3R-446

Q3 2012 Ground Water Monitoring Report

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QUARTERLY GROUNDWATER MONITORING REPORT
(June 2012 Event)

Property:

K-51 Pipeline Release
Sections 34 and 35, T26N, R6W
Rio Arriba County, New Mexico
SWG Project No. 0410003
July 17, 2012

Prepared for:
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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 cross-gradient, 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 WQCC GQSs.

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 results provided by an independent laboratory. Evaluations of the 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.

2.0 SAMPLING PROGRAM

A quarterly groundwater sampling event was conducted on June 19th, 2012 by Jordon Dubuisson and Aaron Bentley, both SWG environmental professionals.

SWG's groundwater sampling program consisted of the following:

- Collection of one groundwater sample from each monitoring well utilizing low-flow sampling techniques.

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, each monitoring well was micro-purged utilizing low-flow sampling techniques. Low-flow refers to the velocity with which groundwater enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface which can be affected by flow regulators or restrictions. Water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective is to pump in a manner that minimizes stress (drawdown) to the system, to the extent practical, taking into account established Site sampling objectives. Flow rates on the order of 0.1 to 0.5 L/min 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 groundwater samples were collected from each monitoring well once produced groundwater was consistent in color, clarity, pH, DO, ORP, temperature and conductivity.

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

3.0 LABORATORY ANALYTICAL PROGRAM

The groundwater samples collected from the monitoring wells during the groundwater sampling 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	12	SW-846# 8015M
BTEX	Groundwater	12	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 0.010 ft/ft across the Site.

Groundwater measurements collected during the most recent gauging event in June 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 June 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-11, MW-12, MW-13, MW-16, MW-17, MW-18, and MW-20 during the June 2012 sampling event did not exhibit benzene, toluene, ethylbenzene or xylenes concentrations above the respective WQCC *Groundwater Quality Standards*.

The groundwater samples collected from monitoring wells MW-1, MW-4, and MW-14 during the June 2012 sampling event exhibited benzene concentrations ranging from 37 µg/L to 660 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-13, MW-16, MW-17, MW-18, and MW-20 did not exhibit TPH GRO concentrations above the laboratory RLs during the June 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 1.7 mg/L to 3.4 mg/L. The highest GRO concentration during the June 2012 sampling event was observed in the groundwater sample from monitoring well MW-14.

6.0 FINDINGS

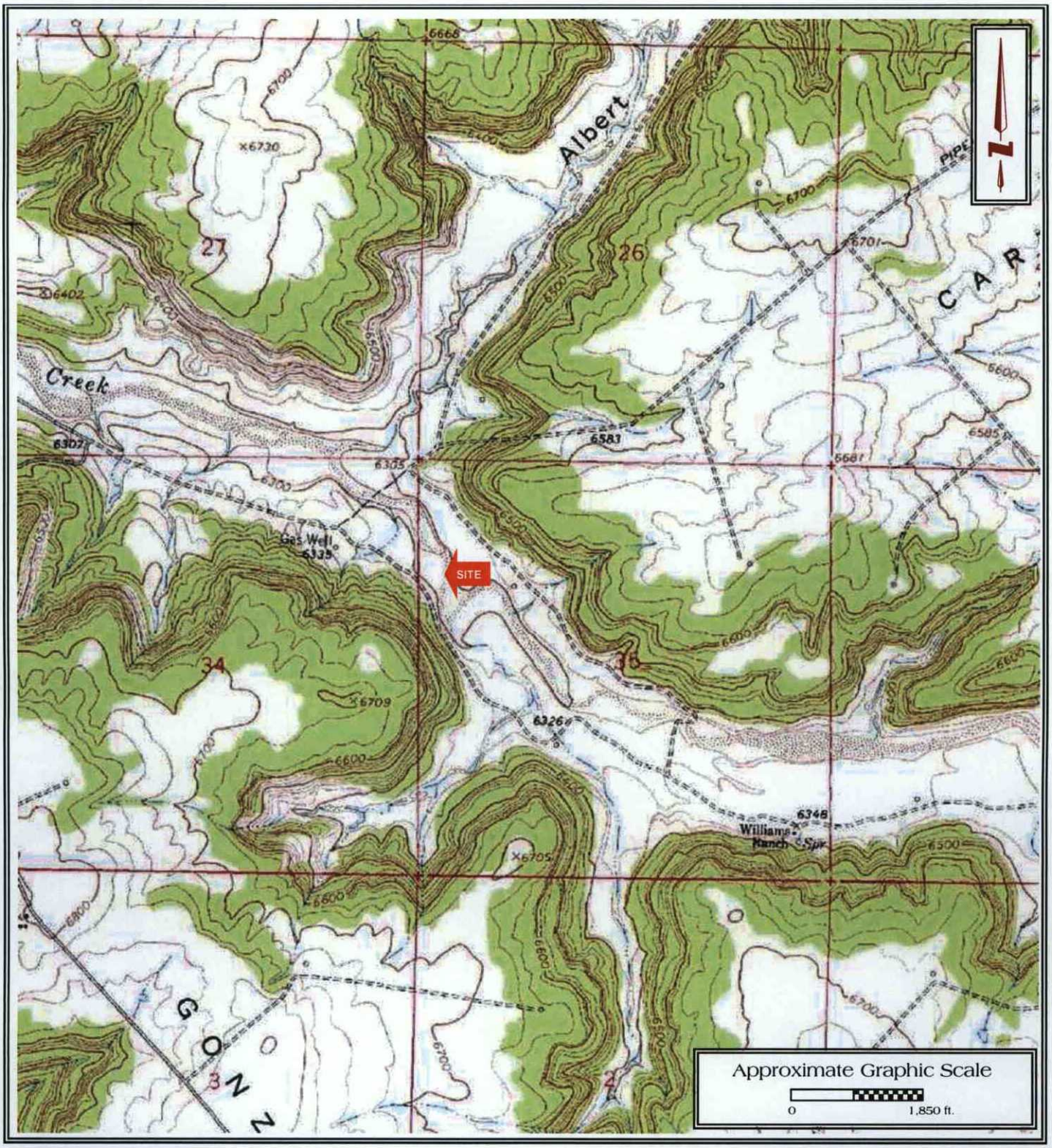
During June 2012, SWG conducted a quarterly groundwater monitoring event at the K-51 Pipeline release site. The Site is located at the boundary of Sections 34 and 35, Township 26 North, Range 6 West, in Rio Arriba County, New Mexico. The Site consists of silty/sandy canyon bottomland with native grasses, 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 low-flow sampling techniques.
- The groundwater samples collected from monitoring wells MW-2, MW-3, MW-11, MW-12, MW-13, MW-16, MW-17, MW-18, and MW-20 during the June 2012 sampling event did not exhibit benzene, toluene, ethylbenzene or xylenes concentrations above the respective WQCC *Groundwater Quality Standards*.
- During the June 2012 event, monitoring well MW-20 did not exhibit benzene in excess of the WQCC GQS as it did during the initial sampling event in March 2012.
- **The groundwater samples collected from monitoring wells MW-1, MW-4, and MW-14 during the June 2012 sampling event exhibited benzene concentrations ranging from 37 µg/L to 660 µg/L, which exceed the WQCC *Groundwater Quality Standard* of 10 µg/L.**
- **LNAPL was measured at a thickness of 0.07 feet in monitoring well MW-19.**

7.0 RECOMMENDATIONS

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

- Report the groundwater monitoring results to the OCD;
- Continue the evaluation and execution of corrective actions to reduce the concentrations of COCs in soil to below the OCD ***Remediation Action Levels*** and groundwater to below the New Mexico WQCC ***Groundwater Quality Standards***.



K-51 Pipeline Release
N36° 26' 47.77"; W107° 26' 46.04"
Off County Road 537
Rio Arriba, New Mexico

SWG Project No. 0410003

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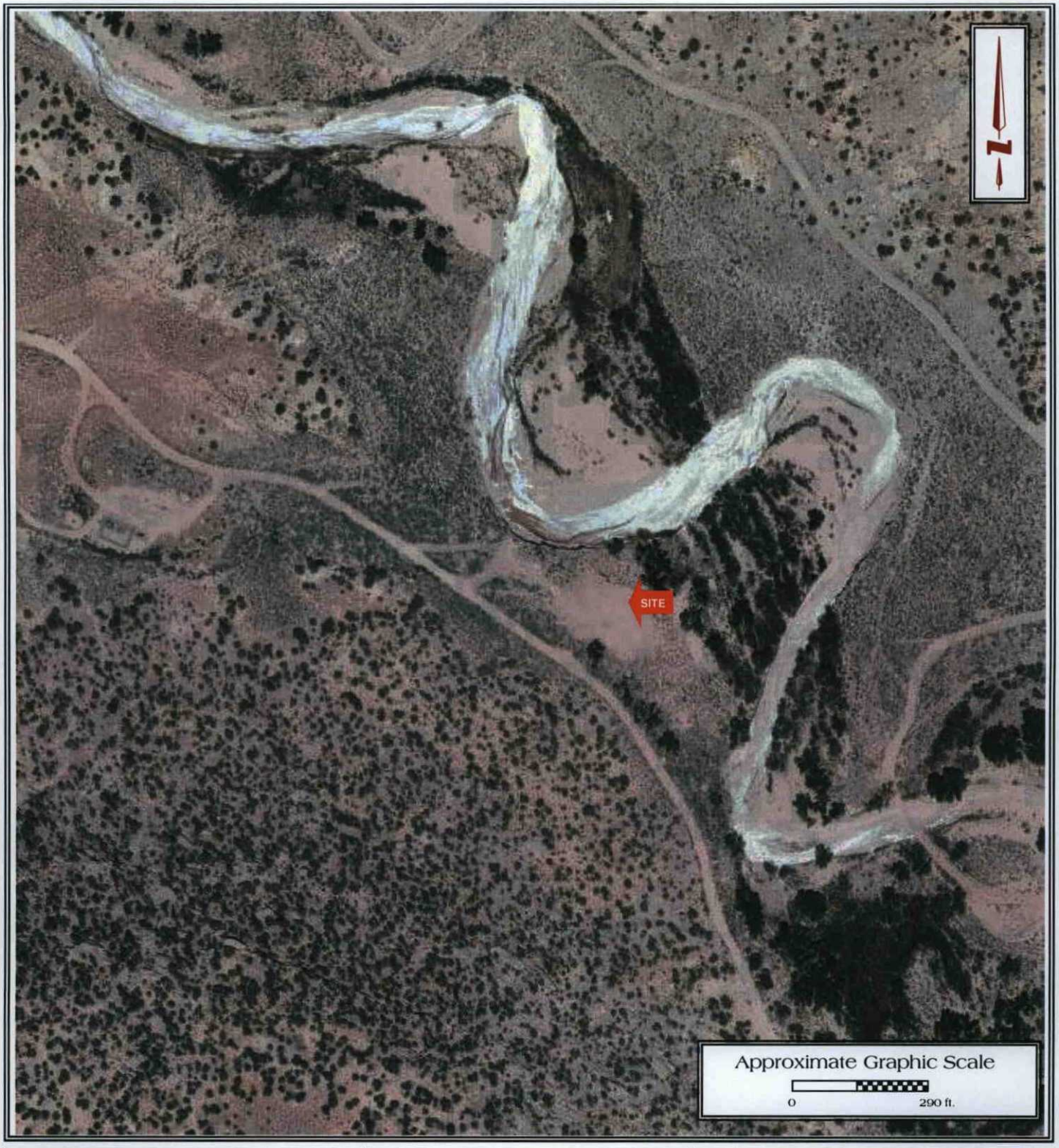
FIGURE 1
Topographic Map
Gonzales Mesa, NM Quadrangle
Contour Interval - 10 Feet



K-51 Pipeline Release
N36° 26' 47.77"; W107° 26' 46.04"
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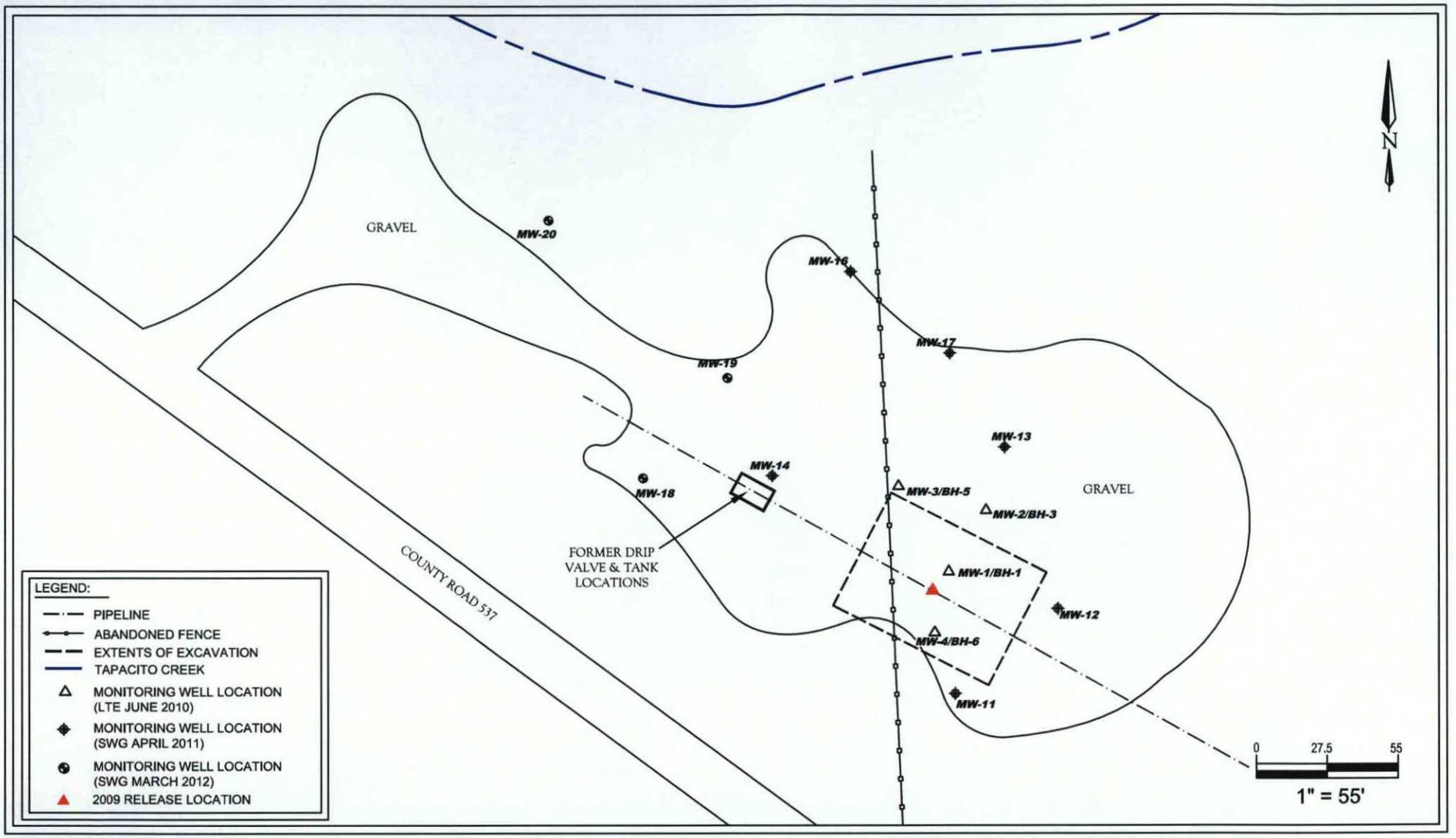
FIGURE 2
Site Vicinity Map
2012 Aerial Photograph



K-51 Pipeline Release
N36° 26' 47.77"; W107° 26' 46.04"
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FIGURE 3

SITE MAP

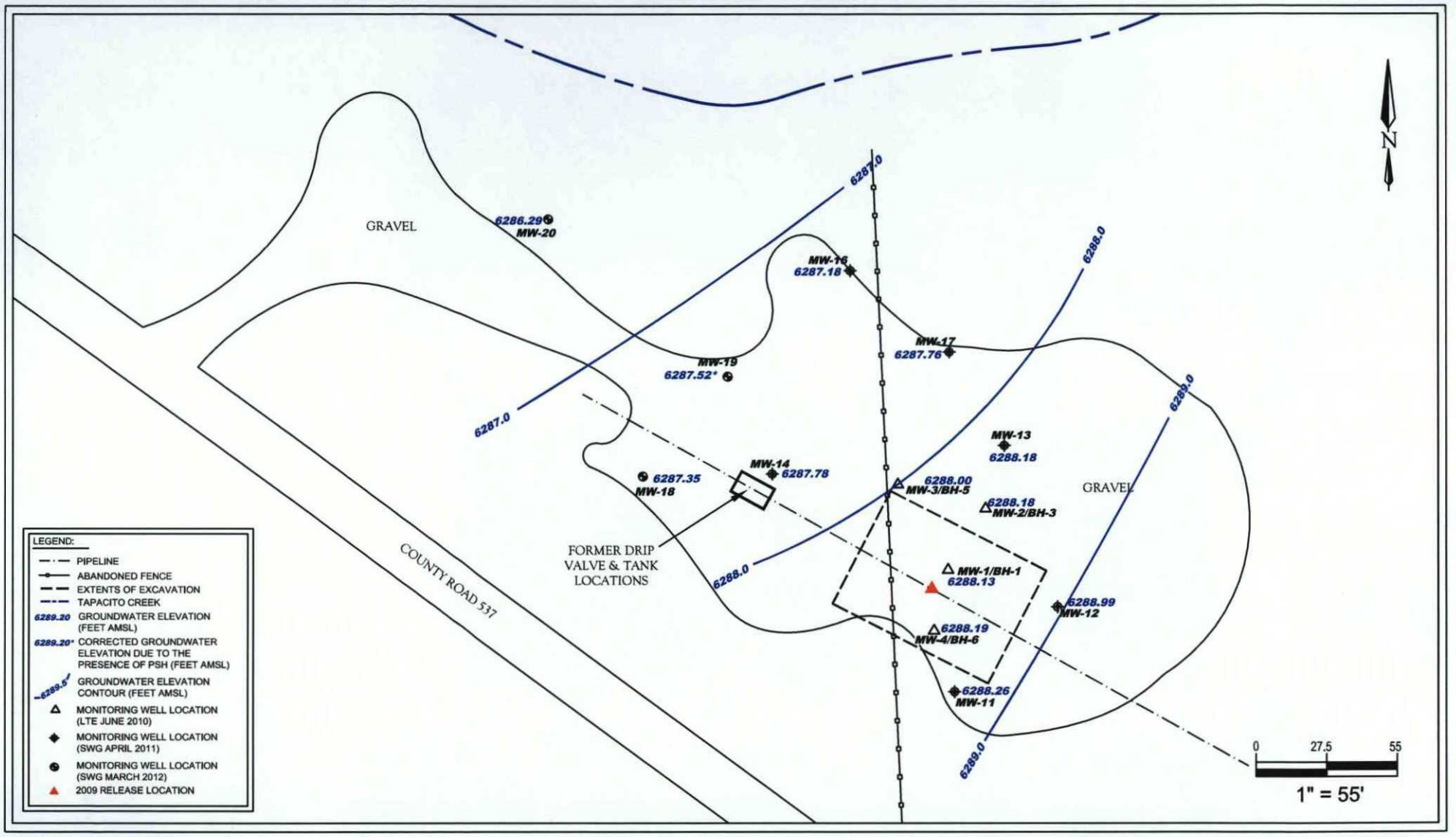

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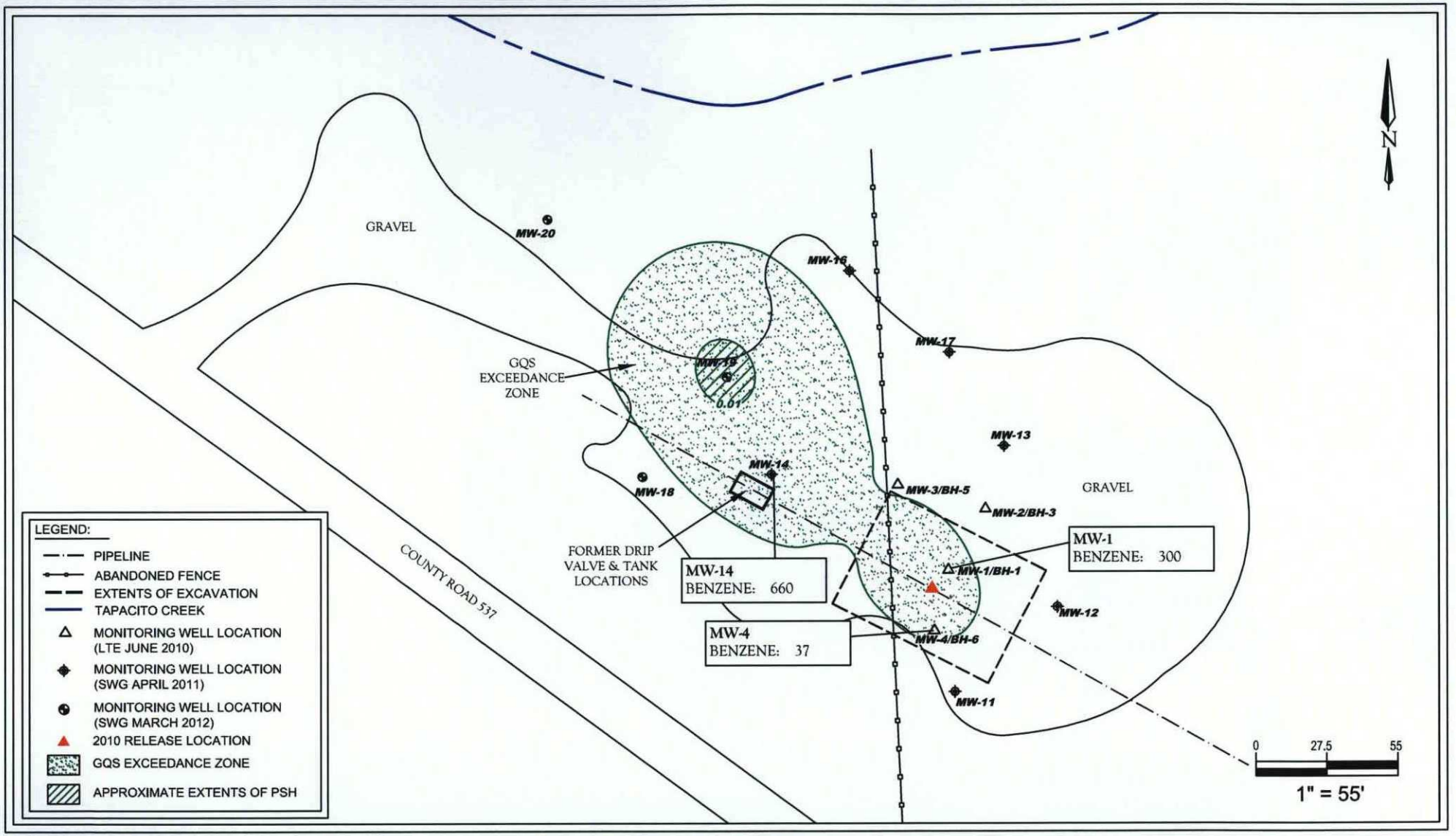
FIGURE 4

GROUNDWATER GRADIENT MAP

JUNE 19, 2012



K-51 Pipeline Release
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SWG Project No. 0410003

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FIGURE 5

GROUNDWATER QUALITY
STANDARD EXCEEDANCE ZONE
JUNE 2012

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TABLE 1
K-51 PIPELINE RELEASE
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
SMA Sample - Open Excavation							
Excavation	4.21.10	7,000	13,000	540	5,200	NA	NA
Monitoring Wells							
MW-1	6.21.10	8,400	1,300	560	4,200	NA	NA
	9.24.10	2,300	28	200	520	8.4	<1.0
	4.21.11	430	<20	120	60	2.1	<1.0
	6.21.11	820	370	33	140	5.1	130
	9.22.11	690	1,200	120	1,200	8.9	30
	12.13.11	260	250	54	650	3.4	<1.0
	3.20.12	280	230	94	550	3.5	<1.0
	6.19.12	300	<5.0	81	96	1.7	<1.0
MW-2	6.21.10	200	53	14	96	NA	NA
	9.24.10	2.3	<1.0	<1.0	<2.0	<0.050	<1.0
	4.21.11	3.3	<1.0	<1.0	<2.0	0.065	<1.0
	6.21.11	2.2	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-3	6.21.10	640	57	72	1,000	NA	NA
	9.24.10	150	<1.0	16	28	0.48	<1.0
	4.21.11	52	<1.0	17	10	0.25	<1.0
	6.21.11	62	14	13	160	0.67	<1.0
	9.22.11	3	<1.0	8.7	<2.0	0.066	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	1.3	<1.0	1.9	<2.0	<0.050	<1.0
	6.19.12	3.1	<1.0	1.4	<2.0	<0.050	<1.0
MW-4	6.21.10	3,600	10,000	600	6,600	NA	NA
	9.24.10	870	870	260	1,600	12	1
	4.21.11	670	<20	520	790	6.3	<1.0
	6.21.11	17	22	36	77	0.64	1.1
	9.22.11	62	140	220	820	3.8	1.2
	12.13.11	84	<20	430	490	2.6	<1.0
	3.20.12	36	<20	1,100	1,400	6.5	<1.0
	6.19.12	37	<5.0	250	350	2.2	<1.0
MW-11	4.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0

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TABLE 1
K-51 PIPELINE RELEASE
GROUNDWATER ANALYTICAL SUMMARY

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Control Commmission Groundwater Quality Standards		10	750	750	620	NE	NE
MW-12	4.21.11	1.9	<1.0	<1.0	<2.0	<0.050	<1.0
	6.21.11	4.6	<1.0	<1.0	<2.0	0.063	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	1.7	<1.0	<1.0	<2.0	<0.050	<1.0
MW-13	4.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-14	4.21.11	**2,800**	<100	280	**720**	8.7	<1.0
	6.21.11	**470**	<10	37	210	1.9	<1.0
	9.22.11	**540**	<10	100	36	1.7	<1.0
	12.13.11	**220**	<10	110	<20	1.0	<1.0
	3.20.12	**660**	<5.0	240	15	2.9	<1.0
	6.19.12	**660**	<5.0	300	100	3.4	<1.0
MW-16	4.21.11	4.4	<2.0	<2.0	<4.0	<0.10	<1.0
	6.21.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	0.065	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	0.12	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-17	4.21.11	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	6.21.11	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
	9.22.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	12.13.11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-18	3.20.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	6.19.12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-19	3.20.12	**250**	56	310	**3,900**	16	5.3
	6.19.12	**NAPL**	**NAPL**	**NAPL**	**NAPL**	NA	NA
MW-20	3.20.12	**35**	<1.0	1.1	3.3	0.14	<1.0
	6.19.12	3.4	<1.0	<1.0	<2.0	<0.050	<1.0

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

NA = Not Analyzed

NE = Not Established

NAPL = Non-aqueous phase liquid

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TABLE 2
K-51 Pipeline Release
GROUNDWATER ELEVATIONS

Well I.D.	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness	TOC Elevations (feet AMSL)	Groundwater Elevation* (feet AMSL)
MW-1	4.21.11	ND	11.80	ND	6300.89	6289.09
	6.21.11	ND	12.16	ND		6288.73
	9.22.11	ND	12.92	ND		6287.97
	12.13.11	ND	12.45	ND		6288.44
	3.20.12	ND	12.13	ND		6288.76
	6.19.12	ND	12.76	ND		6288.13
MW-2	4.21.11	ND	10.55	ND	6299.82	6289.27
	6.21.11	ND	11.87	ND		6287.95
	9.22.11	ND	11.86	ND		6287.96
	12.13.11	ND	11.38	ND		6288.44
	3.20.12	ND	10.95	ND		6288.87
	6.19.12	ND	11.64	ND		6288.18
MW-3	4.21.11	ND	11.30	ND	6300.22	6288.92
	6.21.11	ND	11.64	ND		6288.58
	9.22.11	ND	12.45	ND		6287.77
	12.13.11	ND	11.89	ND		6288.33
	3.20.12	ND	11.60	ND		6288.62
	6.19.12	ND	12.22	ND		6288.00
MW-4	4.21.11	ND	11.90	ND	6300.91	6289.01
	6.21.11	ND	12.18	ND		6288.73
	9.22.11	ND	12.90	ND		6288.01
	12.13.11	ND	12.41	ND		6288.50
	3.20.12	ND	12.45	ND		6288.46
	6.19.12	ND	12.72	ND		6288.19
MW-11	4.21.11	ND	11.98	ND	6301.19	6289.21
	6.21.11	ND	12.40	ND		6288.79
	9.22.11	ND	13.07	ND		6288.12
	12.13.11	ND	12.55	ND		6288.64
	3.20.12	ND	12.26	ND		6288.93
	6.19.12	ND	12.93	ND		6288.26
MW-12	4.21.11	ND	8.96	ND	6299.08	6290.12
	6.21.11	ND	9.42	ND		6289.66
	9.22.11	ND	10.82	ND		6288.26
	12.13.11	ND	10.13	ND		6288.95
	3.20.12	ND	9.41	ND		6289.67
	6.19.12	ND	10.09	ND		6288.99
MW-13	4.21.11	ND	9.07	ND	6298.27	6289.20
	6.21.11	ND	9.51	ND		6288.76
	9.22.11	ND	10.15	ND		6288.12
	12.13.11	ND	9.59	ND		6288.68
	3.20.12	ND	9.35	ND		6288.92
	6.19.12	ND	10.09	ND		6288.18
MW-14	4.21.11	ND	12.54	ND	6301.20	6288.66
	6.21.11	ND	12.88	ND		6288.32
	9.22.11	ND	13.53	ND		6287.67
	12.13.11	ND	13.11	ND		6288.09
	3.20.12	ND	12.80	ND		6288.40
	6.19.12	ND	13.42	ND		6287.78
MW-16	4.21.11	ND	12.06	ND	6299.89	6287.83
	6.21.11	ND	12.26	ND		6287.63
	9.22.11	ND	12.57	ND		6287.32
	12.13.11	ND	12.28	ND		6287.61
	3.20.12	ND	12.24	ND		6287.65
	6.19.12	ND	12.71	ND		6287.18
MW-17	4.21.11	ND	9.90	ND	6298.57	6288.67
	6.21.11	ND	9.56	ND		6289.01
	9.22.11	ND	10.83	ND		6287.74
	12.13.11	ND	10.31	ND		6288.26
	3.20.12	ND	10.12	ND		6288.45
	6.19.12	ND	10.81	ND		6287.76
MW-18	3.20.12	ND	16.60	ND	6304.77	6288.17
	6.19.12	ND	17.42	ND		6287.35
MW-19	3.20.12	ND	15.69	ND	6303.80	6288.11
	6.19.12	16.25	16.32	0.07		6287.52
MW-20	3.20.12	ND	25.82	ND	6312.59	6286.77
	6.19.12	ND	26.30	ND		6286.29

BTOC - below top of casing
AMSL - aboce 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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 28, 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 Release OrderNo.: 1206961

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 12 sample(s) on 6/21/2012 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
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1206961**
Date Reported: **6/28/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Project: K-51 Release
Lab ID: 1206961-001 **Matrix:** AQUEOUS

Client Sample ID: MW-20
Collection Date: 6/19/2012 8:55:00 AM
Received Date: 6/21/2012 10:30:00 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	6/23/2012 2:36:27 PM
Surr: DNOP	102	61.3-164		%REC	1	6/23/2012 2:36:27 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 1:45:01 PM
Surr: BFB	95.5	69.3-120		%REC	1	6/22/2012 1:45:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	3.4	1.0		µg/L	1	6/22/2012 1:45:01 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 1:45:01 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 1:45:01 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 1:45:01 PM
Surr: 4-Bromofluorobenzene	95.1	55-140		%REC	1	6/22/2012 1:45:01 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Project: K-51 Release
Lab ID: 1206961-002 **Matrix:** AQUEOUS

Client Sample ID: MW-18
Collection Date: 6/19/2012 9:40:00 AM
Received Date: 6/21/2012 10:30:00 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	6/23/2012 2:59:05 PM
Surr: DNOP	104	61.3-164		%REC	1	6/23/2012 2:59:05 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 2:15:30 PM
Surr: BFB	94.6	69.3-120		%REC	1	6/22/2012 2:15:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	6/22/2012 2:15:30 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 2:15:30 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 2:15:30 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 2:15:30 PM
Surr: 4-Bromofluorobenzene	94.6	55-140		%REC	1	6/22/2012 2:15:30 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Project: K-51 Release
Lab ID: 1206961-003 **Matrix:** AQUEOUS

Client Sample ID: MW-16
Collection Date: 6/19/2012 10:20:00 AM
Received Date: 6/21/2012 10:30:00 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	6/23/2012 3:21:34 PM
Surr: DNOP	104	61.3-164		%REC	1	6/23/2012 3:21:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 2:45:53 PM
Surr: BFB	88.7	69.3-120		%REC	1	6/22/2012 2:45:53 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	6/22/2012 2:45:53 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 2:45:53 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 2:45:53 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 2:45:53 PM
Surr: 4-Bromofluorobenzene	86.8	55-140		%REC	1	6/22/2012 2:45:53 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: MW-17
Project: K-51 Release
Collection Date: 6/19/2012 11:00:00 AM
Lab ID: 1206961-004
Matrix: AQUEOUS
Received Date: 6/21/2012 10:30:00 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	6/23/2012 3:44:15 PM
Surr: DNOP	103	61.3-164		%REC	1	6/23/2012 3:44:15 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 3:16:13 PM
Surr: BFB	99.3	69.3-120		%REC	1	6/22/2012 3:16:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	6/22/2012 3:16:13 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 3:16:13 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 3:16:13 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 3:16:13 PM
Surr: 4-Bromofluorobenzene	99.5	55-140		%REC	1	6/22/2012 3:16:13 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Project: K-51 Release
Lab ID: 1206961-005 **Matrix:** AQUEOUS

Client Sample ID: MW-13
Collection Date: 6/19/2012 11:35:00 AM
Received Date: 6/21/2012 10:30:00 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	6/23/2012 4:06:50 PM
Surr: DNOP	109	61.3-164		%REC	1	6/23/2012 4:06:50 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 3:46:40 PM
Surr: BFB	86.1	69.3-120		%REC	1	6/22/2012 3:46:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	6/22/2012 3:46:40 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 3:46:40 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 3:46:40 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 3:46:40 PM
Surr: 4-Bromofluorobenzene	87.4	55-140		%REC	1	6/22/2012 3:46:40 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: MW-2
Project: K-51 Release
Collection Date: 6/19/2012 12:10:00 PM
Lab ID: 1206961-006
Matrix: AQUEOUS
Received Date: 6/21/2012 10:30:00 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	6/23/2012 4:29:34 PM
Surr: DNOP	109	61.3-164		%REC	1	6/23/2012 4:29:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 4:16:53 PM
Surr: BFB	90.1	69.3-120		%REC	1	6/22/2012 4:16:53 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	6/22/2012 4:16:53 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 4:16:53 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 4:16:53 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 4:16:53 PM
Surr: 4-Bromofluorobenzene	90.6	55-140		%REC	1	6/22/2012 4:16:53 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Project: K-51 Release
Lab ID: 1206961-007 **Matrix:** AQUEOUS

Client Sample ID: MW-1
Collection Date: 6/19/2012 12:45:00 PM
Received Date: 6/21/2012 10:30:00 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	6/23/2012 4:52:09 PM
Surr: DNOP	113	61.3-164		%REC	1	6/23/2012 4:52:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	1.7	0.25		mg/L	5	6/25/2012 2:41:51 PM
Surr: BFB	85.9	69.3-120		%REC	5	6/25/2012 2:41:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	300	5.0		µg/L	5	6/25/2012 2:41:51 PM
Toluene	ND	5.0		µg/L	5	6/25/2012 2:41:51 PM
Ethylbenzene	81	5.0		µg/L	5	6/25/2012 2:41:51 PM
Xylenes, Total	96	10		µg/L	5	6/25/2012 2:41:51 PM
Surr: 4-Bromofluorobenzene	95.8	55-140		%REC	5	6/25/2012 2:41:51 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: MW-12
Project: K-51 Release
Collection Date: 6/19/2012 1:15:00 PM
Lab ID: 1206961-008
Matrix: AQUEOUS
Received Date: 6/21/2012 10:30:00 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	6/23/2012 5:37:31 PM
Surr: DNOP	111	61.3-164		%REC	1	6/23/2012 5:37:31 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 5:17:28 PM
Surr: BFB	75.7	69.3-120		%REC	1	6/22/2012 5:17:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	1.7	1.0		µg/L	1	6/22/2012 5:17:28 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 5:17:28 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 5:17:28 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 5:17:28 PM
Surr: 4-Bromofluorobenzene	76.5	55-140		%REC	1	6/22/2012 5:17:28 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Project: K-51 Release
Lab ID: 1206961-009
Matrix: AQUEOUS
Client Sample ID: MW-11
Collection Date: 6/19/2012 1:45:00 PM
Received Date: 6/21/2012 10:30:00 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	6/23/2012 6:00:10 PM
Surr: DNOP	112	61.3-164		%REC	1	6/23/2012 6:00:10 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 5:47:48 PM
Surr: BFB	95.7	69.3-120		%REC	1	6/22/2012 5:47:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	6/22/2012 5:47:48 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 5:47:48 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2012 5:47:48 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 5:47:48 PM
Surr: 4-Bromofluorobenzene	96.7	55-140		%REC	1	6/22/2012 5:47:48 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: MW-4
Project: K-51 Release
Collection Date: 6/19/2012 2:20:00 PM
Lab ID: 1206961-010
Matrix: AQUEOUS
Received Date: 6/21/2012 10:30:00 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	6/23/2012 6:22:44 PM
Surr: DNOP	113	61.3-164		%REC	1	6/23/2012 6:22:44 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	2.2	0.25		mg/L	5	6/25/2012 3:12:09 PM
Surr: BFB	89.5	69.3-120		%REC	5	6/25/2012 3:12:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	37	5.0		µg/L	5	6/25/2012 3:12:09 PM
Toluene	ND	5.0		µg/L	5	6/25/2012 3:12:09 PM
Ethylbenzene	250	5.0		µg/L	5	6/25/2012 3:12:09 PM
Xylenes, Total	350	10		µg/L	5	6/25/2012 3:12:09 PM
Surr: 4-Bromofluorobenzene	92.8	55-140		%REC	5	6/25/2012 3:12:09 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: MW-3
Project: K-51 Release
Collection Date: 6/19/2012 2:50:00 PM
Lab ID: 1206961-011
Matrix: AQUEOUS
Received Date: 6/21/2012 10:30:00 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	6/23/2012 6:45:22 PM
Surr: DNOP	113	61.3-164		%REC	1	6/23/2012 6:45:22 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2012 11:21:36 PM
Surr: BFB	97.7	69.3-120		%REC	1	6/22/2012 11:21:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	3.1	1.0		µg/L	1	6/22/2012 11:21:36 PM
Toluene	ND	1.0		µg/L	1	6/22/2012 11:21:36 PM
Ethylbenzene	1.4	1.0		µg/L	1	6/22/2012 11:21:36 PM
Xylenes, Total	ND	2.0		µg/L	1	6/22/2012 11:21:36 PM
Surr: 4-Bromofluorobenzene	96.3	55-140		%REC	1	6/22/2012 11:21:36 PM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: MW-14
Project: K-51 Release
Collection Date: 6/19/2012 3:30:00 PM
Lab ID: 1206961-012
Matrix: AQUEOUS
Received Date: 6/21/2012 10:30:00 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	6/23/2012 7:07:55 PM
Surr: DNOP	112	61.3-164		%REC	1	6/23/2012 7:07:55 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	3.4	0.25		mg/L	5	6/23/2012 12:22:11 AM
Surr: BFB	89.2	69.3-120		%REC	5	6/23/2012 12:22:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	660	20		µg/L	20	6/22/2012 11:51:59 PM
Toluene	ND	5.0		µg/L	5	6/23/2012 12:22:11 AM
Ethylbenzene	300	5.0		µg/L	5	6/23/2012 12:22:11 AM
Xylenes, Total	100	10		µg/L	5	6/23/2012 12:22:11 AM
Surr: 4-Bromofluorobenzene	96.1	55-140		%REC	5	6/23/2012 12:22:11 AM

Qualifiers:

*/X	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206961**

28-Jun-12

Client: Southwest Geoscience
Project: K-51 Release

Sample ID: **MB-2526**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range**							
Client ID: **PBW**	Batch ID: **2526**	RunNo: **3631**							
Prep Date: **6/22/2012**	Analysis Date: **6/23/2012**	SeqNo: **102204**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Surr: DNOP	1.2		1.000		117	61.3	164			

Sample ID: **LCS-2526**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range**							
Client ID: **LCSW**	Batch ID: **2526**	RunNo: **3631**							
Prep Date: **6/22/2012**	Analysis Date: **6/23/2012**	SeqNo: **102205**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.5	1.0	5.000	0	89.9	74	157			
Surr: DNOP	0.45		0.5000		89.3	61.3	164			

Sample ID: **LCSD-2526**	SampType: **LCSD**	TestCode: **EPA Method 8015B: Diesel Range**							
Client ID: **LCSS02**	Batch ID: **2526**	RunNo: **3634**							
Prep Date: **6/22/2012**	Analysis Date: **6/24/2012**	SeqNo: **102257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.5	74	157	10.1	23	
Surr: DNOP	0.52		0.5000		105	61.3	164	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#: **1206961**

28-Jun-12

Client: Southwest Geoscience
Project: K-51 Release

Sample ID: **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**							
Client ID: **PBW**	Batch ID: **R3644**	RunNo: **3644**							
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102662**	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		97.9	69.3	120			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**							
Client ID: **LCSW**	Batch ID: **R3644**	RunNo: **3644**							
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102663**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.6	101	123			S
Surr: BFB	20		20.00		98.7	69.3	120			

Sample ID: **1206961-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Gasoline Range**							
Client ID: **MW-20**	Batch ID: **R3644**	RunNo: **3644**							
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102705**	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	0.02140	95.8	75.4	121			
Surr: BFB	21		20.00		106	69.3	120			

Sample ID: **1206961-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Gasoline Range**							
Client ID: **MW-20**	Batch ID: **R3644**	RunNo: **3644**							
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102706**	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	0.02140	91.4	75.4	121	4.41	10.5	
Surr: BFB	18		20.00		92.3	69.3	120	0	0	

Sample ID: **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**							
Client ID: **PBW**	Batch ID: **R3670**	RunNo: **3670**							
Prep Date:	Analysis Date: **6/25/2012**	SeqNo: **103484**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		85.2	69.3	120			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**							
Client ID: **LCSW**	Batch ID: **R3670**	RunNo: **3670**							
Prep Date:	Analysis Date: **6/25/2012**	SeqNo: **103485**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.4	101	123			S
Surr: BFB	20		20.00		98.0	69.3	120			

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#: **1206961**

28-Jun-12

Client: Southwest Geoscience
Project: K-51 Release

Sample ID: **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **R3644**	RunNo: **3644**
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102785** 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		99.2	55	140			

Sample ID: **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R3644**	RunNo: **3644**
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102786** 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	107	80	120			
Ethylbenzene	21	1.0	20.00	0	107	80	120			
Xylenes, Total	64	2.0	60.00	0	107	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		109	55	140			

Sample ID: **1206961-002AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **MW-18**	Batch ID: **R3644**	RunNo: **3644**
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102789** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0.1960	106	70.1	118			
Toluene	22	1.0	20.00	0	109	72.3	117			
Ethylbenzene	21	1.0	20.00	0.1740	106	73.5	117			
Xylenes, Total	64	2.0	60.00	0.4340	106	73.1	119			
Surr: 4-Bromofluorobenzene	20		20.00		100	55	140			

Sample ID: **1206961-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **MW-18**	Batch ID: **R3644**	RunNo: **3644**
Prep Date:	Analysis Date: **6/22/2012**	SeqNo: **102790** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0.1960	104	70.1	118	1.83	16.4	
Toluene	21	1.0	20.00	0	107	72.3	117	1.73	13.9	
Ethylbenzene	21	1.0	20.00	0.1740	104	73.5	117	1.25	13.5	
Xylenes, Total	63	2.0	60.00	0.4340	104	73.1	119	1.38	12.9	
Surr: 4-Bromofluorobenzene	21		20.00		104	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206961**

28-Jun-12

Client: Southwest Geoscience
Project: K-51 Release

Sample ID: **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **R3670**	RunNo: **3670**
Prep Date:	Analysis Date: **6/25/2012**	SeqNo: **103501** 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	18		20.00		88.5	55	140			

Sample ID: **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R3670**	RunNo: **3670**
Prep Date:	Analysis Date: **6/25/2012**	SeqNo: **103502** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	80	120			
Toluene	22	1.0	20.00	0	111	80	120			
Ethylbenzene	22	1.0	20.00	0	110	80	120			
Xylenes, Total	66	2.0	60.00	0	110	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		112	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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1206961

Received by/date: AG 06/21/12

Logged By: Lindsay Mangin 6/21/2012 10:30:00 AM

Completed By: Lindsay Mangin 6/21/2012 3:35:02 PM

Reviewed By: JO 06/22/12

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 ☐	
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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

CHAIN OF CUSTODY RECORD

Southwest GEOSCIENCE
Environmental & Hydrogeologic Consultants

Office Location: Aztec, NM
(505) 821-5603
Project Manager: Kyle Summers

Laboratory: Hall Environmental
Address: Albuquerque, NM
Contact: Andy Freeman
Phone: (505) 345-3975
PO/SO #:

Lab use only
Due Date:

Temp. of coolers when received (C°): 2.1 X
1 | 2 | 3 | 4 | 5

Page 1 of 2

Sampler's Name: J. Dubuisson / A. Bentley
Sampler's Signature:

Proj. No.: 04100003
Project Name: K-51 Release

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No/Type of Containers: VOA	A/G 1 Lt.	250 ml	P/O	ANALYSIS REQUESTED: TPH GRO/DRO 8015	BTEX 8021B	Lab Sample ID (Lab Use Only)
W	6/19/12	0855		X	MW-20	-	-	4				X	X	1206961-001
		0940			MW-18									-002
		1020			MW-16									-003
		1100			MW-17									-004
		1135			MW-13									-005
		1210			MW-2									-006
		1245			MW-1									-007
		1315			MW-12									-008
		1345			MW-11									-009
		1420			MW-4									-010

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	6/19/12	1825		6/19/12	1825
Christine Walters	6/20/12	1737		06/21/12	1030

NOTES:

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

CHAIN OF CUSTODY RECORD

Southwest GEOSCIENCE
Environmental & Hydrogeologic Consultants

Office Location: Aztec, NM
Project Manager: Kyle Summers

Laboratory: Hall Environmental
Address: Albuquerque, NM
Contact:
Phone:
PO/SO #:

Lab use only
Due Date: 5
Temp. of coolers when received (C°): 2.2
1 | 2 | 3 | 4 | 5
Page 2 of 2

Sampler's Name: J. Dubuisson / A. Bentley
Sampler's Signature:

Proj. No.: 0410003
Project Name: K-51 Release

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No/Type of Containers: VOA	A/G 1 Lt.	250 ml	P/O	ANALYSIS REQUESTED: TPH GRO/DRO 8015	BTEX 8021B	Lab Sample ID (Lab Use Only)
W	6/19/12	1450		X	MW-3	—	—	4				X	X	1206961-011
↓	↓	1530		↓	MW-14	↓	↓	↓				↓	↓	-012

No Fluoride Entries

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	6/19/12	1825		6/19/12	1825
	6/20/12	1737		06/21/12	1630

NOTES:

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