3R-451

Site Assessment Report

Date: 10/3/2012

Animas Environmental Services, LLC
www.animasenvironmental.com
624 E. Comanche
Farmington, NM 87401
505-564-2281
Durango, Colorado
970-403-3274

October 3, 2012

Aaron Dailey
Enterprise Products Company
614 Reilly Avenue
Farmington, New Mexico 87401

RE: Release Assessment Report
Lateral K-7 August 2012 Pipeline Release
Rio Arriba County, New Mexico

Dear Mr. Dailey:

On August 9, 2012, Animas Environmental Services, LLC (AES) completed an assessment associated with current and historic releases of natural gas condensate from the Enterprise Products Company (Enterprise) Lateral K-7 pipeline. The release area, which is located approximately 28 miles southeast of Bloomfield, San Juan County, New Mexico, was investigated because of distressed vegetation and discolored soils encountered by Enterprise personnel during pipeline investigation and repair activities.

1.0 Site Information

1.1 Location

Location - NW¼ SE¼, Section 15, T26N, R7W, San Juan County, New Mexico
Latitude/Longitude - N36.48489 and W107.56028, respectively
Surface Owner – Private
Figure 1. Topographic Site Location Map
Figure 2. Aerial Site Map

1.2 NMOCD Ranking

In accordance with the New Mexico Oil Conservation Division (NMOCD) *Guidelines for Remediation of Leaks, Spills, and Releases* (August 1993), the release location was assigned a ranking score to establish release action levels. The ranking score was obtained in part by reviewing available records of nearby oil/gas wells using the NMOCD online database. A C-144 form dated April 2012 for the Candado 1 E well located approximately 230 feet southeast of the release area reported the depth to groundwater as less than 50 feet below ground surface (bgs). Additionally, the C-144 form for the Candado 1 E identified a domestic water well and an industrial water well within the 1,000 foot buffer zone. The New Mexico Office of the State Engineer

(NMOSE) database was reviewed for nearby water wells, and a registered water well was reported to be located within 1,000 feet of the location. However, it was determined that the release area was not located within a wellhead protection area because no private domestic water sources were located within a 200 foot radius of the release location.

Google Earth and the New Mexico Tech Petroleum Recovery Research Center online mapping tool (http://ford.nmt.edu/react/project.html) were accessed to aid in the identification of downgradient surface water. Little Palluche Canyon wash, a tributary of Cañon Largo wash, is located approximately 200 feet northwest of the release location. Based on this information, the release location was assessed a ranking score of 40.

1.3 Assessment and Mitigation

On August 9, 2012, AES conducted a release assessment along the Lateral K-7 pipeline. AES installed 16 soil borings and collected soil samples for field screening of volatile organic compounds (VOCs) and total petroleum hydrocarbons (TPH). Samples were also collected for laboratory analysis. Soil sample locations are included on Figure 3, and a photograph log is attached.

2.0 Soil Sampling

AES installed 16 soil borings (SB-1 through SB-16) and collected soil samples for field screening of VOCs from each soil boring in order to guide the assessment. A total of 107 discrete soil samples were field screened for VOCs. Soil borings ranged from 5 feet to 7 feet below ground surface (bgs) and were terminated at auger refusal due to tight clay. Based on VOC field screening results and location, 16 of the samples were field screened for TPH. Four were also submitted for laboratory analysis in order to provide Quality Assurance/Quality Control (QA/QC) of the field screening results.

2.1 Field Screening

2.1.1 Volatile Organic Compounds

A portion of each sample was utilized for field screening of VOC vapors with a photo-ionization detector (PID) organic vapor meter (OVM). Before beginning field screening, the PID-OVM was first calibrated with 100 parts per million (ppm) isobutylene gas.

2.1.2 Total Petroleum Hydrocarbons

Sixteen samples were analyzed in the field for TPH per USEPA Method 418.1 using a Buck Scientific Model HC-404 Total Hydrocarbon Analyzer Infrared Spectrometer (Buck).

A 3-point calibration was completed prior to conducting soil analyses. Field analytical protocol followed AES's *Standard Operating Procedure: Field Analysis Total Petroleum Hydrocarbons per EPA Method 418.1*.

2.2 Laboratory Analyses

Soil samples were selected from SB-1, SB-3, SB-12, and SB-16 for confirmation laboratory analysis and were placed into new, clean, laboratory-supplied containers, which were then labeled, placed on ice, and logged onto a sample chain of custody record. Samples were maintained on ice until delivery to the analytical laboratory, Hall Environmental Analysis Laboratory (Hall), in Albuquerque, New Mexico. Soil samples were laboratory analyzed for:

- Benzene, toluene, ethylbenzene, and xylene (BTEX) per U.S. Environmental Protection Agency (USEPA) Method 8021B;
- TPH for gasoline range organics (GRO) and diesel range organics (DRO) per USEPA Method 8015B.

2.3 Field Screening and Laboratory Analytical Results

Soil field screening results showed that VOC concentrations ranged from 25.3 ppm in SB-11 up to 1,175 ppm in SB-1. Field TPH concentrations ranged from 48.3 mg/kg in SB-7 up to 114 mg/kg in SB-1.

Laboratory analytical results showed that benzene concentrations were below laboratory detection limits in each sample. Total BTEX concentrations ranged from below laboratory detection limits up to 2.1 mg/kg in SB-3 at 6 feet bgs. TPH concentrations in SB-1 at 5 feet bgs were 6.7 mg/kg GRO and 28 mg/kg DRO, and the TPH concentration in SB-3 at 6 feet bgs was 18 mg/kg GRO. TPH concentrations were below laboratory detection limits in SB-12 at 5 feet bgs and SB-16 at 2 feet bgs. Field screening and laboratory analytical results are included in Table 1 and on Figure 3. AES Field Screening Report and the laboratory analytical report are attached.

3.0 Conclusions and Recommendations

NMOCD action levels for releases are specified in NMOCD's *Guidelines for Leaks, Spills, and Releases* (August 1993), and the release was assigned a ranking score of 40. During the August 2012 assessment, AES personnel observed distressed vegetation and subsurface soil staining with an odor indicative of decomposed petroleum hydrocarbons. Field screening action levels for VOCs were exceeded in SB-1, SB-3, and SB-16, and TPH field screening action levels were exceeded in SB-1. However, laboratory analytical results for benzene, total BTEX, and TPH, soil concentrations in SB-

1 and SB-3 are below NMOCD action levels within the release area. Based on interpolation of field screening values and corresponding laboratory QA/QC results, AES believes the elevated VOC field screening reading of 327 ppm in SB-14 would correspond with laboratory analytical results that are also below applicable NMOCD action levels. No further work is recommended.

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

Sincerely,

Landrea R. Cupps

Landrea Cupps
Environmental Scientist

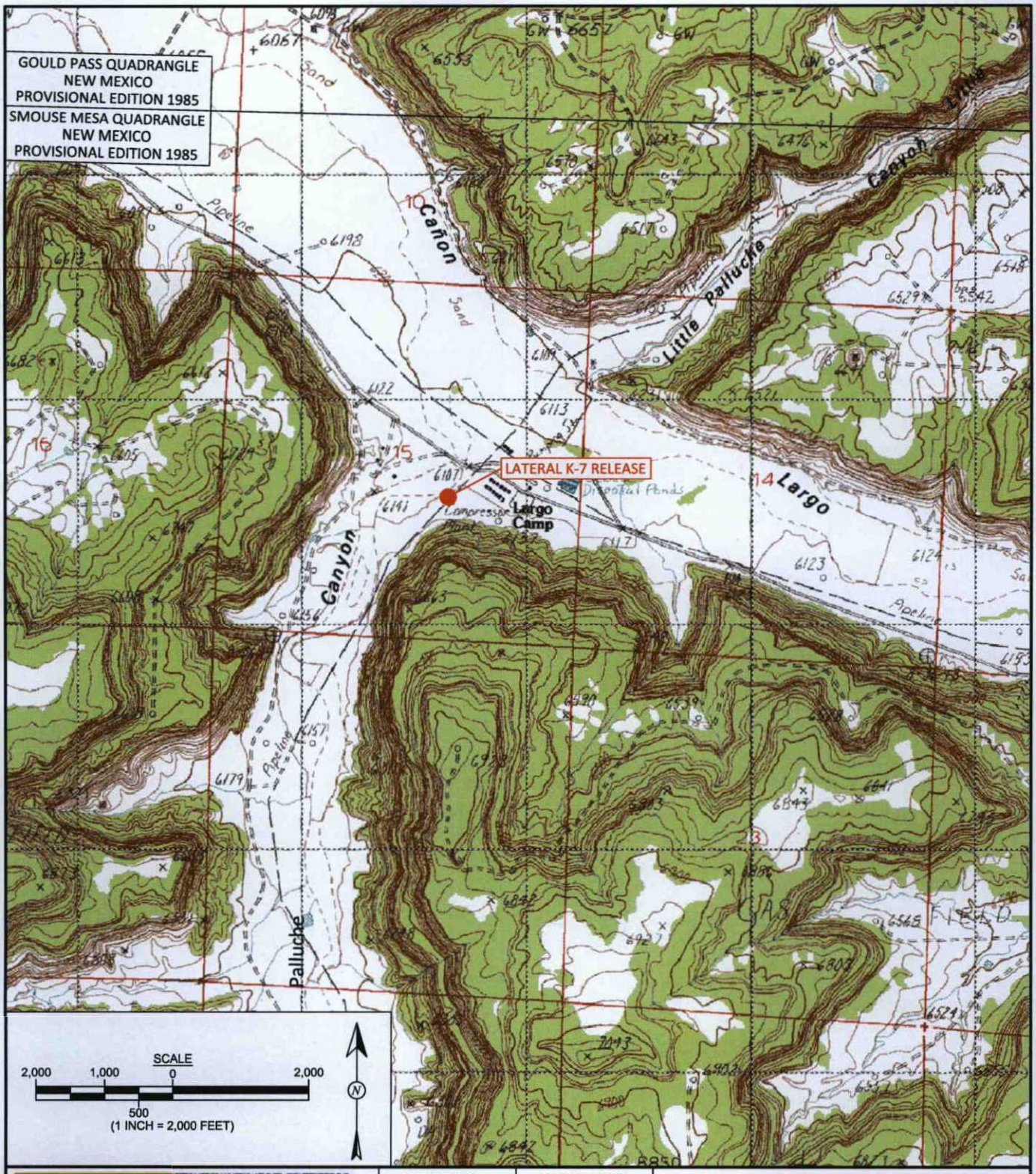
Elizabeth D McNally

Elizabeth McNally, P.E.

Attachments:

Figure 1. Topographic Site Location Map
Figure 2. Aerial Site Map
Figure 3. Sample Locations and Results, August 2012
Photograph Log
Table 1. Summary of Soil Field Screening and Analytical Results
AES Field Screening Report 081012
Laboratory Analytical Reports (Hall 1208520)

R:\Animas 2000\2012 Projects\Enterprise\Lateral K-7\August 2012 Release\Lateral K-7 Release Report 100312.docx

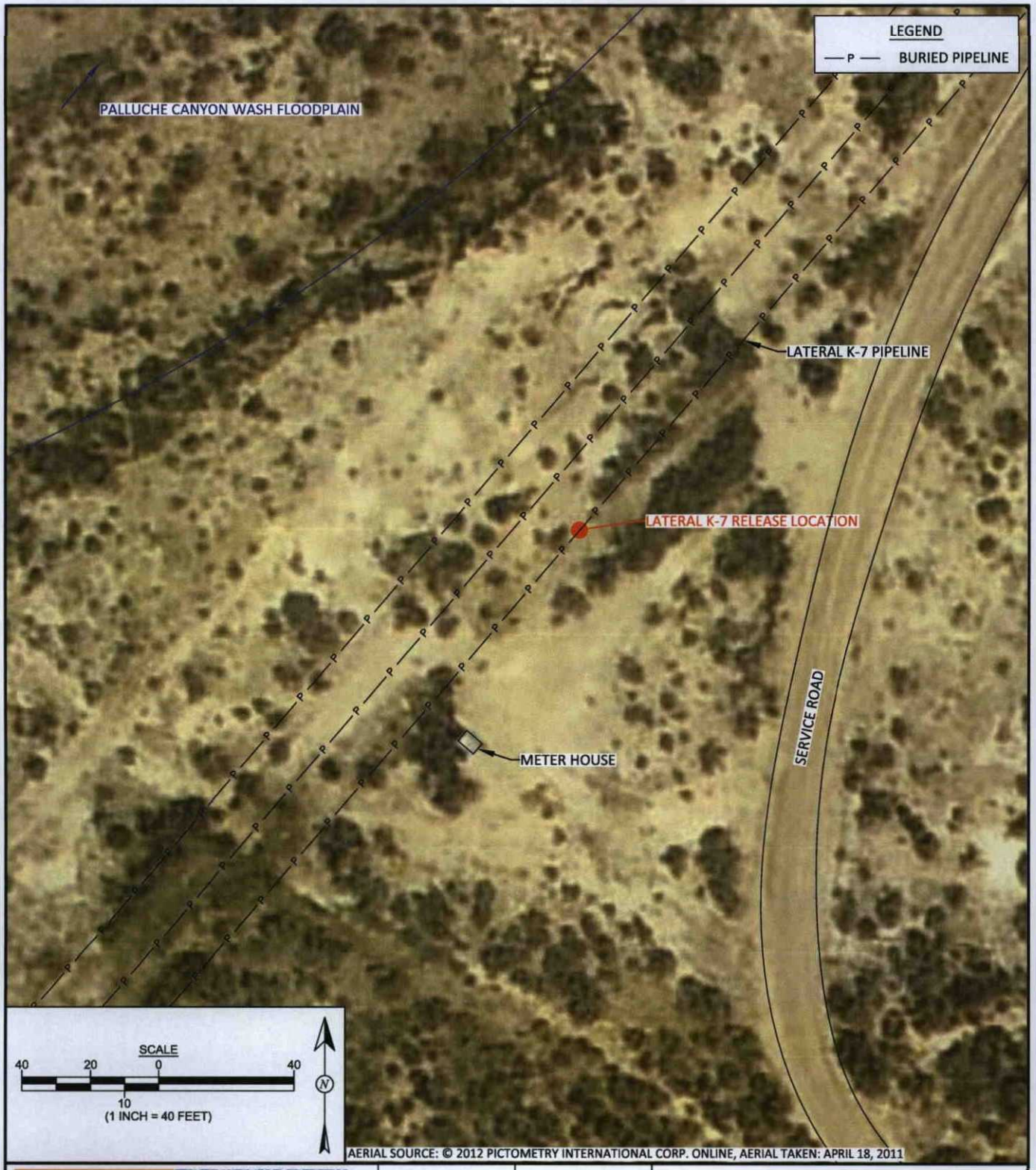


DRAWN BY: C. Lameman	**DATE DRAWN:** August 10, 2012
REVISIONS BY: C. Lameman	**DATE REVISED:** September 12, 2012
CHECKED BY: T. Ross	**DATE CHECKED:** September 12, 2012
APPROVED BY: E. McNally	**DATE APPROVED:** September 12, 2012

Animas Environmental Services, LLC

FIGURE 1

TOPOGRAPHIC SITE LOCATION MAP
ENTERPRISE PRODUCTS COMPANY
LATERAL K-7 AUGUST 2012
PIPELINE RELEASE ASSESSMENT
RIO ARRIBA COUNTY, NEW MEXICO
NW¼ SE¼, SECTION 15, T26N, R7W
N36.48489, W107.56028

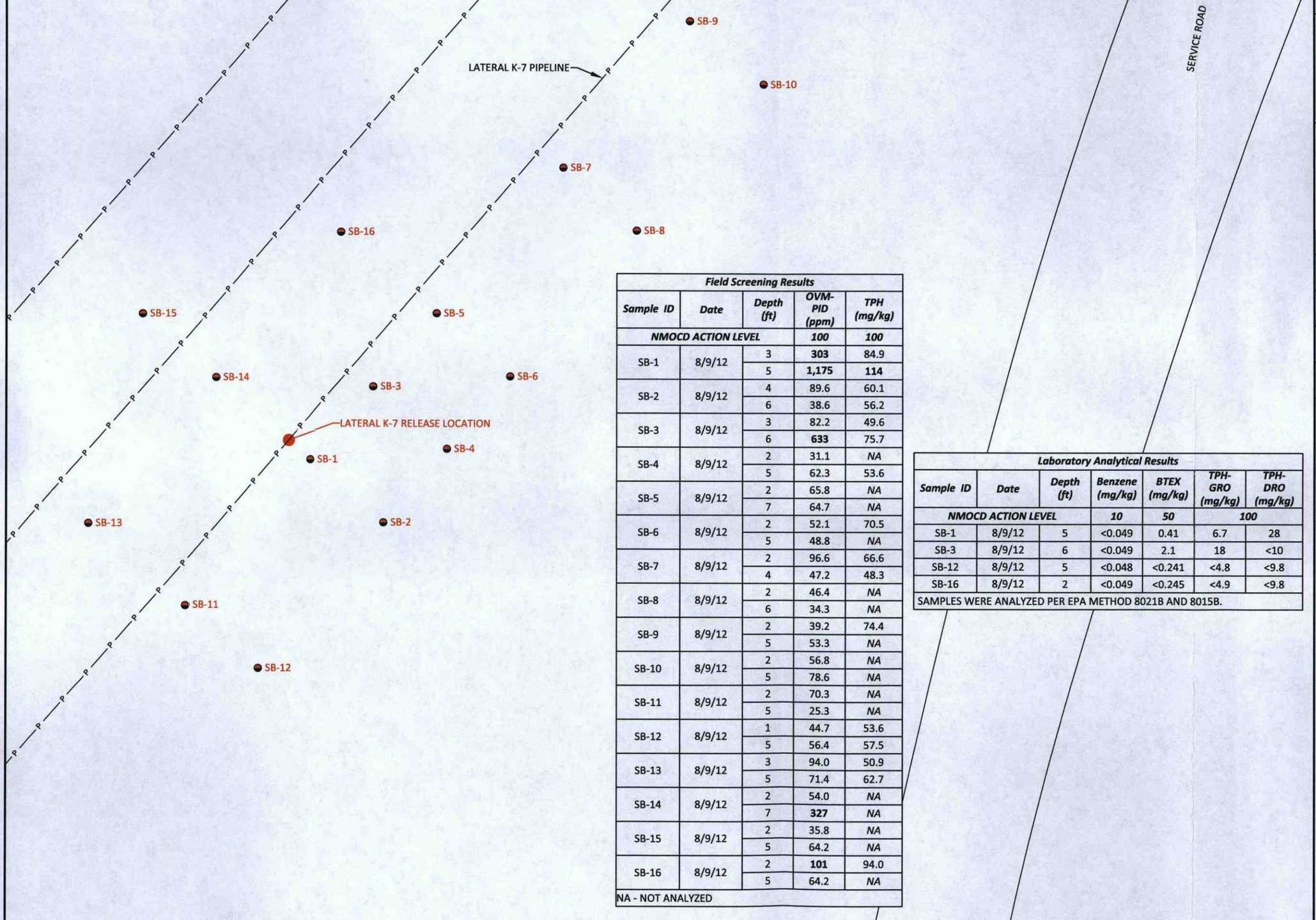


Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** August 10, 2012
REVISIONS BY: C. Lameman	**DATE REVISED:** September 12, 2012
CHECKED BY: T. Ross	**DATE CHECKED:** September 12, 2012
APPROVED BY: E. McNally	**DATE APPROVED:** September 12, 2012

FIGURE 2

AERIAL SITE MAP
ENTERPRISE PRODUCTS COMPANY
LATERAL K-7 AUGUST 2012
PIPELINE RELEASE ASSESSMENT
RIO ARRIBA COUNTY, NEW MEXICO
NW¼ SE¼, SECTION 15, T26N, R7W
N36.48489, W107.56028



Field Screening Results				
Sample ID	**Date**	**Depth (ft)**	**OVM-PID (ppm)**	**TPH (mg/kg)**
NMOCD ACTION LEVEL			**100**	**100**
SB-1	8/9/12	3	**303**	84.9
		5	**1,175**	**114**
SB-2	8/9/12	4	89.6	60.1
		6	38.6	56.2
SB-3	8/9/12	3	82.2	49.6
		6	**633**	75.7
SB-4	8/9/12	2	31.1	NA
		5	62.3	53.6
SB-5	8/9/12	2	65.8	NA
		7	64.7	NA
SB-6	8/9/12	2	52.1	70.5
		5	48.8	NA
SB-7	8/9/12	2	96.6	66.6
		4	47.2	48.3
SB-8	8/9/12	2	46.4	NA
		6	34.3	NA
SB-9	8/9/12	2	39.2	74.4
		5	53.3	NA
SB-10	8/9/12	2	56.8	NA
		5	78.6	NA
SB-11	8/9/12	2	70.3	NA
		5	25.3	NA
SB-12	8/9/12	1	44.7	53.6
		5	56.4	57.5
SB-13	8/9/12	3	94.0	50.9
		5	71.4	62.7
SB-14	8/9/12	2	54.0	NA
		7	**327**	NA
SB-15	8/9/12	2	35.8	NA
		5	64.2	NA
SB-16	8/9/12	2	**101**	94.0
		5	64.2	NA

NA - NOT ANALYZED

Laboratory Analytical Results						
Sample ID	**Date**	**Depth (ft)**	**Benzene (mg/kg)**	**BTEX (mg/kg)**	**TPH-GRO (mg/kg)**	**TPH-DRO (mg/kg)**
NMOCD ACTION LEVEL			**10**	**50**	**100**	
SB-1	8/9/12	5	<0.049	0.41	6.7	28
SB-3	8/9/12	6	<0.049	2.1	18	<10
SB-12	8/9/12	5	<0.048	<0.241	<4.8	<9.8
SB-16	8/9/12	2	<0.049	<0.245	<4.9	<9.8

SAMPLES WERE ANALYZED PER EPA METHOD 8021B AND 8015B.

FIGURE 3

SAMPLE LOCATIONS AND RESULTS
AUGUST 2012
ENTERPRISE PRODUCTS COMPANY
LATERAL K-7 LINE RELEASE
RIO ARRIBA COUNTY, NEW MEXICO
NW¼ SE¼, SECTION 15, T26N, R7W
N36.48489, W107.56028

Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** August 10, 2012
REVISIONS BY: C. Lameman	**DATE REVISED:** August 10, 2012
CHECKED BY: T. Ross	**DATE CHECKED:** August 10, 2012
APPROVED BY: E. McNally	**DATE APPROVED:** October 3, 2012

LEGEND

- SAMPLE LOCATIONS
- —P— BURIED PIPELINE

N

SCALE
10 6 0 10
2
(1 INCH = 10 FEET)

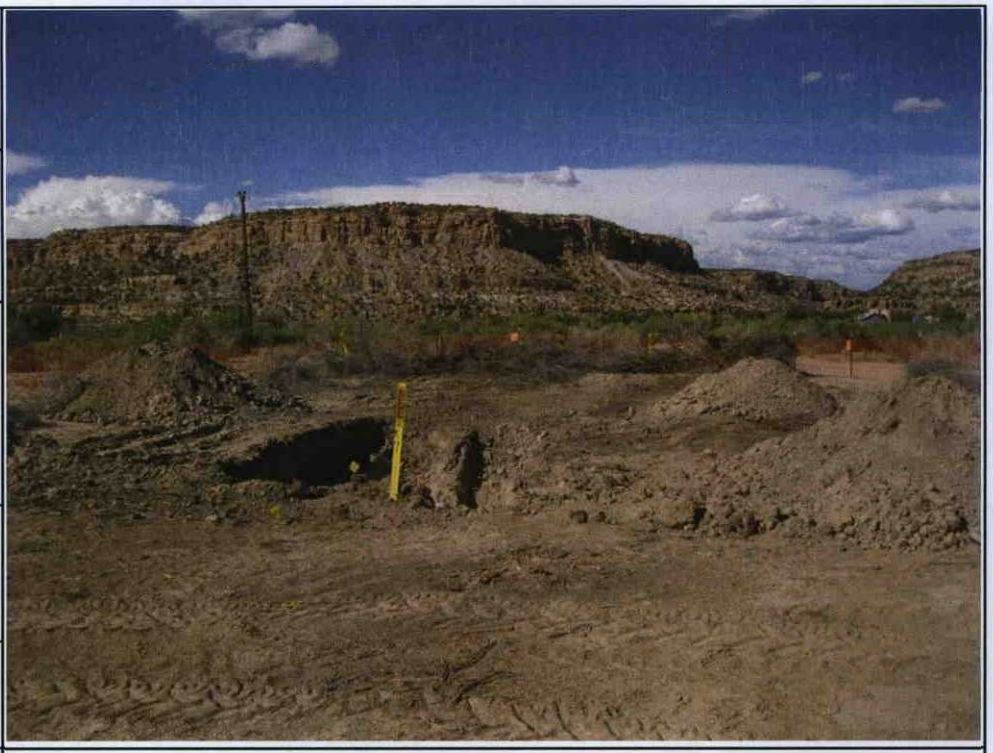
Photo #1	
Client: Enterprise Products Company	
Project: Lateral K-7 August 2012 Pipeline Release Assessment	
Taken by: Tom Long	
August 9, 2012	
AES Project No: 120806	Description: View of dead vegetation and stained soils along pipeline corridor.

Photo #2	
Client: Enterprise Products Company	
Project: Lateral K-7 August 2012 Pipeline Release Assessment	
Taken by: Tom Long	
August 9, 2012	
AES Project No: 120806	Description: View of stressed and dead vegetation along pipeline corridor.

Photo #3	
Client: Enterprise Products Company	
Project: Lateral K-7 August 2012 Pipeline Release Assessment	
Taken by: Tom Long	
August 9, 2012	
AES Project No: 120806	Description: View of stressed and dead vegetation along pipeline corridor.

Photo #4	
Client: Enterprise Products Company	
Project: Lateral K-7 August 2012 Pipeline Release Assessment	
Taken by: Tom Long	
August 9, 2012	
AES Project No: 120806	Description: View soil boring and dead vegetation along pipeline corridor.

TABLE 1
SUMMARY OF SOIL FIELD SCREENING AND ANALYTICAL RESULTS
Enterprise Products Company Lateral K-7 August 2012 Pipeline Release Assessment
Rio Arriba County, New Mexico

Sample ID	Date Sampled	Depth (ft)	VOCs OVM (ppm)	Field TPH (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (C6-C10) (mg/kg)	DRO (C10-C22) (mg/kg)
NMOCD Action Level			100	100	10	50	100	
SB-1	9-Aug-12	3	**303**	84.9	NA	NA	NA	NA
		5	**1,175**	**114**	<0.049	0.41	6.7	28
SB-2	9-Aug-12	4	**90**	60.1	NA	NA	NA	NA
		6	38.6	56.2	NA	NA	NA	NA
SB-3	9-Aug-12	3	82.2	49.6	NA	NA	NA	NA
		6	**633.0**	75.7	<0.049	2.1	18	<10
SB-4	9-Aug-12	2	31.1	NA	NA	NA	NA	NA
		5	62.3	53.6	NA	NA	NA	NA
SB-5	9-Aug-12	2	65.8	NA	NA	NA	NA	NA
		7	64.7	NA	NA	NA	NA	NA
SB-6	9-Aug-12	2	52.1	70.5	NA	NA	NA	NA
		5	48.8	NA	NA	NA	NA	NA
SB-7	9-Aug-12	2	96.6	66.6	NA	NA	NA	NA
		4	47.2	48.3	NA	NA	NA	NA
SB-8	9-Aug-12	2	46.4	NA	NA	NA	NA	NA
		6	34.3	NA	NA	NA	NA	NA
SB-9	9-Aug-12	2	39.2	74.4	NA	NA	NA	NA
		5	53.3	NA	NA	NA	NA	NA
SB-10	9-Aug-12	2	56.8	NA	NA	NA	NA	NA
		5	78.6	NA	NA	NA	NA	NA
SB-11	9-Aug-12	2	70.3	NA	NA	NA	NA	NA
		5	25.3	NA	NA	NA	NA	NA
SB-12	9-Aug-12	1	44.7	53.6	NA	NA	NA	NA
		5	56.4	57.5	<0.048	<0.241	<4.8	<9.8
SB-13	9-Aug-12	3	94	50.9	NA	NA	NA	NA
		5	71.4	62.7	NA	NA	NA	NA
SB-14	9-Aug-12	2	54	NA	NA	NA	NA	NA
		7	**327**	NA	NA	NA	NA	NA
SB-15	9-Aug-12	2	35.8	NA	NA	NA	NA	NA
		5	64.2	NA	NA	NA	NA	NA
SB-16	9-Aug-12	2	**101**	94.0	<0.049	<0.245	<4.9	<9.8
		5	64.2	NA	NA	NA	NA	NA

NOTES NE = Not Established
NA = Not Analyzed

AES Field Screening Report

Animas Environmental Services, LLC
www.animasenvironmental.com
624 E. Comanche
Farmington, NM 87401
505-564-2281
Durango, Colorado
970-403-3274

Client: Enterprise Products Company

Project Location: Lateral K-7

Date: 8/10/2012

Matrix: Soil

Sample ID	Collection Date	Time of Sample Collection	Sample Location	OVM (ppm)	Field Chloride (mg/kg)	Field TPH Analysis Time	Field TPH* (mg/kg)	TPH PQL (mg/kg)	DF	TPH Analysts Initials
SB-1@3'	8/9/2012	9:26		303	NA	12:28	84.88	20.0	1	TCR
SB-1@5'	8/9/2012	9:30		1,175	NA	12:31	113.59	20.0	1	TCR
SB-2@4'	8/9/2012	9:41		89.6	NA	12:33	60.08	20.0	1	TCR
SB-2@6'	8/9/2012	9:43		38.6	NA	12:35	56.16	20.0	1	TCR
SB-3@3'	8/9/2012	10:07		82.2	NA	12:38	49.64	20.0	1	TCR
SB-3@6'	8/9/2012	10:20		633	NA	12:42	75.74	20.0	1	TCR
SB-4@2'	8/9/2012	10:26		31	NA	NA	NA	NA	NA	NA
SB-4@5'	8/9/2012	10:31		62.3	NA	12:44	53.55	20.0	1	TCR
SB-6@2'	8/9/2012	10:57		52.1	NA	9:35	70.52	20.0	1	TCR
SB-6@5'	8/9/2012	11:00		48.8	NA	NA	NA	NA	NA	NA
SB-7@2'	8/9/2012	11:24		96.6	NA	9:41	66.60	20.0	1	TCR
SB-7@4'	8/9/2012	11:26		47.2	NA	12:47	48.33	20.0	1	TCR
SB-8@2'	8/9/2012	11:30		46.4	NA	NA	NA	NA	NA	NA
SB-8@6'	8/9/2012	11:34		34.3	NA	NA	NA	NA	NA	NA

Report Finalized: 08/10/12

SB-9@2'	8/9/2012	12:15		39.2	NA	9:49	74.43	20.0	1	TCR
SB-9@5'	8/9/2012	12:18		53.3	NA	NA	NA	NA	NA	NA
SB-10@2'	8/9/2012	12:22		56.8	NA	NA	NA	NA	NA	NA
SB-10@5'	8/9/2012	12:25		78.6	NA	NA	NA	NA	NA	NA
SB-11@2'	8/9/2012	12:56		70.3	NA	NA	NA	NA	NA	NA
SB-11@5'	8/9/2012	12:59		25.3	NA	NA	NA	NA	NA	NA
SB-12@1'	8/9/2012	13:01		44.7	NA	12:50	53.55	20.0	1	TCR
SB-12@5'	8/9/2012	13:05		56.4	NA	12:52	57.47	20.0	1	TCR
SB-13@3'	8/9/2012	13:23		94.0	NA	12:54	50.94	20.0	1	TCR
SB-13@5'	8/9/2012	13:25		71.4	NA	12:56	62.69	20.0	1	TCR
SB-14@2'	8/9/2012	13:28		54	NA	NA	NA	NA	NA	NA
SB-14@7'	8/9/2012	14:15		**327**	NA	NA	NA	NA	NA	NA
SB-15@2'	8/9/2012	14:27		35.8	NA	NA	NA	NA	NA	NA
SB-15@5'	8/9/2012	14:30		64.2	NA	NA	NA	NA	NA	NA
SB-16@2'	8/9/2012	14:33		101	NA	9:55	94.01	20.0	1	TCR
SB-16@5'	8/9/2012	14:33		101	NA	NA	NA	NA	NA	NA

PQL Practical Quantitation Limit
ND Not Detected at the Reporting Limit
DF Dilution Factor
NA Not Analyzed

Field Chloride - Quantab Chloride Titrators or Drop Count Titration with Silver Nitrate
Total Petroleum Hydrocarbons - USEPA 418.1

Analyst: Jami Ross

Report Finalized: 08/10/12

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

August 16, 2012

Tami Ross

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

RE: Enterprise Lateral K-7 OrderNo.: 1208520

Dear Tami Ross:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/11/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1208520**
Date Reported: **8/16/2012**

CLIENT: Animas Environmental Services
Project: Enterprise Lateral K-7
Lab ID: 1208520-001 **Matrix:** SOIL

Client Sample ID: SB-1@5'
Collection Date: 8/9/2012 9:30:00 AM
Received Date: 8/11/2012 12:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	28	9.9		mg/Kg	1	8/14/2012 9:17:51 AM
Surr: DNOP	103	77.6-140		%REC	1	8/14/2012 9:17:51 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.7	4.9		mg/Kg	1	8/14/2012 1:58:46 PM
Surr: BFB	126	84-116	S	%REC	1	8/14/2012 1:58:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.049		mg/Kg	1	8/14/2012 1:58:46 PM
Toluene	0.056	0.049		mg/Kg	1	8/14/2012 1:58:46 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/14/2012 1:58:46 PM
Xylenes, Total	0.35	0.097		mg/Kg	1	8/14/2012 1:58:46 PM
Surr: 4-Bromofluorobenzene	99.6	80-120		%REC	1	8/14/2012 1:58:46 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: Animas Environmental Services
Client Sample ID: SB-3@6'
Project: Enterprise Lateral K-7
Collection Date: 8/9/2012 10:20:00 AM
Lab ID: 1208520-002 **Matrix:** SOIL **Received Date:** 8/11/2012 12:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/14/2012 10:23:38 AM
Surr: DNOP	105	77.6-140		%REC	1	8/14/2012 10:23:38 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	18	4.9		mg/Kg	1	8/14/2012 4:22:39 PM
Surr: BFB	142	84-116	S	%REC	1	8/14/2012 4:22:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.049		mg/Kg	1	8/14/2012 4:22:39 PM
Toluene	0.41	0.049		mg/Kg	1	8/14/2012 4:22:39 PM
Ethylbenzene	0.15	0.049		mg/Kg	1	8/14/2012 4:22:39 PM
Xylenes, Total	1.5	0.097		mg/Kg	1	8/14/2012 4:22:39 PM
Surr: 4-Bromofluorobenzene	105	80-120		%REC	1	8/14/2012 4:22:39 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: Animas Environmental Services
Client Sample ID: SB-12@5'
Project: Enterprise Lateral K-7
Collection Date: 8/9/2012 1:05:00 PM
Lab ID: 1208520-003 **Matrix:** SOIL **Received Date:** 8/11/2012 12:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/14/2012 10:45:33 AM
Surr: DNOP	110	77.6-140		%REC	1	8/14/2012 10:45:33 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/14/2012 4:51:24 PM
Surr: BFB	103	84-116		%REC	1	8/14/2012 4:51:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.048		mg/Kg	1	8/14/2012 4:51:24 PM
Toluene	ND	0.048		mg/Kg	1	8/14/2012 4:51:24 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/14/2012 4:51:24 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/14/2012 4:51:24 PM
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	8/14/2012 4:51:24 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: Animas Environmental Services
Client Sample ID: SB-16@2'
Project: Enterprise Lateral K-7
Collection Date: 8/9/2012 2:33:00 PM
Lab ID: 1208520-004 **Matrix:** SOIL **Received Date:** 8/11/2012 12:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/14/2012 11:29:47 AM
Surr: DNOP	112	77.6-140		%REC	1	8/14/2012 11:29:47 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/14/2012 5:20:13 PM
Surr: BFB	99.9	84-116		%REC	1	8/14/2012 5:20:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.049		mg/Kg	1	8/14/2012 5:20:13 PM
Toluene	ND	0.049		mg/Kg	1	8/14/2012 5:20:13 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/14/2012 5:20:13 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/14/2012 5:20:13 PM
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	8/14/2012 5:20:13 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1208520**

16-Aug-12

Client: Animas Environmental Services

Project: Enterprise Lateral K-7

Sample ID **MB-3288**	SampType: **MBLK**			TestCode: **EPA Method 8015B: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **3288**			RunNo: **4810**					
Prep Date: **8/13/2012**	Analysis Date: **8/13/2012**			SeqNo: **135920**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	9.7		10.00		97.5	77.6	140			

Sample ID **LCS-3288**	SampType: **LCS**			TestCode: **EPA Method 8015B: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **3288**			RunNo: **4810**					
Prep Date: **8/13/2012**	Analysis Date: **8/13/2012**			SeqNo: **135921**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	35	10	50.00	0	70.0	52.6	130			
Surr: DNOP	4.2		5.000		83.6	77.6	140			

Sample ID **1208520-001AMS**	SampType: **MS**			TestCode: **EPA Method 8015B: Diesel Range Organics**					
Client ID: **SB-1@5'**	Batch ID: **3288**			RunNo: **4836**					
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**			SeqNo: **136797**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	51.23	28.23	57.5	57.2	146			
Surr: DNOP	4.5		5.123		88.4	77.6	140			

Sample ID **1208520-001AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015B: Diesel Range Organics**					
Client ID: **SB-1@5'**	Batch ID: **3288**			RunNo: **4836**					
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**			SeqNo: **136798**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	64	10	51.02	28.23	69.3	57.2	146	9.70	24.5	
Surr: DNOP	4.7		5.102		92.3	77.6	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#: **1208520**

16-Aug-12

Client: Animas Environmental Services

Project: Enterprise Lateral K-7

Sample ID **MB-3299**	SampType: **MBLK**			TestCode: **EPA Method 8015B: Gasoline Range**					
Client ID: **PBS**	Batch ID: **3299**			RunNo: **4873**					
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**			SeqNo: **137753**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.6	84	116			

Sample ID **LCS-3299**	SampType: **LCS**			TestCode: **EPA Method 8015B: Gasoline Range**					
Client ID: **LCSS**	Batch ID: **3299**			RunNo: **4873**					
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**			SeqNo: **137754**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.9	85	115			
Surr: BFB	990		1000		98.6	84	116			

Sample ID **1208520-001AMS**	SampType: **MS**			TestCode: **EPA Method 8015B: Gasoline Range**						
Client ID: **SB-1@5'**	Batch ID: **3299**			RunNo: **4873**						
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**			SeqNo: **137758**		Units: **mg/Kg**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	49	4.9	24.46	6.660	174	70	130			S
Surr: BFB	1400		978.5		138	84	116			S

Sample ID **1208520-001AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015B: Gasoline Range**						
Client ID: **SB-1@5'**	Batch ID: **3299**			RunNo: **4873**						
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**			SeqNo: **137759**		Units: **mg/Kg**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	57	4.9	24.63	6.660	203	70	130	14.4	22.1	S
Surr: BFB	1400		985.2		142	84	116	0	0	S

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#: **1208520**

16-Aug-12

Client: Animas Environmental Services

Project: Enterprise Lateral K-7

Sample ID **MB-3299**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **3299**	RunNo: **4873**
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**	SeqNo: **137765** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	80	120			

Sample ID **LCS-3299**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **3299**	RunNo: **4873**
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**	SeqNo: **137766** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	98.9	76.3	117			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	77	116			
Xylenes, Total	3.1	0.10	3.000	0	105	76.7	117			
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

Sample ID **1208520-004AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SB-16@2'**	Batch ID: **3299**	RunNo: **4873**
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**	SeqNo: **137774** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.048	0.9681	0	102	67.2	113			
Toluene	1.0	0.048	0.9681	0	106	62.1	116			
Ethylbenzene	1.1	0.048	0.9681	0	111	67.9	127			
Xylenes, Total	3.2	0.097	2.904	0.01761	111	60.6	134			
Surr: 4-Bromofluorobenzene	1.0		0.9681		106	80	120			

Sample ID **1208520-004AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SB-16@2'**	Batch ID: **3299**	RunNo: **4873**
Prep Date: **8/13/2012**	Analysis Date: **8/14/2012**	SeqNo: **137775** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.048	0.9653	0	97.4	67.2	113	4.76	14.3	
Toluene	0.97	0.048	0.9653	0	101	62.1	116	5.01	15.9	
Ethylbenzene	1.0	0.048	0.9653	0	104	67.9	127	6.22	14.4	
Xylenes, Total	3.1	0.097	2.896	0.01761	106	60.6	134	5.02	12.6	
Surr: 4-Bromofluorobenzene	1.0		0.9653		106	80	120	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: **Animas Environmental** Work Order Number: **1208520**

Received by/date: AB 08/11/12

Logged By: **Ashley Gallegos** 8/11/2012 12:00:00 PM AG

Completed By: **Ashley Gallegos** 8/13/2012 9:31:59 AM AG

Reviewed By: AT 08/13/12

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?	Client		

Log In

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

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: _____ Date: _____

By Whom: _____ Via: eMail Phone Fax In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Not Present			

30

Chain-of-Custody Record

Client: Animas Environmental Services

Mailing Address: 624 E Comanche
Farmington NM 87401

Phone #: 505 564 2281

email or Fax#: tross@animasenvironmental.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Enterprise Lateral K-7

Project #:

Project Manager: Tami Ross

Sampler: TJL

On Ice: ☒ Yes ☐ No

Sample Temperature: 3 °C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1208620	Analysis Request: BTEX + ~~MTBE~~ + BTEX (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)
3/9/12	930	SOIL	SB-1 @ 5'	2oz		-001	X		X													
3/9/12	1020		SB-3 @ 6'	2oz		-002	X		X													
3/9/12	1305		SB-12 @ 5'	2oz		-003	X		X													
3/9/12	1433	↓	SB-16 @ 2'	4oz		-004	X		X													

Date	Time	Relinquished by	Received by	Date	Time
3/10/12	1600	Tami Ross	Christa Waters	8/10/12	1600
8/10/12	1631	Christa Waters		8/11/12	1201

Remarks: Bill to Enterprise Products Company