3R - 440

Q4 2012GWMR

03 / 27 / 2013

3R-440

Enterprise Products

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

ENTERPRISE PRODUCTS OPERATING LLC

March 27, 2013

EMNRD Oil Conservation Division
Aztec District III Office
Attn: Brandon Powell
1000 Rio Brazos Road
Aztec, NM 87410

Return Receipt Requested
7012 2920 0001 7977 4446

EMNRD Oil Conservation Division
Environmental Bureau
Attention: Glen von Gonten
122 South St. Francis Drive
Santa Fe, NM 87505

Return Receipt Requested
7012 2920 0001 7977 4453

RE: Enterprise Field Services, LLC
4th Quarter 2012 Groundwater Monitoring Report
Lateral K-31 December 2011 Pipeline Release

Dear Sir or Madam:

Enclosed please find the 4th Quarter 2012 Groundwater Monitoring Report for the Lateral K-31 December 2011 Pipeline Release.

If you have any questions or need more information, please contact Aaron Dailey, Field Environmental Representative, by phone at 505-599-2286, by email at amdailey@eprod.com or me at 713-381-6684.

Regards,

Matthew E. Marra
(BR)

Matthew E. Marra
Sr. Director, Environmental

/bjm
enclosure

February 22, 2013

Glenn von Gonten
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: 4th Quarter 2012 Groundwater Monitoring Report
Enterprise Field Services, LLC
Lateral K-31 December 2011 Pipeline Release
SE¼ SW¼, Section 16, T25N, R6W
Rio Arriba County, New Mexico

Dear Mr. von Gonten:

Animas Environmental Services, LLC (AES), on behalf of Enterprise Field Services, LLC (Enterprise), has prepared this *4th Quarter 2012 Groundwater Monitoring Report* for the Lateral K-31 December 2011 Pipeline Release in accordance with New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB) regulations. This is the second consecutive quarterly monitoring and sampling event for the subject release location.

A groundwater investigation was completed September 5, 2012, in accordance with a workplan previously prepared by AES and dated July 30, 2012. The workplan was submitted to the NMOCD for review prior to implementing the proposed scope of work.

1.0 Site Information

1.1 Site Location and NMOCD Ranking

The release area is located on Federal land under jurisdiction of the Bureau of Land Management (BLM) within the SE¼ SW¼, Section 16, T25N, R6W, Rio Arriba County, New Mexico. Latitude and longitude of the release were recorded as N36.39373 and W107.47519, respectively. The release location is within the Largo Canyon floodplain, and surface runoff drains northeast towards Largo Canyon, which is 1,550 feet east of the release location. Based on measurements from the groundwater investigation, depth to groundwater is approximately 15 feet below ground surface (bgs). A topographic site location map is included as Figure 1, and an aerial map showing the release location is included as Figure 2.

Prior to site work, the site was ranked in accordance with NMOCD *Guidelines for Remediation of Leaks, Spills, and Releases* (August 1993) and was assessed a ranking score of 20.

1.2 Previous Site Activities

A release was reported at the location on December 2, 2011, by Enterprise personnel, and on the same date Enterprise personnel were dispatched to locate and isolate the leak in the pipeline. The line repair was also completed on December 2, 2011. The cause of the release was identified as a corrosion hole on the underside of the line.

Initial Release Assessment – December 2011

On December 8, 2011, four test holes (TP-1 through TP-4) were each excavated to a total depth of 15.5 feet bgs, from which a total of six soil samples were collected for laboratory analysis. A groundwater sample from an existing monitor well labeled MW-4, which is located near the release area, was collected for laboratory analysis. Soil laboratory analytical results for total benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) exceeded applicable NMOCD action levels in two of the four test holes. Groundwater was not encountered in the test holes; however, depth to water was measured at 14 feet bgs in the nearby groundwater monitor well. The laboratory analytical results for the groundwater sample collected from this well showed reported benzene and total BTEX concentrations below laboratory detection limits. Details of the initial release assessment were submitted to Enterprise in a letter report dated January 20, 2012.

Site Investigation – March 2012

On March 15 and 16, 2012, AES completed a site investigation in order to delineate the full extent of hydrocarbon impact on subsurface soils and groundwater resulting from the release. The investigation included the installation of 12 soil borings (SB-1 through SB-12) and the collection of soil and groundwater samples. Soil samples collected for laboratory analysis showed that contaminant concentrations exceeded NMOCD action levels for TPH in borings SB-1, SB-9, and SB-11. The highest TPH concentration was reported in SB-9 with 8,700 mg/kg.

Dissolved phase analytical results from the March 2012 groundwater investigation indicated groundwater was impacted above the New Mexico Water Quality Control Commission (WQCC) standard for benzene in SB-1W through SB-4W, SB-7W, SB-9W, SB-11W, and SB-12W. The highest concentration for benzene was reported in SB-11W with 1,400 µg/L. Concentration contours of dissolved phase contaminants indicated that migration of the plume is primarily north along the pipeline corridor and to the northeast (following gradient) towards Largo Canyon. The highest dissolved phase concentrations of BTEX were noted in SB-3W and SB-11W.

Groundwater Investigation – September 2012

On August 20 through September 5, 2012, AES completed a groundwater investigation in order to further delineate the extent of the dissolved phase hydrocarbon contaminants associated with the Lateral K-31 pipeline release. During the site investigation, AES personnel installed nine soil borings which were advanced to a total depth of 25 feet bgs and completed as monitor wells (MW-1 through MW-9).

The local site lithology consisted of alluvium and floodplain material which constitutes the wash of Largo Canyon. Bedrock was not encountered in the soil borings. Soil observed during the investigation consisted primarily of dark gray, fine grained, moist sand in the upper five feet, grading to sandy clay with depth, which was brown to dark gray to black, moist to wet, and sometimes exhibiting a strong odor and heavy staining. Brown, fine grained, wet sand with no odor or staining was encountered at depths greater than approximately 15 feet bgs.

Soil and groundwater samples were collected from each soil boring/monitor well. Soil laboratory analytical results indicated benzene, total BTEX, and TPH concentrations were not above NMOCD action levels in any of the soil borings. However, laboratory results confirmed dissolved phase benzene concentrations above the WQCC standard of 10 µg/L in four wells, including MW-1 (18 µg/L), MW-5 (10 µg/L), MW-6 (37 µg/L), and MW-8 (20 µg/L). Dissolved phase toluene, ethylbenzene, and xylenes concentrations were below WQCC standards in all monitor wells.

2.0 Groundwater Monitoring and Sampling – December 2012

On December 20, 2012, groundwater monitoring and sampling were conducted by AES in MW-1 through MW-9. Work was completed in accordance with the workplan prepared by AES and dated July 30, 2012, and also in accordance with U.S. Environmental Protection Agency (USEPA) Environmental Response Team's Standard Operating Procedures (SOPs), and applicable American Society of Testing and Materials (ASTM) standards.

2.1 Groundwater Measurements and Water Quality

Prior to sample collection, depth to groundwater in each well was measured with a Keck Water Level Indicator, and water quality data was measured with a YSI Water Quality Meter. Water quality measurements were recorded and included pH, temperature, conductivity, dissolved oxygen (DO), and oxidation reduction potential (ORP). Depth to groundwater measurements and water quality data were recorded onto Water Sample Collection forms. Depths to groundwater varied across the site and were observed to range from 15.44 feet below top of casing (TOC) in MW-5 to 19.02 feet below TOC in MW-1. The groundwater gradient was calculated to be approximately 0.005 foot/foot to

the north-northwest, and groundwater elevations and gradient contours are included on Figure 3.

Following depth to water measurement, each well was purged with a disposable bailer until recorded temperature, pH, conductivity, and DO measurements were stabilized. All data was recorded onto Water Sample Collection Forms. Groundwater temperature ranged from 12.81°C in MW-3 to 15.51°C in MW-5, and conductivity ranged from 7.556 mS in MW-1 to 10.580 mS in MW-5. DO concentrations were between 0.57 mg/L in MW-5 and 1.15 mg/L in MW-6, and pH ranged from 7.23 in MW-3 to 7.70 in MW-5. Although DO was recorded during field activities, it should be noted that due to the use of bailers, the accuracy of dissolved oxygen measurements is limited. Depth to groundwater measurements and water quality data are summarized in Table 1. Water Sample Collection forms are presented in the Appendix.

2.2 Groundwater Laboratory Analyses

Groundwater samples were collected with new disposable bailers from MW-1 through MW-9 and transferred into appropriate sample containers, labeled accordingly, and documented on Water Sample Collection Forms. Samples were shipped in insulated coolers containing ice at less than 6°C to Hall Environmental Analytical Laboratory (Hall) in Albuquerque, New Mexico. All groundwater analytical samples were analyzed for BTEX per USEPA Method 8021B.

2.2.1 Groundwater Analytical Results

Groundwater laboratory analytical results showed that dissolved phase benzene concentrations were at or above the WQCC standard of 10 µg /L in MW-1 (11 µg/L), MW-2 (17 µg/L), MW-4 (19 µg/L) , MW-5 (10 µg/L), MW-6 (82 µg/L), and MW-8 (25 µg/L). Concentrations of dissolved phase toluene, ethylbenzene, and xylene were below the WQCC standards of 750 µg/L, 750 µg/L, and 620 µg/L, respectively, in all wells. Tabulated groundwater analytical results are presented in Table 2 and on Figure 4, and dissolved phase benzene contours are presented on Figure 5. Groundwater laboratory analytical reports are presented in the Appendix.

3.0 Conclusion and Recommendations

A total of nine monitor wells (MW-1 through MW-9) were monitored and sampled at the Lateral K-31 release location by AES on December 20, 2012, in accordance with the work plan submitted by AES in July 2012. Laboratory results confirmed dissolved phase benzene concentrations above the WQCC standard of 10 µg/L in six wells, with the highest concentration reported in MW-6 (82 µg/L). Dissolved phase benzene concentrations in MW-2 and MW-4 were below WQCC standard during the December 2012 sampling event. Dissolved phase toluene, ethylbenzene, and xylenes concentrations were below WQCC standards in all monitor wells for the second consecutive quarter.

Based on laboratory analytical results from the December 2012 sampling event, groundwater continues to be impacted above the WQCC standard for benzene in the vicinity of the December 2011 release. However, because concentrations are not significantly high, the site appears to be appropriate for monitored natural attenuation. AES recommends continued quarterly monitoring for a period of two years. If groundwater concentrations of contaminants increase over time, AES recommends evaluation of an oxygen release compound (ORC) compound to promote biodegradation of residual contaminants.

If you have any questions regarding site conditions or this report, please do not hesitate to contact Tami Ross or Ross Kennemer at (505) 564-2281.

Sincerely,

Tami Ross

Tami C. Ross, CHMM
Project Manager

Elizabeth McNally, P.E.

Attachments:
Tables
Table 1. Summary of Groundwater Measurements and Water Quality Data
Table 2. Summary of Groundwater Analytical Results

Figures
Figure 1. Topographic Site Location Map
Figure 2. Aerial Site Map
Figure 3. Groundwater Elevation Contours, December 2012
Figure 4. Groundwater Contaminant Concentrations, December 2012
Figure 5. Dissolved Benzene Concentration Contours, December 2012

Appendix
Water Sample Collection Forms
Groundwater Analytical Laboratory Reports (Hall 1212998)

cc: Brandon Powell
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

Aaron Dailey
Enterprise Field Services, LLC
614 Reilly Avenue
Farmington, New Mexico 87401

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TABLE 1

SUMMARY OF GROUNDWATER MEASUREMENTS AND WATER QUALITY DATA

Enterprise Field Services, LLC Lateral K-31 December 2011 Pipeline Release

Rio Arriba County, New Mexico

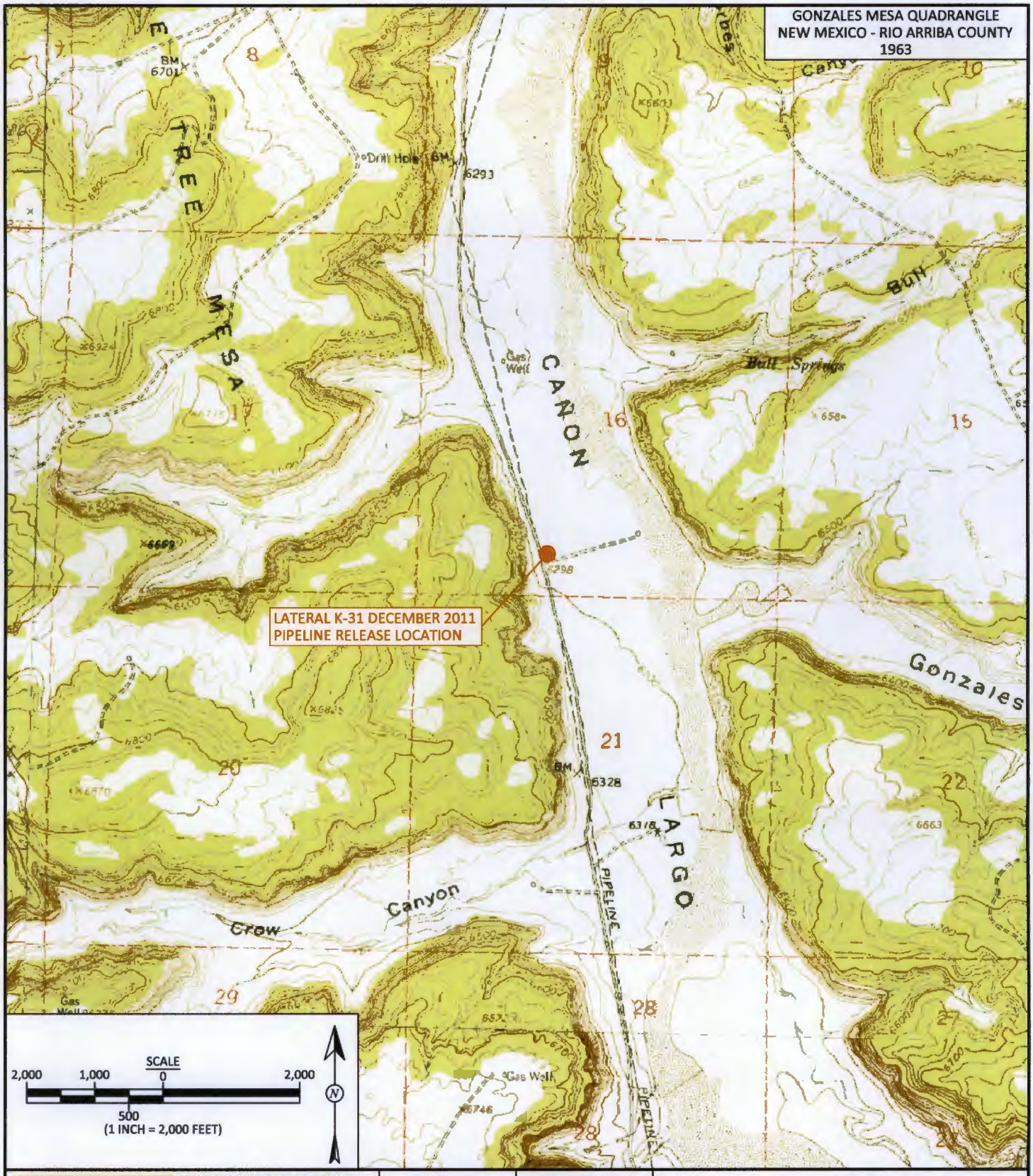
Well ID	Date	Depth to Water (ft)	Surveyed TOC (ft)	GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (ºC)	ORP (mV)
MW-1	05-Sep-12	19.44	6245.24	6225.80	7.40	7.623	0.86	14.52	-90.7
MW-1	20-Dec-12	19.02	6245.24	6226.22	7.48	7.556	0.61	13.75	-59.0
MW-2	05-Sep-12	16.69	6242.58	6225.89	7.39	8.519	1.30	15.35	-48.7
MW-2	20-Dec-12	16.33	6242.58	6226.25	7.43	8.592	0.95	13.42	-21.4
MW-3	05-Sep-12	18.93	6245.48	6226.55	7.42	7.631	0.97	14.93	-63.9
MW-3	20-Dec-12	18.51	6245.48	6226.97	7.23	7.920	0.91	12.81	NM
MW-4	05-Sep-12	17.55	6244.08	6226.53	7.42	10.05	1.97	14.61	-46.7
MW-4	20-Dec-12	17.14	6244.08	6226.94	7.45	10.14	0.90	13.92	-16.4
MW-5	05-Sep-12	15.88	6241.41	6225.53	7.61	10.637	2.76	15.74	-105.0
MW-5	20-Dec-12	15.44	6241.41	6225.97	7.70	10.580	0.57	15.51	-106.6
MW-6	05-Sep-12	17.41	6242.91	6225.50	7.38	8.370	0.90	15.48	-48.3
MW-6	20-Dec-12	16.97	6242.91	6225.94	7.47	8.564	1.15	13.50	-33.7
MW-7	05-Sep-12	17.61	6243.27	6225.66	7.39	7.542	1.19	15.25	-57.2
MW-7	20-Dec-12	17.18	6243.27	6226.09	7.37	7.567	0.75	14.51	-34.6
MW-8	05-Sep-12	16.55	6242.01	6225.46	7.49	8.827	0.62	15.54	-76.3
MW-8	20-Dec-12	16.09	6242.01	6225.92	7.61	8.963	0.59	14.40	-56.8
MW-9	05-Sep-12	16.33	6241.59	6225.26	7.28	8.183	1.02	14.95	-40.5
MW-9	20-Dec-12	15.84	6241.59	6225.75	7.37	8.072	1.08	14.27	-16.5

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Enterprise Field Services, LLC Lateral K-31 December 2011 Pipeline Release
Rio Arriba County, New Mexico

Well ID	*Date Sampled*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Xylenes*
		µg/L	*µg/L*	*µg/L*	*µg/L*
Sample Method		*EPA Method 8021*			
WQCC STANDARD		***10***	***750***	***750***	***620***
MW-1	05-Sep-12	**18**	2.9	3.3	25
MW-1	20-Dec-12	**11**	<2.0	<2.0	5.8
MW-2	05-Sep-12	9.5	9.2	<2.0	30
MW-2	20-Dec-12	**17**	<2.0	<2.0	41
MW-3	05-Sep-12	<2.0	<2.0	<2.0	<4.0
MW-3	20-Dec-12	<2.0	<2.0	<2.0	<4.0
MW-4	05-Sep-12	<2.0	<2.0	<2.0	<4.0
MW-4	20-Dec-12	**19**	<2.0	<2.0	<4.0
MW-5	05-Sep-12	**10**	<2.0	<2.0	<4.0
MW-5	20-Dec-12	**10**	<2.0	<2.0	<4.0
MW-6	05-Sep-12	**37**	8.3	<2.0	14
MW-6	20-Dec-12	**82**	5.8	<2.0	<4.0
MW-7	05-Sep-12	3.6	<2.0	<2.0	<4.0
MW-7	20-Dec-12	5.9	<2.0	<2.0	<4.0
MW-8	05-Sep-12	**20**	<2.0	<2.0	<4.0
MW-8	20-Dec-12	**25**	<2.0	<2.0	<4.0
MW-9	05-Sep-12	<2.0	<2.0	<2.0	<4.0
MW-9	20-Dec-12	<2.0	<2.0	<2.0	<4.0

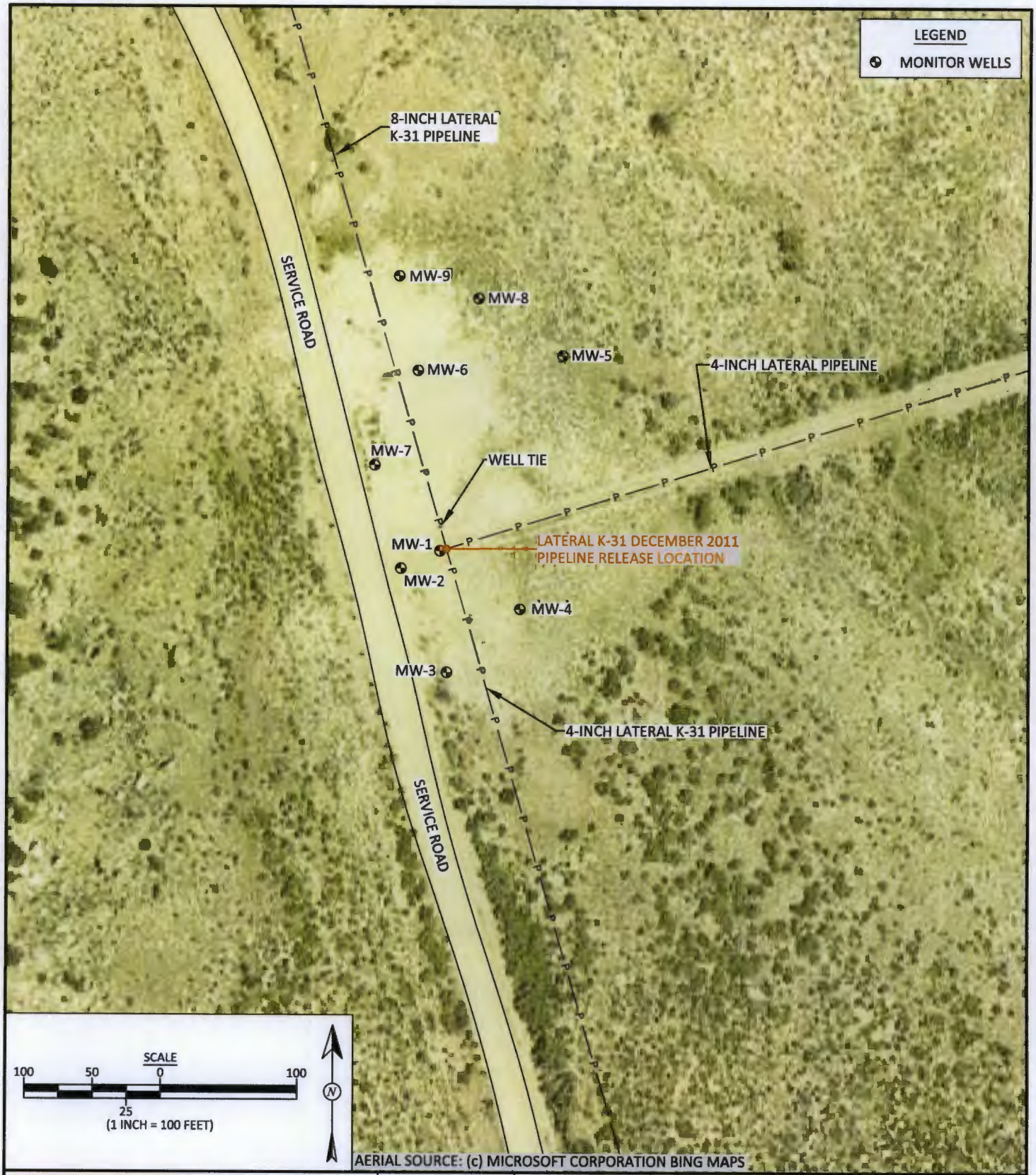
Notes:

<	**Analyte not detected above listed method limit**
NE	**Not established**
µg/L	**Micrograms per liter (ppb)**



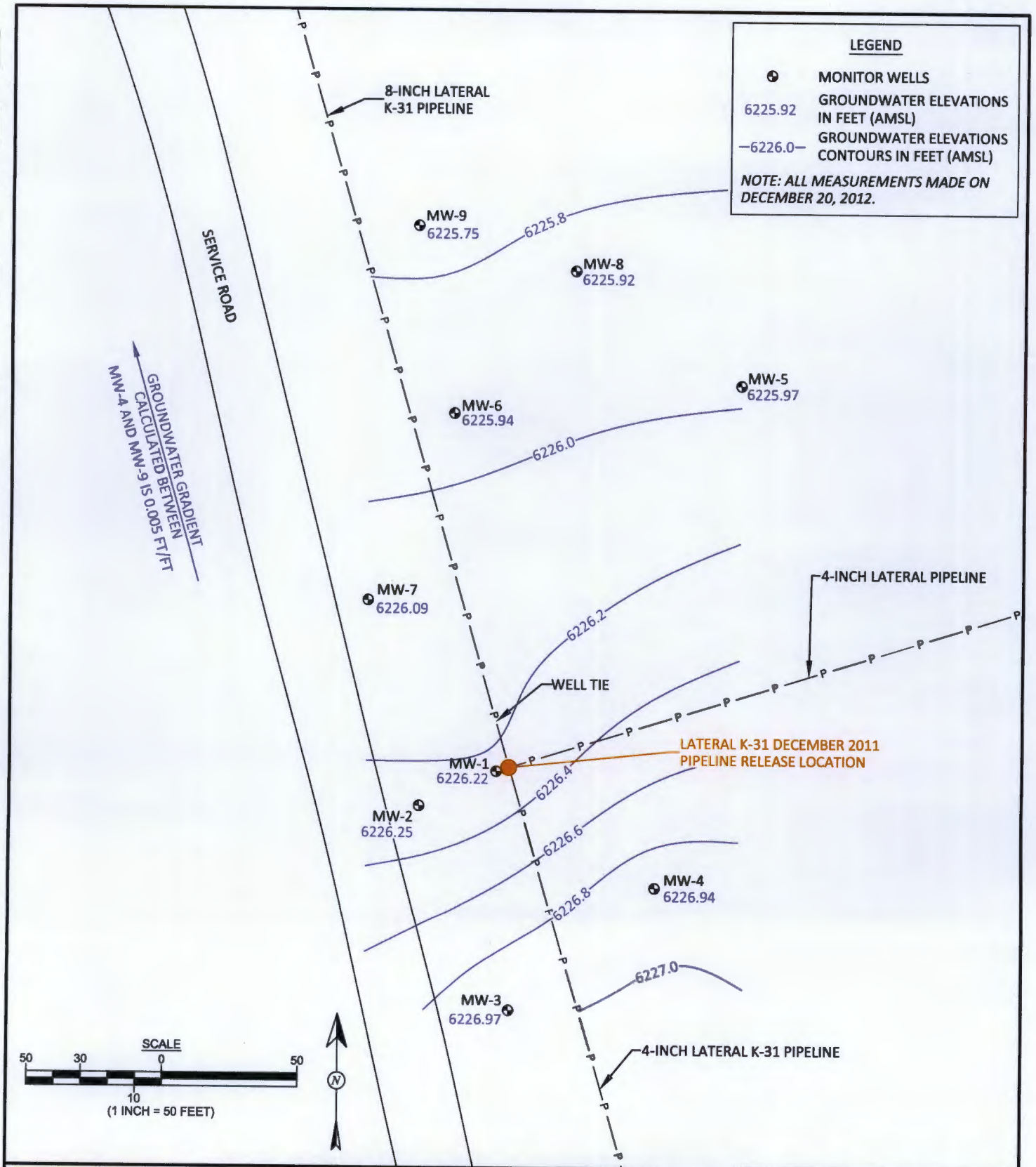
DRAWN BY: C. Lameman	**DATE DRAWN:** September 14, 2012	**FIGURE 1**
REVISIONS BY: C. Lameman	**DATE REVISED:** September 20, 2012	**TOPOGRAPHIC SITE LOCATION MAP**
CHECKED BY: T. Ross	**DATE CHECKED:** February 6, 2013	ENTERPRISE FIELD SERVICES, LLC LATERAL K-31 DECEMBER 2011 PIPELINE RELEASE RIO ARRIBA COUNTY, NEW MEXICO SE¼ SW¼, SECTION 16, T25N, R6W N36.39373, W107.47519
APPROVED BY: E. McNally	**DATE APPROVED:** February 6, 2013	

AES
Animas Environmental Services, LLC

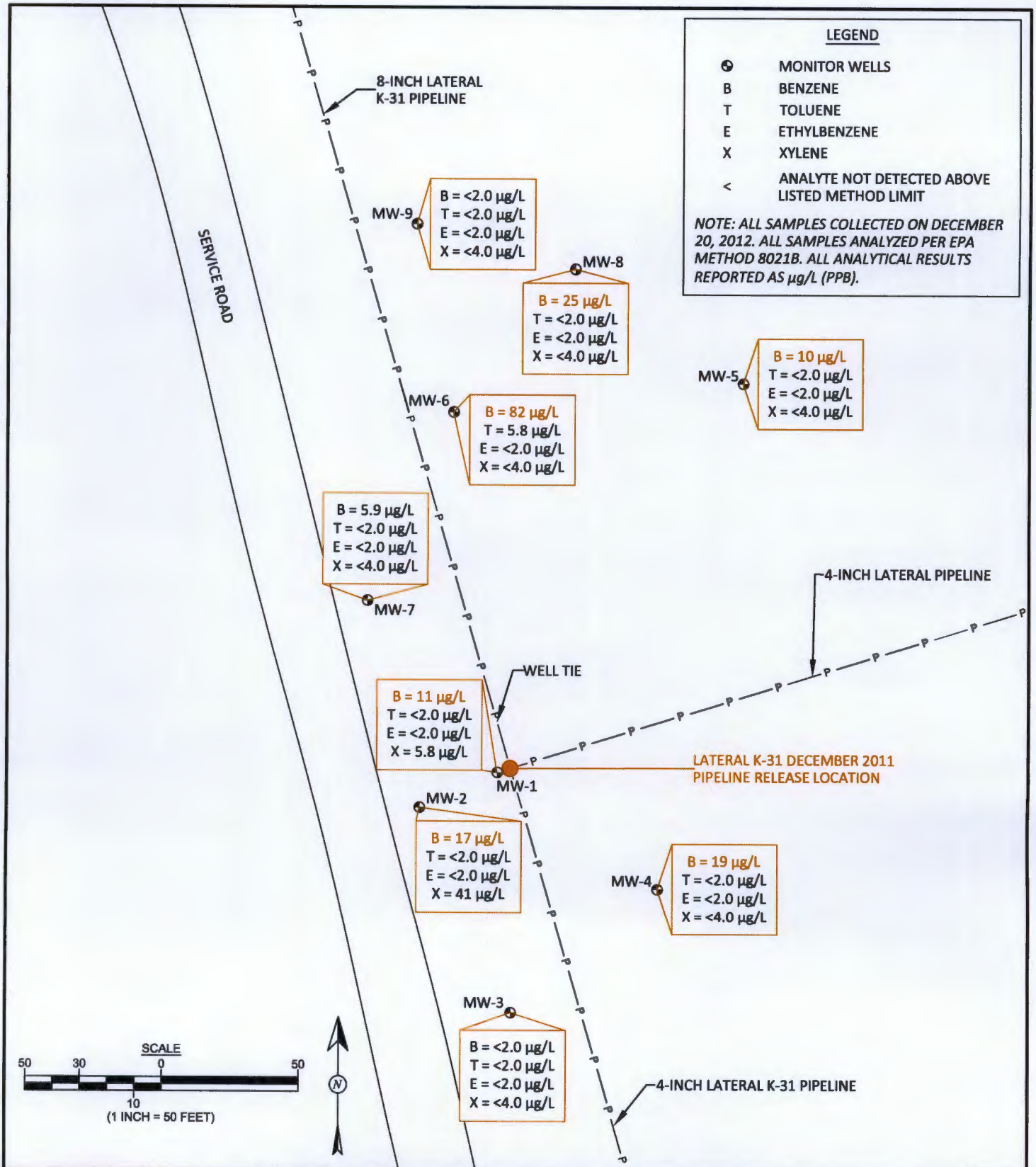


Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** September 14, 2012	**FIGURE 2**
REVISIONS BY: C. Lameman	**DATE REVISED:** February 6, 2013	**AERIAL SITE MAP** ENTERPRISE FIELD SERVICES, LLC LATERAL K-31 DECEMBER 2011 PIPELINE RELEASE RIO ARRIBA COUNTY, NEW MEXICO SE¼ SW¼, SECTION 16, T25N, R6W N36.39373, W107.47519
CHECKED BY: T. Ross	**DATE CHECKED:** February 6, 2013	
APPROVED BY: E. McNally	**DATE APPROVED:** February 6, 2013	



Animas Environmental Services, LLC		
DRAWN BY: C. Lameman	**DATE DRAWN:** September 14, 2012	**FIGURE 3**
REVISIONS BY: C. Lameman	**DATE REVISED:** February 6, 2013	**GROUNDWATER ELEVATION CONTOURS DECEMBER 2012**
CHECKED BY: T. Ross	**DATE CHECKED:** February 6, 2013	ENTERPRISE FIELD SERVICES, LLC
APPROVED BY: E. McNally	**DATE APPROVED:** February 6, 2013	LATERAL K-31 DECEMBER 2011 PIPELINE RELEASE RIO ARRIBA COUNTY, NEW MEXICO SE¼ SW¼, SECTION 16, T25N, R6W N36.39373, W107.47519

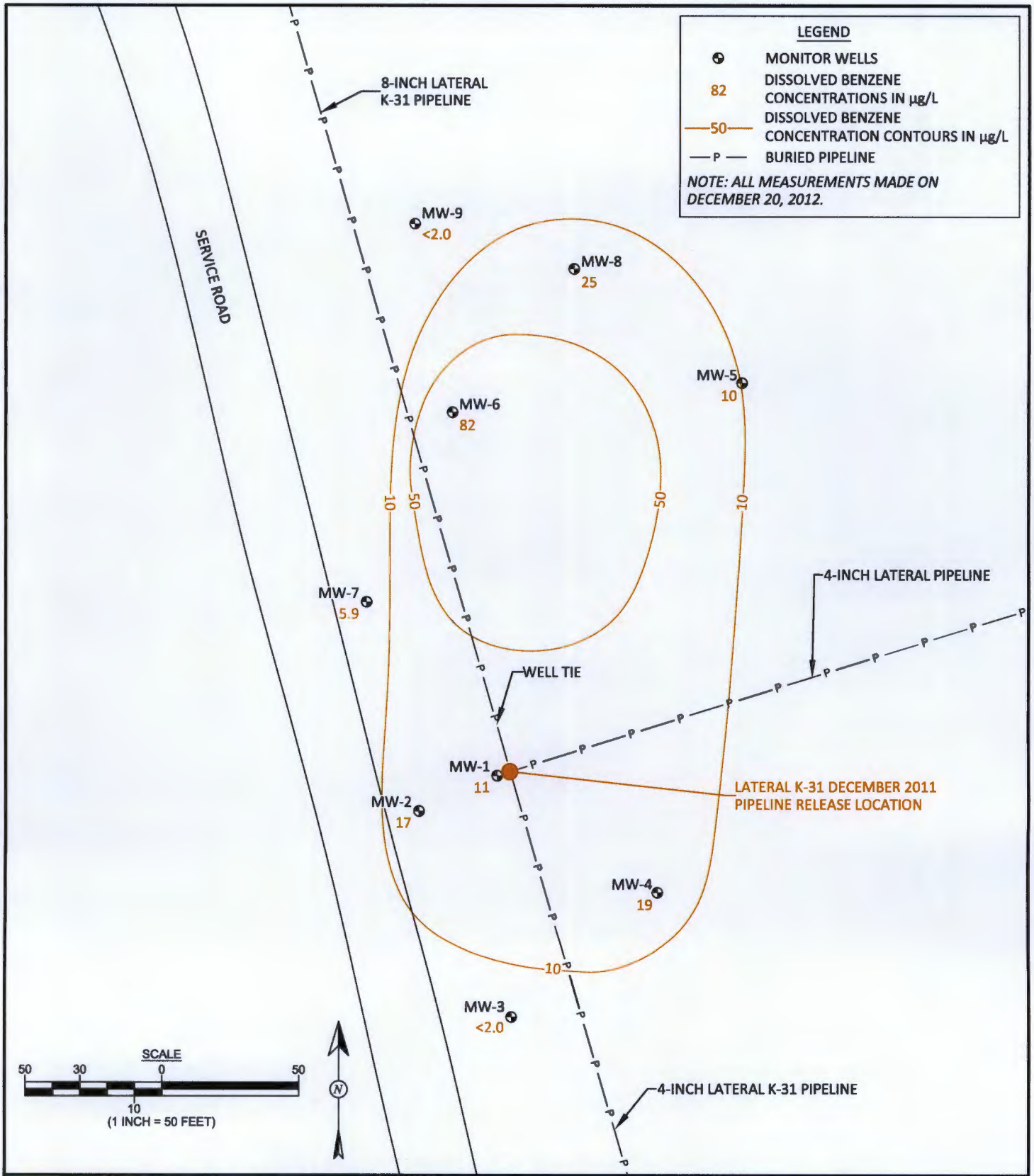


Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** September 14, 2012
REVISIONS BY: C. Lameman	**DATE REVISED:** February 6, 2013
CHECKED BY: T. Ross	**DATE CHECKED:** February 6, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** February 6, 2013

FIGURE 4

GROUNDWATER CONTAMINANT CONCENTRATIONS, DECEMBER 2012
ENTERPRISE FIELD SERVICES, LLC
LATERAL K-31 DECEMBER 2011 PIPELINE RELEASE
RIO ARRIBA COUNTY, NEW MEXICO
SE¼ SW¼, SECTION 16, T25N, R6W
N36.39373, W107.47519



DRAWN BY: C. Lameman	**DATE DRAWN:** September 14, 2012	**FIGURE 5**
REVISIONS BY: C. Lameman	**DATE REVISED:** February 6, 2013	**DISSOLVED BENZENE CONCENTRATION CONTOURS, DECEMBER 2012**
CHECKED BY: T. Ross	**DATE CHECKED:** February 6, 2013	ENTERPRISE FIELD SERVICES, LLC
APPROVED BY: E. McNally	**DATE APPROVED:** February 6, 2013	LATERAL K-31 DECEMBER 2011 PIPELINE RELEASE
		RIO ARRIBA COUNTY, NEW MEXICO
		SE¼ SW¼, SECTION 16, T25N, R6W
		N36.39373, W107.47519

AES
Animas Environmental Services, LLC

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project: Groundwater Sampling
Site: Enterprise Field Services, LLC
Location: Lateral K-31
Tech: L. LamonE

Project No.:
Date: 12-20-2012
Time: 0945
Form:

Well I.D.	Depth to NAPL	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MW-3		18.51		26.10 TDW 10:10
MW-4		17.14		26.95 10:15
MW-9		15.84		26.53 10:18
MW-7		17.18		26.44 1022
MW-2		16.33		24.73 1026
MW-5		15.44		25.28 1029
MW-1		19.02		27.02 H_2S odor Meter Did not trip. 1033
MW-8		16.09		26.67 1036
MW-6		16.97		27.14 1039

Wells measured with KECK water level or KECK interface tape, decontaminated between each well measurement.

Water Sampling Record

Monitor Well No: /

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: LaMONE, L.
Sampling Method: BAILER
Depth of Well (ft): 27.02
Depth to Water (ft): 19.02

Project No.:
Date: 12-20-2012
Time: 1415 (1431 SAMPLE)
Weather: Clear, cold, calm, snow
Air Temperature: 23° F
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1420	13.28	7.557	1.03	7.51	-50.6	1st Bailer	H2O GRAY
1424	14.24	7.506	0.55	7.50	-76.7	1.0 gal.	DARK GRAY SILT
1426	13.91	7.567	0.42	7.51	-75.3	2.0 gal	
1429	13.98	7.578	0.70	7.50	-62.8	3p gal	DARK GRAY SILT
1431	13.75	7.556	0.61	7.48	-59.0	4.0 gal	" " "

Analytical Parameters Sampled For (include Method #): 8021 BTEX only

Disposal of Purged Water: Into 55 gal. drum to E. FELD LANDFARM
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: H.E.A.L.
Equipment Used During Sampling:

Other Notes/Comments 19.40 DTW @ 1431 Post Purge.

8.0	H2O Column
1.31	H2O Volume
3.90	To be Purged

H2S alarm set off when @ 1416 ....
None after Strong H2S odor.

Water Sampling Record

Monitor Well No: 2

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: Lamone, L
Sampling Method: Bailer
Depth of Well (ft): 24.73
Depth to Water (ft): 16.33

Project No.:
Date: 12-20-2017
Time: 1250 (1306 Sample)
Weather: clear, cold snow on ground
Air Temperature: 24° F
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1255	12.65	8561	2.35	7.43	-18.3	1st Bailer	Clear
1257	14.63	8,487	1.23	7.41	-23.8	1.0 gal	lt. Tan H2O
1301	13.70	8.557	0.91	7.41	-19.3	2.0 gal	lt. Tan H2O
1303	14.04	8.524	1.05	7.41	-22.2	3.0 gal	lt Tan H2O
1306	13.42	8.592	0.95	7.43	-21.4	4.10 gal	lt Tan H2O

Analytical Parameters Sampled For (include Method #): 8021 BTEX only.

Disposal of Purged Water: Into 55 gal. drum to E-TECH FARM
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: H.E.A.L.
Equipment Used During Sampling:

Other Notes/Comments

8.40 Column	18.48 DTW post purge @ 1306
1.37 volume	
4.10 Purged	slt lite tan, no sheen, no odor

Water Sampling Record

Monitor Well No: 3

Animas Environmental Services

624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: LaMone, L
Sampling Method: Bailer
Depth of Well (ft): 26.10
Depth to Water (ft): 18.51

Project No.:
Date: 12-20-2017
Time: 1042 (1120 Sample)
Weather: Snow, cold
Air Temperature: 30
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1107	11.26	7.863	2.42	7.00		1st Bailer	Tan H2o Silt
1110	12.57	7.955	12.23	7.15		1.0 gal	
1113	13.37	7.885	1.04	7.19		2.0 gal	Tan H2o Silt
1115	13.89	7.871	1.08	7.18		3.0 gal	Tan/Brown H2O Silt
1120	12.81	7.920	0.91	7.23		3.75 gal	Tan/Brown H2o Silt

Analytical Parameters Sampled For (include Method #):

Disposal of Purged Water: Into 55 gal drum delivered to ETech

Chain of Custody Record Complete? (Y/N)

Analytical Laboratory:

Equipment Used During Sampling:

Other Notes/Comments

DTW 18.57 @ 1117 @ end of Sampling

7.59	H2o Column
1.24	H2o Volume
3.75	To be Purged

Water Sampling Record

Monitor Well No: 4

Animas Environmental Services

624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: Lamone, L.
Sampling Method: Bailer
Depth of Well (ft): 26.95
Depth to Water (ft): 17.14

Project No.:
Date: 12-20-2012
Time: 1131 (1150 SAMPLE)
Weather: ~~Clear~~ Cold; Snow on ground
Air Temperature: 3°F
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1134	12.06	10.29	1.46	7.47	-6.6	1st Bailer	Clear H2O
1138	14.36	9.987	1.10	7.43	-13.9	1.0 gal	Tan H2O
1141	14.07	10.11	1.16	7.43	-16.0	2.0 gal	Tan H2O
1144	13.75	10.20	0.94	7.42	-18.3	3.0 gal	Tan H2O
1146	14.77	9.046	1.11	7.46	-18.9	4.0 gal	↓ ↓
1150	13.92	10.14	0.90	7.45	-16.4	4.80 gal	

Analytical Parameters Sampled For (include Method #): 8021 BTEX

Disposal of Purged Water: Into 55 gal. drum, delivered to ETech
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: HEAL
Equipment Used During Sampling: Bailer

Other Notes/Comments 17.34 DTW after purging

9.81	H2O Column
1.60	H2O Volume
4.80	To be Purged

Water Sampling Record

Monitor Well No: 5

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: LamonE, L
Sampling Method: Bailer
Depth of Well (ft): 25.28
Depth to Water (ft): 15.44

Project No.:
Date: 12-20-2012
Time: 1324 (1338 SAMPLE)
Weather: 24°F) COLD, CLEAR
Air Temperature: ↓ SUNNY SNOW
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1328	14.30	10.48	2.38	7.49	-69.6	1st Bailer	Tan H2O
1330	14.90	10.60	0.74	7.69	-114.2	1.0 gal	H2O Tan
1332	15.50	10.55	0.73	7.68	-113.3	2.0 gal	
1335	15.08	1057	0.63	7.72	-108.7	4.0 gal	H2O Tan
1338	15.51	1058	0.57	7.70	-106.6	4.80 gal	lv S

Analytical Parameters Sampled For (include Method #): 8021 BTEX

Disposal of Purged Water: Into 55 gal. drum to E-TECH LANDFARM
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: H.E.A.L.
Equipment Used During Sampling:

Other Notes/Comments 15.48 DTW @ 1337 post purge.

9.84 Column
1.61 Volume
4.80 Purged

Water Sampling Record

Monitor Well No: 6

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: Lamone, L
Sampling Method: Bailer / Purge
Depth of Well (ft): 27.14
Depth to Water (ft): 16.97

Project No.:
Date: 12.20.2012
Time: 1439 (1453 SAMPLE)
Weather: Clear, Cold, Calm Snow
Air Temperature: 24° F
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1443	12.02	8.629	1.65	7.60	-21.6	1st Bailer	Clear H2O
1445	13.19	8.675	0.88	7.49	-28.0	1.0 gal	Tan H2O
1447	13.92	8.573	0.67	7.49	-32.0	2.0 gal	Tan H2O
1449	14.31	8.473	0.96	7.49	-36.1	3.0 gal	Tan H2O
1451	13.42	8.555	0.80	7.46	-35.9	4.0 gal	Tan H2O
1453	13.50	8.564	1.15	7.47	-33.7	5.0 gal	Tan H2O

Analytical Parameters Sampled For (include Method #): 8021 BTEX

Disposal of Purged Water: Into 55 gal. drum to E-Tech Landfarm
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: H.E.A.L
Equipment Used During Sampling:

Other Notes/Comments 19.50 DTW @ 1453 Post Purge

10.17	H2O Column
1.66	H2O Volume
5.0	To Be Purged

Water Sampling Record

Monitor Well No: 7

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: Lamone, L
Sampling Method: Bailer
Depth of Well (ft): 26.44
Depth to Water (ft): 17.18

Project No.:
Date: 12.20.2012
Time: 1226
Weather: Clear, Calm, Cold Snow
Air Temperature: 22°F
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1231	12.30	7.698	1.23	7.39	-32.6	1st Bailer	
1233	13.56	7.555	0.96	7.39	-37.2	1.0 gal	Tan H2O
1236	14.68	7.556	1.00	7.37	-39.6	2.0 gal.	
1239	14.22	7.593	0.88	7.38	-36.6	3.0 gal	
1241	14.51	7.567	0.75	7.37	-34.6	4.50 gal	Tan H2O

Analytical Parameters Sampled For (include Method #):

8021 BTEX only

Disposal of Purged Water: Into 55 gal drum
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: H.E.A.L.
Equipment Used During Sampling:

Other Notes/Comments 17.40 DTW @ 1241 Post Purge.

9.26
1.51
4.50

No Sheen no odor.

Water Sampling Record

Monitor Well No: 8

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: LaMoNE, L
Sampling Method: BAILER
Depth of Well (ft): 26.67
Depth to Water (ft): 16.09

Project No.:
Date: 12.20.2012
Time: 1350 (1407 SAMPLE)
Weather: Clear, COLD, CALM SNOW on grnd.
Air Temperature: 25° F
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1355	13.73	8.768	1.80	7.67	-54.9	1st Bailer	Clear H2O
1357	14.61	8.331	0.99	7.78	-84.4	1.0 gal	Tan H2O
1359	14.65	8.820	0.73	7.70	-68.4	2.0 gal	
1402	14.38	8.899	0.87	7.64	-59.6	3.0 gal.	
1404	14.42	8.881	0.84	7.63	-60.1	4.0 gal.	
1407	14.40	8.963	0.59	7.61	-56.8	5.25 gal	*

Analytical Parameters Sampled For (include Method #): 8021 BTEX only

Disposal of Purged Water: Into 55 gal drum
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: H.E.A.L.
Equipment Used During Sampling:

Other Notes/Comments

16.19 DTW @ 1406 post purge.

10.58 Column
11.73 Volumn
5.20 Purged

Water Sampling Record

Monitor Well No: 9

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project:
Site: Lateral K-31
Location:
Sampler: Lamoneal
Sampling Method: Bailer
Depth of Well (ft): 26.53
Depth to Water (ft): 15.84

Project No.:
Date: 12-20-2012
Time: 1159 (1217 SAMPLE)
Weather: Clear, cold, snow on ground
Air Temperature: 30° F
Well Diam. (in.): 2
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1204	13.31	8.011	2.25	7.35	-13.7	1st Bailer	Clear H2O
1206	14.20	8.087	1.02	7.37	-18.0	1.0 gal.	Lt. Tan H2O
1208	14.61	8.074	0.97	7.35	-17.4	2.0 gal	lt Tan H2O
1211	14.50	8.085	0.84	7.35	-14.5	3.0 gal	lt Tan H2O
1213	14.44	8.093	1.08	7.38	-15.0	4.0 gal	Lt Tan H2O
1217	14.27	8.072	1.08	7.37	-16.5	5.25 gal	lt Tan H2O

Analytical Parameters Sampled For (include Method #): 8021 BTEX only.

Disposal of Purged Water: Into 55 gal. drum to ETech landfarm
Chain of Custody Record Complete? (Y/N) Y
Analytical Laboratory: H.E.A.L.
Equipment Used During Sampling:

Other Notes/Comments 16.04 DTW @ 1216 post purge.

10.69 H2O Column
1.74 H2O Volume
5.23 To be Purged

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

January 03, 2013

Tami Ross
Animas Environmental Services
624 East Comanche
Farmington, NM 87401
TEL: (505) 793-2072
FAX (505) 324-2022

RE: Lateral K-31 OrderNo.: 1212998

Dear Tami Ross:

Hall Environmental Analysis Laboratory received 9 sample(s) on 12/21/2012 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 **1212998**
Date Reported: **1/3/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-8
Project: Lateral K-31
Collection Date: 12/20/2012 2:07:00 PM
Lab ID: 1212998-001
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	25	2.0		µg/L	2	12/27/2012 3:30:11 PM
Toluene	ND	2.0		µg/L	2	12/27/2012 3:30:11 PM
Ethylbenzene	ND	2.0		µg/L	2	12/27/2012 3:30:11 PM
Xylenes, Total	ND	4.0		µg/L	2	12/27/2012 3:30:11 PM
Surr: 4-Bromofluorobenzene	125	69.7-152		%REC	2	12/27/2012 3:30:11 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-6
Project: Lateral K-31
Collection Date: 12/20/2012 2:53:00 PM
Lab ID: 1212998-002
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	82	2.0		µg/L	2	12/27/2012 4:00:21 PM
Toluene	5.8	2.0		µg/L	2	12/27/2012 4:00:21 PM
Ethylbenzene	ND	2.0		µg/L	2	12/27/2012 4:00:21 PM
Xylenes, Total	ND	4.0		µg/L	2	12/27/2012 4:00:21 PM
Surr: 4-Bromofluorobenzene	86.7	69.7-152		%REC	2	12/27/2012 4:00:21 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-9
Project: Lateral K-31
Collection Date: 12/20/2012 12:17:00 PM
Lab ID: 1212998-003
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	2.0		µg/L	2	12/27/2012 4:30:23 PM
Toluene	ND	2.0		µg/L	2	12/27/2012 4:30:23 PM
Ethylbenzene	ND	2.0		µg/L	2	12/27/2012 4:30:23 PM
Xylenes, Total	ND	4.0		µg/L	2	12/27/2012 4:30:23 PM
Surr: 4-Bromofluorobenzene	82.2	69.7-152		%REC	2	12/27/2012 4:30:23 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-3
Project: Lateral K-31
Collection Date: 12/20/2012 11:20:00 AM
Lab ID: 1212998-004
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	2.0		µg/L	2	12/28/2012 11:41:14 PM
Toluene	ND	2.0		µg/L	2	12/28/2012 11:41:14 PM
Ethylbenzene	ND	2.0		µg/L	2	12/28/2012 11:41:14 PM
Xylenes, Total	ND	4.0		µg/L	2	12/28/2012 11:41:14 PM
Surr: 4-Bromofluorobenzene	106	69.7-152		%REC	2	12/28/2012 11:41:14 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-1
Project: Lateral K-31
Collection Date: 12/20/2012 2:31:00 PM
Lab ID: 1212998-005
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	11	2.0		µg/L	2	12/29/2012 12:11:24 AM
Toluene	ND	2.0		µg/L	2	12/29/2012 12:11:24 AM
Ethylbenzene	ND	2.0		µg/L	2	12/29/2012 12:11:24 AM
Xylenes, Total	5.8	4.0		µg/L	2	12/29/2012 12:11:24 AM
Surr: 4-Bromofluorobenzene	109	69.7-152		%REC	2	12/29/2012 12:11:24 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-7
Project: Lateral K-31
Collection Date: 12/20/2012 12:41:00 PM
Lab ID: 1212998-006
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	5.9	2.0		µg/L	2	12/29/2012 12:41:29 AM
Toluene	ND	2.0		µg/L	2	12/29/2012 12:41:29 AM
Ethylbenzene	ND	2.0		µg/L	2	12/29/2012 12:41:29 AM
Xylenes, Total	ND	4.0		µg/L	2	12/29/2012 12:41:29 AM
Surr: 4-Bromofluorobenzene	108	69.7-152		%REC	2	12/29/2012 12:41:29 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-4
Project: Lateral K-31
Collection Date: 12/20/2012 11:50:00 AM
Lab ID: 1212998-007
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	19	2.0		µg/L	2	12/29/2012 1:11:32 AM
Toluene	ND	2.0		µg/L	2	12/29/2012 1:11:32 AM
Ethylbenzene	ND	2.0		µg/L	2	12/29/2012 1:11:32 AM
Xylenes, Total	ND	4.0		µg/L	2	12/29/2012 1:11:32 AM
Surr: 4-Bromofluorobenzene	107	69.7-152		%REC	2	12/29/2012 1:11:32 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-5
Project: Lateral K-31
Collection Date: 12/20/2012 1:38:00 PM
Lab ID: 1212998-008 **Matrix:** AQUEOUS **Received Date:** 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	10	2.0		µg/L	2	12/29/2012 1:41:29 AM
Toluene	ND	2.0		µg/L	2	12/29/2012 1:41:29 AM
Ethylbenzene	ND	2.0		µg/L	2	12/29/2012 1:41:29 AM
Xylenes, Total	ND	4.0		µg/L	2	12/29/2012 1:41:29 AM
Surr: 4-Bromofluorobenzene	110	69.7-152		%REC	2	12/29/2012 1:41:29 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-2
Project: Lateral K-31
Collection Date: 12/20/2012 1:06:00 PM
Lab ID: 1212998-009
Matrix: AQUEOUS
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	17	2.0		µg/L	2	12/29/2012 2:11:28 AM
Toluene	ND	2.0		µg/L	2	12/29/2012 2:11:28 AM
Ethylbenzene	ND	2.0		µg/L	2	12/29/2012 2:11:28 AM
Xylenes, Total	41	4.0		µg/L	2	12/29/2012 2:11:28 AM
Surr: 4-Bromofluorobenzene	112	69.7-152		%REC	2	12/29/2012 2:11:28 AM

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212998**

03-Jan-13

Client: Animas Environmental Services

Project: Lateral K-31

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **R7750**	RunNo: **7750**
Prep Date:	Analysis Date: **12/27/2012**	SeqNo: **225219** 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	25		20.00		123	69.7	152			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R7750**	RunNo: **7750**
Prep Date:	Analysis Date: **12/27/2012**	SeqNo: **225220** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	80	120			
Toluene	21	1.0	20.00	0	106	80	120			
Ethylbenzene	22	1.0	20.00	0	108	80	120			
Xylenes, Total	67	2.0	60.00	0	111	80	120			
Surr: 4-Bromofluorobenzene	26		20.00		131	69.7	152			

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **R7776**	RunNo: **7776**
Prep Date:	Analysis Date: **12/28/2012**	SeqNo: **226043** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		109	69.7	152			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R7776**	RunNo: **7776**
Prep Date:	Analysis Date: **12/28/2012**	SeqNo: **226044** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	80	120			
Toluene	22	1.0	20.00	0	110	80	120			
Ethylbenzene	22	1.0	20.00	0	111	80	120			
Xylenes, Total	68	2.0	60.00	0	113	80	120			
Surr: 4-Bromofluorobenzene	24		20.00		118	69.7	152			

Qualifiers:

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

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:	Animas Environmental		Work Order Number: 1212998
Received by/date:	AG	12/21/12	
Logged By:	Lindsay Mangin	12/21/2012 9:55:00 AM	
Completed By:	Lindsay Mangin	12/21/2012 2:10:10 PM	
Reviewed By:	JB	12/21/12	

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	1.0	Good	Yes			

Chain-of-Custody Record

Client: ANIMAS ENVIRONMENTAL SERVICE

Mailing Address: 624 E COMANCHE

FARMINGTON, NM 87401

Phone #: 505-564-2281

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: LATERAL K-31

Project #:

Project Manager: Tami Ross

Sampler: L. LAMONG

[redacted]

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	[redacted]	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
12/20/2012	1407	H2O	MW-8	3 VOAS	HCL	-001	X															
	1453		MW-6		HCL	-002	X															
	1217		MW-9		HCL	-003	X															
	1120		MW-3		HCL	-004	X															
	1431		MW-1		HCL	-005	X															
	1241		MW-7		HCL	-006	X															
	1150		MW-4		HCL	-007	X															
	1338		MW-5		HCL	-008	X															
	1306		MW-2		HCL	-009	X															
						-010																

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/21/2012	0845			12/21/12	0955
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.