

Sample ID 5ML RB

SampType: MBLK

TestCode: EPA Method 8015B: Gasoline Range

Client ID: Prep Date:

PBW

Batch ID: R5745 Analysis Date: 9/24/2012

PQL

0.050

RunNo: 5745

SeqNo: 165002

%REC LowLimit

Units: mg/L

HighLimit

%RPD

RPDLimit

Qual

Gasoline Range Organics (GRO)

Surr: BFB

Analyte

ND 18

Result

20.00

SPK value SPK Ref Val

88.8

69.8

119

Sample ID 2.5UG GRO LCS

SampType: LCS

TestCode: EPA Method 8015B: Gasoline Range

Batch ID: R5745

RunNo: 5745 SeqNo: 165003

Units: mg/L

Prep Date: Analyte

Analysis Date: 9/24/2012 SPK value SPK Ref Val Result **PQL**

%REC LowLimit HighLimit

%RPD **RPDLimit** Qual

Surr: BFB

Client ID: LCSW

75.9 69.8

119 119

Gasoline Range Organics (GRO) 0.46 0.050 0.5000 92.4 109 22 20.00

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH greater than 2

- Analyte detected in the associated Method Blank В
- Holding times for preparation or analysis exceeded Н

RPD outside accepted recovery limits

ND Not Detected at the Reporting Limit

R

Page 14 of 17

Hall Environmental Analysis Laboratory, Inc.

WO#:

1209947

02-Oct-12

Client:

Southwest Geoscience

Project:

K-51

Sample ID 5ML RB	SampTyp	oe: ME	BLK	MBLK TestCode: EPA Method 8021B: Volatiles						
Client ID: PBW	Batch I	D: R5	693	R	tunNo: 5	693				
Prep Date:	Analysis Dat	te: 9 /	22/2012	S	eqNo: 1	63597	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								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
Surr: 4-Bromofluorobenzene	16		20.00		77.5	69.7	152			
Sample ID 100NG BTEX LCS	SampTy	pe: LC	s	Tes	Code: E	PA Method	8021B: Volat	iles		
Client ID: LCSW	Batch I	D: R5	693	R	tunNo: 5	693				
Prep Date:	Analysis Da	te: 9/	22/2012	S	SeqNo: 1	63616	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	80	120			
Toluene	21	1.0	20.00	0	106	80	120			
Ethylbenzene	22	1.0	20.00	0	109	80	120			
Xylenes, Total	66	2.0	60.00	0	110	80	120			
1,2,4-Trimethylbenzene	20	1.0	20.00	0	102	74.3	117			
1,3,5-Trimethylbenzene	22	1.0	20.00	0	108	75.8	117			
Surr: 4-Bromofluorobenzene	18		20.00		90.6	69.7	152			
Sample ID 5ML RB	SampTy	pe: ME	BLK	Tes	tCode: E	PA Method	8021B: Volat	iles	-	<u></u>
Client ID: PBW	Batch I	D: R5	708	F	RunNo: 5	708				
Prep Date:	Analysis Da	te: 9 /	23/2012	s	SeqNo: 1	64123	Units: µg/L			

		, p			_					
Client ID: PBW	Batch	n ID: R5	708	F	RunNo: 5	708				
Prep Date:	Analysis D	ate: 9/	23/2012	8	SeqNo: 1	64123	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								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
Surr: 4-Bromofluorobenzene	18		20.00		91.6	69.7	152			

Sample ID 100NG BTEX LCS	SampT	ype LC	S	Tes	tCode: El					
Client ID: LCSW	Batch	1D: R5	708	F	RunNo: 5	708				
Prep Date:	Analysis D	ate: 9/	23/2012	S	SeqNo: 1	64124	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	80	120			
Toluene	21	1.0	20.00	0	107	80	120			
Ethylbenzene	22	1.0	20.00	0	109	80	120			

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

RPD outside accepted recovery limits

- ND Not Detected at the Reporting Limit
- Page 15 of 17

Hall Environmental Analysis Laboratory, Inc.

WO#:

1209947

02-Oct-12

Client:

Southwest Geoscience

Project:

K-51

Sample ID 100NG BTEX LCS	SampT	ype: LC	s	Tes	TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSW	Batch	n ID: R5	708	F	RunNo: 5	708					
Prep Date:	Analysis D	ate: 9/	23/2012	\$	SeqNo: 1	64124	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Xylenes, Total	66	2.0	60.00	0	109	80	120				
1,2,4-Trimethylbenzene	20	1.0	20.00	0	102	74.3	117				
1,3,5-Trimethylbenzene	22	1.0	20.00	0	108	75.8	117				
Surr: 4-Bromofluorobenzene	20		20.00		101	69.7	152				

Sample ID 1209947-006AM	S Samp	Type: MS	3	Tes	TestCode: EPA Method 8021B: Volatiles						
Client ID: MW-16	Batc	h ID: R5	708	F	RunNo: 5	708					
Prep Date:	Analysis [Analysis Date: 9/23/2012			SeqNo: 164127			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	20	1.0	20.00	0.3640	101	74.1	124	-			
Toluene	21	1.0	20.00	0.2320	105	75.2	124				
Ethylbenzene	22	1.0	20.00	0.2360	109	69	125				
Xylenes, Total	66	2.0	60.00	0.7480	109	73.1	126				
1,2,4-Trimethylbenzene	19	1.0	20.00	0.5060	94.9	63.1	121				
1,3,5-Trimethylbenzene	21	1.0	20.00	0.1680	103	60	133				
Surr: 4-Bromofluorobenzene	17		20.00		82.7	69.7	152				

Sample ID 1209947-006AM	SD	TestCode: EPA Method 8021B: Volatiles								
Client ID: MW-16	Batch	Batch ID: R5708			RunNo: 5					
Prep Date:	Analysis D	ate: 9/	23/2012	8	SeqNo: 1	64128	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0.3640	100	74.1	124	0.215	11.2	
Toluene	21	1.0	20.00	0.2320	105	75.2	124	0.226	11.9	
Ethylbenzene	22	1.0	20.00	0.2360	108	69	125	0.475	13.5	
Xylenes, Total	66	2.0	60.00	0.7480	108	73.1	126	0.863	13	
1,2,4-Trimethylbenzene	20	1.0	20.00	0.5060	96.5	63.1	121	1.59	14.7	
1,3,5-Trimethylbenzene	21	1.0	20.00	0.1680	104	60	133	1.21	14	
Surr: 4-Bromofluorobenzene	20		20.00		99.3	69.7	152	0	0	

Sample ID 5ML RB	SampT	ype: ME	BLK	Tes						
Client ID: PBW	Batch	1D: R5	745	F	RunNo: 5	745				
Prep Date:	Analysis D	ate: 9/	24/2012	5	SeqNo: 1	65025	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								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								

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
 - RPD outside accepted recovery limits

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1209947 02-Oct-12

Client:

Southwest Geoscience

Project:

K-51

Sample ID 5ML RB

SampType: MBLK

TestCode: EPA Method 8021B: Volatiles

LowLimit

69.7

75.8

69.7

Client ID: PBW

Batch ID: R5745

PQL

RunNo: 5745

Prep Date:

Analysis Date: 9/24/2012

Units: µg/L

Analyte

Result

21

18

1.0

SPK value SPK Ref Val

SeqNo: 165025

HighLimit

RPDLimit Qual

Surr: 4-Bromofluorobenzene

1,3,5-Trimethylbenzene

Surr: 4-Bromofluorobenzene

106

91.2

%RPD

18

20.00

20.00

20.00

%REC 91.3

152

117

152

Sample ID 100NG BTEX I	LCS Samp	Type: LC	s	TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSW	Bato	Batch ID: R5745 RunNo: 5745									
Prep Date: Analysis Date: 9/24/2012 SeqNo: 165026					Units: µg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	20	1.0	20.00	0	98.8	80	120				
Toluene	21	1.0	20.00	0	103	80	120				
Ethylbenzene	21	1.0	20.00	0	107	80	120				
Xylenes, Total	65	2.0	60.00	0	109	80	120				
1,2,4-Trimethylbenzene	20	1.0	20.00	0	100	74.3	117				

Qualifiers:

Sample pH greater than 2

RPD outside accepted recovery limits

Page 17 of 17

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

Analyte detected below quantitation limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87105

TEL: 505-345-3975 FAX: 505-345-410; Website: www.hallenvironmental.com

Sample Log-In Check List

Cite	nt Name:	Southwest Ge	eoscience		Work Or	der Nu	mber:	120994	7		
Rec	eived by/date	: <u>LM</u>		09/21/12							
Logg	ged By:	Michelle Gard	cia	9/21/2012 10:00:00	AM		m	irel Gan irel Gan	نس		
Con	npleted By:	Michelle Gard	cia	9/21/2012 2:42:05 F	M		m	ine Com	س <i>ن</i>		
Rev	lewed By:	do _	<u></u>	07/21/12				•			
<u>Cha</u>	in of Cus	tody									
1.	Were seals	intact?			Yes		lo 🗌	Not F	Present 🗹		
2.	Is Chain of 6	Custody comple	te?		Yes	✓ N	to 🗆	Not F	Present 🗌		
3.	How was the	e sample deliver	red?		Cou	rier					
<u>Log</u>	<u>Lin</u>										
4.	Coolers are	present? (see 1	9. for cooler s	pecific information)	Yes	✓ ١	lo 🗆		na 🗆		
5 .	Was an atte	mpt made to co	ol the sample	s?	Yes	✓ N	lo 🗆		na 🗆		
6.	Were all sar	mples received a	at a temperatu	ere of >0° C to 6.0°C	Yes	✓ N	lo 🗆		na 🗆		
7.	Sample(s) in	n proper contain	er(s)?		Yes	✓ N	io 🗆				
8.	Sufficient sa	imple volume fo	r indicated tes	it(s)?	Yes	V N	lo 🗆				
9.	Are samples	s (except VOA a	nd ONG) prop	erly preserved?	Yes	✓ N	lo 🗌				
10.	Was presen	vative added to I	bott les ?		Yes		lo 🗹		NA 🗆		
11.	VOA viais h	ave zero headsp	pace?		Yes	☑ N	lo 🗆	No VO	A Vials		
12.	Were any sa	ample container	s received bro	ken?	Yes		lo 🗹				
13.		work match bott pancies on chai			Yes	V	lo 🗌	!	# of preserved bottles checked for pH:		
14.	Are matrices	s correctly identi	fied on Chain	of Custody?	Yes	☑ ►	lo 🗆		-	2 or >12	unless noted)
15.	Is it clear wh	nat analyses we	re requested?		Yes	_	lo 🗌		Adjusted?		
16.		ding times able customer for au			Yes	V	lo 🗀		Checked by	<i>r</i> :	
Spe	cial Hand	iing (if appli	cable)					L			
17.	Was client n	otified of all disc	crepancies wit	h this order?	Yes		lo 🗆		NA 🗹		
	By Who	-		Date Via:	☐ eMa	II	Phone	☐ Fax	in Person		
	Additional re										
19.	Cooler Info		Condition 1	Spalintant Spalikia	Seel De	امه	Ciar	ari Ph	1		
	Cooler No			Seal Intact Seal No	Seal Da	te	Sign	ed By	1		

CHAIN OF CUSTODY RECORD	Lab use only Due Date: Temp. of coolers Temp. of coolers when received (C°). Z . \ 1 2 3 4 5 Page of Z.		Lab Sample ID (Lab Use Only)	100-	-002	-003	HOO	500-	900-	L00-	800-	-009	010 -				IO-0
	5/08													NOTES:	·		SL - sludge
	ANALYSIS REQUESTED ROSTING ROS	7.7.7.1 X.3.1	<u> </u>	<u>አ</u>									4 4	Date: Time:	Date: Time:	Date: Time:	C - Charcoal tube P/O - Plastic or other
-		No/Type of Contrainers	VOA A/G 250	ري ا						4	<i>ħ</i>	ė,	Ĺ,	To Control	Signature)	nature)	L - Liquid A - Air Bag 250 ml - Glass wide mouth
	Address: ACC. Sontact: Shone: Sampler's Signature		thatS ritqeQ bn3		-									Received by: (Sign	2	Received by: (Signature)	
		201	Identifying Marks of Semple(s)	11-M&M	MW-12	MW-2	MW-3	1-1-MW	MW-16	h-mu	81-MW	1-MW	?	Time: Rate Time: R	Date: Time: 0/20/12 1/15 Date:	Date: Time:	W - Water S - Soil SD - Soild
	S C I L	Project Natho	Time CC CD Ba~G		72	1230	50E/	1 0hE1	1430	1545	0830		**	- BE			WW - Wastewater
	Sampler's Napre	8470003 8470003	Matrix Date T	112/12/11	11.35	//2	/3	2/	4/	15/	8/24/2 08	0900	60	Relinguished by (Signature)	Relinquished by (Signature)	Relinquished by (Signature)	Matrix WW - W

SOUTHWEST GEOSCIENCE • 2351 W. Northwest Hwy., Suite 3321 • Dallas, Texas 75220 • Office: 214-350-5469 • Fax 214-350-2914

CHAIN OF CUSTODY RECORD	Temp. of coders when received (C): Z, (Temp. of coders when received (C): Z, (Temp. of coders Temp. of coders Page. 2 of 2	(Aivo esch der) (Taboach)			
	ANALYSIS T A BCR A BC	Sign of Containers Sign of Conta	× × × × × × × × × × × × × × × × × × ×	□ 100% Rush	ad by: (Signature) Apple 17 1422 Set by (Signature) Apple 17 1422 Date: Time: Time: Date: Time: Time: Time: Time: A - Air Bag C - Charcoal tube SL - sludge O - Oil 250 ml - Glass wide mouth P/O - Plastic or other
	E Address: Contact: Phone: Sampler's Sign	Project Name C G Time D I G Hentifying Marks of Sample(s)	W 4/20/12 1830 W W-14	mal C 25% Rush C 50% Rush	(Signature) (Signa

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