

3R – 436

**RELEASE
ASSESSMENT
REPORT**

**DATE:
10/28/2011**



Animas Environmental Services, LLC

www.animasenvironmental.com

624 E. Comanche
Farmington, NM 87401
505-564-2281
Durango, Colorado
970-403-3274
2011 NOV 14 P 1:08
RECEIVED OGD

October 28, 2011

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

RE: Soil and Groundwater Sampling Results for Lateral 6C Release, San Juan County, New Mexico

Dear Mr. Dailey:

Animas Environmental Services, LLC (AES) is pleased to provide the soil and groundwater sampling results associated with a release which occurred along the Enterprise Products Company (Enterprise) 4-inch diameter Lateral 6C pipeline, located approximately 5 miles south of Bloomfield, San Juan County, New Mexico. A release was reported at the location on September 21, 2011, by Enterprise Bisti Gathering Area staff. On the same date, Aaron Lucero and Billy Snell of Enterprise were dispatched to locate and isolate the leak.

1.0 Release Information

1.1 Release Location

The release along the Enterprise Lateral 6C gathering line is located on Bureau of Land Management leased land within the NW¼, unit letter K, Section 26, T28N, R11W, San Juan County, New Mexico. Latitude and longitude of the release were recorded as N36° 37.921' and W107° 58.440'. The approximate site elevation is approximately 5,580 feet above mean sea level. A topographic site location map is included as Figure 1, and an aerial map showing the release location is included as Figure 2.

The location of the release is in an area characterized as mixed piñon-juniper woodland and sagebrush grasslands situated along a large intermittent surface water channel. Surface runoff drains east to Kutz Wash, which then flows north and ultimately discharges into the San Juan River. Based on the surrounding topography and landforms observed at the release location, AES has estimated the depth of groundwater to be less than 50 feet

below ground surface (bgs). The release is not located within a wellhead protection area, but it is located about 750 feet from a surface water body.

1.2 Site Activities

AES was initially contacted by Aaron Dailey of Enterprise on September 21, 2011, and on September 22, 2011, Ross Kennemer and Tami Ross of AES met with Enterprise representatives at the release location. Representatives from Enterprise, AES, and Southwest Field Services were present on-site during the initial site activities. Release excavation and line repair activities were initiated on September 22, 2011, but due to the apparent size of the release, AES suggested that Enterprise conduct the line repair and then contact AES when excavation would continue. The cause of the release was identified as a line leak from a small (1/4-inch) corrosion hole on the underside of the line.

Following repair of the line leak, on September 23, 2011, Ross Kennemer of AES collected one soil sample from the base of the pipeline excavation and conducted field screening of the soil. Based on the field screening results, AES and Enterprise decided that a limited investigation of the release extent would be conducted at a later date by conducting soil test pits in the area surrounding the release location.

On October 11, 2011, Ross Kennemer of AES met Dave Harrison (Enterprise) and an excavation crew from Southwest Field Services at the release site to conduct the test pit excavations. Four soil test pits (TP-1 through TP-4) were installed in locations around the original release location at distances of up to 100 feet from the release point. During excavation of the test pits, AES recorded the encountered soil materials and collected field screening samples. A general lithologic sequence for the site is presented below:

0-2 feet bgs:	tan, silty/sandy clay
2-4 feet bgs:	stiff, brown clay
4-7 feet bgs:	fine, tan sand
7-12 feet bgs:	tan, fine-to-medium sand
12-16 feet bgs:	dark, clayey sand, strong odor, water at about 16 feet

AES also collected a minimum of one soil sample for laboratory analysis from each test pit. Groundwater was encountered in two of the test pits (TP-2 and TP-4), so groundwater samples were collected from the test pits. In TP-2, free product was observed floating on the groundwater that entered the test pit. Groundwater was encountered in both TP-2 and TP-4 at approximately 16 feet bgs. In total, six test pit soil samples and two test pit groundwater samples were collected on October 11, 2011.

During the initial release excavation and line repair, approximately 52 cubic yards were transported for disposal at the Envirotech Landfarm, near Bloomfield, New Mexico. Approximately 40 cubic yards of clean backfill material were obtained from Envirotech and

delivered to the site as part of the soil disposal process. Copies of waste manifests for the contaminated soil are attached. A photograph log is also attached.

2.0 Soil Sampling

On October 11, 2011, AES personnel conducted field screening and collected soil samples from the Lateral 6C soil test pits (TP-1 through TP-4). Six grab samples were collected at the following depths: TP-1 at 10 feet bgs, TP-2 at 12 feet and 15 feet bgs, TP-3 at 10 feet bgs, and TP-4 at 12 feet and 15 feet bgs. Soil sample locations are included on Figure 3.

2.1 Soil Field Screening

Samples from the test pit excavations were field screened for volatile organic compound vapors with a photo-ionization detector (PID) organic vapor meter (OVM). Before beginning field screening, the PID-OVM was first calibrated with isobutylene gas. OVM measurement locations and results are presented in Table 1 and in Figure 3.

2.2 Soil Laboratory Analyses

One soil sample for laboratory analysis was collected from each field screening location in the test pit excavations. Samples for laboratory analysis 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. The soil samples were laboratory analyzed for:

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

2.3 Soil Laboratory Analytical Results

Analytical laboratory results are summarized in the table below.

Table 1. Soil OVM and Analytical Results, Lateral 6C Release

Sample ID	Date Sampled	Depth (ft)	OVM	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-	Xylene (mg/kg)	BTEX (mg/kg)	TPH-	TPH-
			Result (ppm)			benzene (mg/kg)			GRO (mg/kg)	DRO (mg/kg)
NMOCD Action Level										
			100	10	NE	NE	NE	50	100	100
TP-1 @ 10'	10/11/11	10	2,009	6.2	84	7.8	71	169	1,400	29
TP-2 @ 12'	10/11/11	12	438	<0.047	<0.047	<0.047	<0.094	<0.235	<4.7	<9.8
TP-2 @ 15'	10/11/11	15	1,907	45	200	8.3	260	513	5,000	170
TP-3 @ 10'	10/11/11	10	239	<0.048	<0.048	<0.048	<0.095	<0.239	<4.8	<10
TP-4 @ 12'	10/11/11	12	9.4	<0.050	<0.050	<0.050	<0.10	<0.25	<5.0	<10
TP-4 @ 15'	10/11/11	15	1,875	<0.048	<0.048	0.12	0.50	0.60	20	39

*Note – NE is not established

Total BTEX and TPH-GRO concentrations in sample TP-1 @ 10' exceeded the applicable New Mexico Oil Conservation Division (NMOCD) action levels. Benzene, total BTEX, TPH-GRO, and TPH-DRO concentrations in sample TP-2 @ 15' also exceeded the applicable NMOCD action levels. Although some elevated OVM field screening values were recorded, BTEX and TPH concentrations in the remaining soil samples were either below laboratory detection limits or below applicable NMOCD action levels. Laboratory analytical results for BTEX and TPH are included in Figure 3, and laboratory analytical reports are attached.

3.0 Groundwater Sampling

On October 11, 2011, two groundwater samples were collected from test pits TP-2 and TP-4. Each sample was collected at the first depth at which groundwater entered the excavation (approximately 16 feet bgs).

3.1 Groundwater Laboratory Analyses

The groundwater samples were placed into new, clean, laboratory-supplied vials preserved with hydrochloric acid, which were then labeled, placed on ice, and logged onto a sample chain of custody record. The sample containers were maintained on ice until delivery to the analytical laboratory, Hall, in Albuquerque, New Mexico. The collected samples were laboratory analyzed for:

- BTEX per USEPA Method 8021B; and
- TPH-GRO and TPH-DRO per USEPA Method 8015B.

3.2 Groundwater Laboratory Analytical Results

The groundwater sample results are presented below in Table 2.

Table 2. Groundwater Analytical Results, Lateral 6C Release

Sample ID	Date Sampled	Depth (ft)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylene (µg/L)	TPH-GRO (µg/L)	TPH-DRO (µg/L)
WQCC Action Level								
			10	750	750	620	NE	NE
TP-2 Groundwater	10/11/11	16	9,800	15,000	540	6,700	77	4.4
TP-4 Groundwater	10/11/11	16	<50	100	580	3,700	22	180

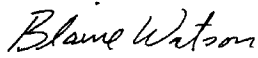
Dissolved phase benzene, toluene, and xylene concentrations were reported above the New Mexico Water Quality Control Commission (WQCC) standard for groundwater sample TP-2. Dissolved phase xylene concentrations were reported above the WQCC standard for groundwater sample TP-4. In groundwater sample TP-4, benzene was reported with a detection limit that exceeds the WQCC standard. All other compounds were reported below the laboratory detection limit or below the applicable WQCC standards. Laboratory analytical results for BTEX and TPH in groundwater are included in Figure 3, and the laboratory analytical report is attached.

4.0 Conclusions and Recommendations

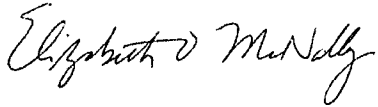
Based on field observations and laboratory analytical results for the confirmation soil and groundwater samples, AES recommends that Enterprise conduct further delineation of the soil and groundwater contamination in order to determine the most effective remedial method for the release. AES proposes to utilize a tracked GeoProbe[®] tracked direct-push unit to conduct the investigation. The GeoProbe will be used to collect continuous soil samples above the water table. When groundwater is encountered (anticipated at approximately 16 feet bgs), AES will use a peristaltic pump to collect a groundwater sample directly from the soil boring. No monitor wells will be installed as a part of this investigation. AES believes an initial series of seven soil/groundwater investigation locations will be required to evaluate the lateral extent of contamination beyond the original source area and the previously completed soil test pits. A proposed layout for additional soil and groundwater sampling locations is included in Figure 4.

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

Sincerely,



Blaine Watson, P.G.
Sr. Project Manager

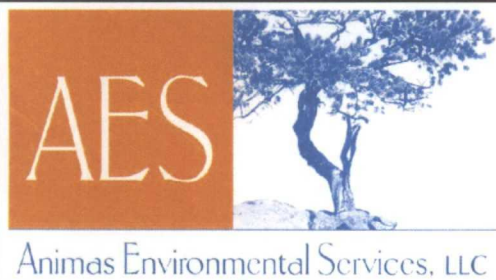
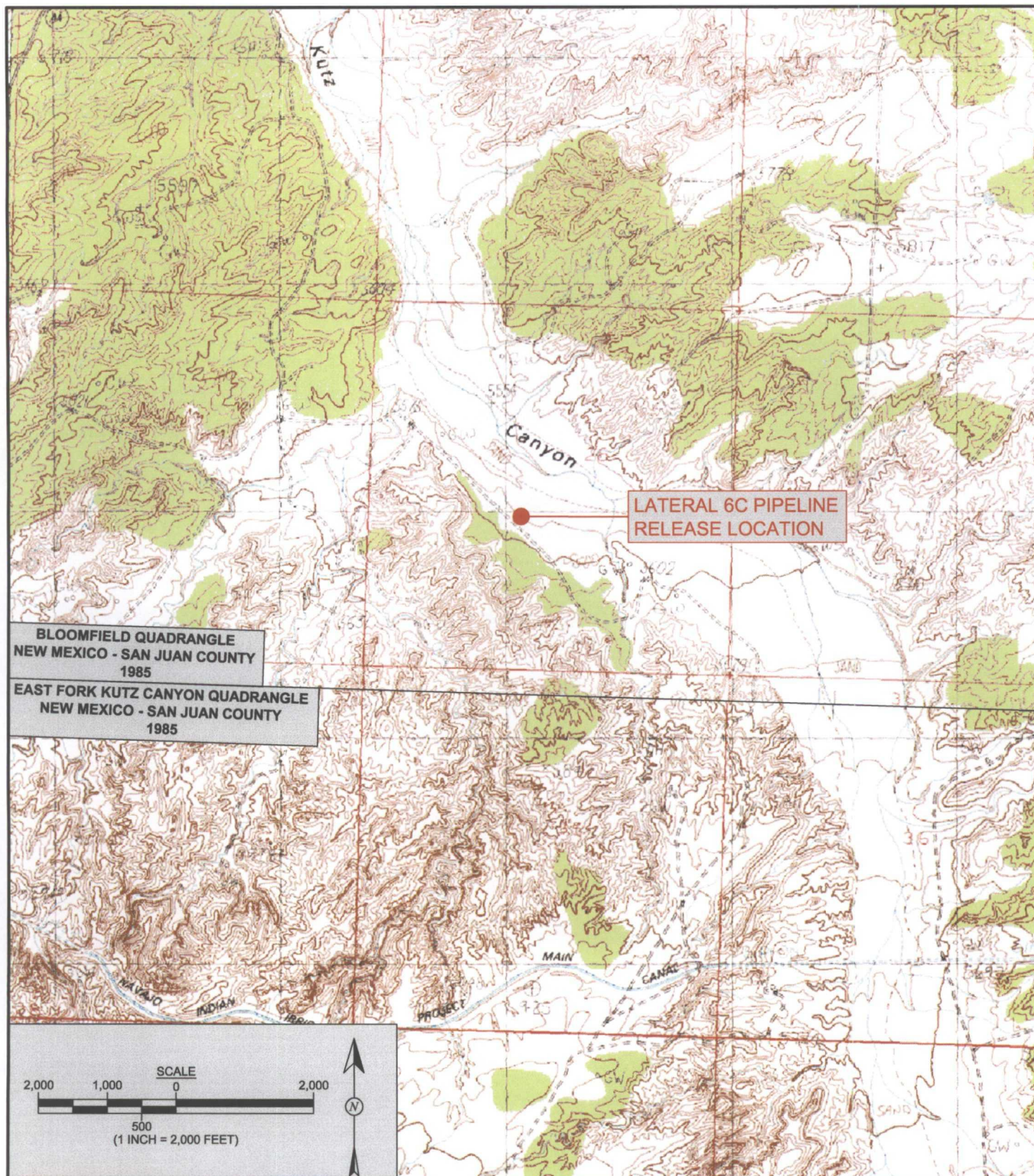


Elizabeth McNally, P.E.

Attachments:

- Figure 1. Topographic Site Location Map
- Figure 2. Aerial Site Map
- Figure 3. Soil and Groundwater Sample Results, October 2011
- Figure 4. Proposed Investigation Layout
- Site Photograph Log
- Waste Manifests
- Laboratory Analytical Reports

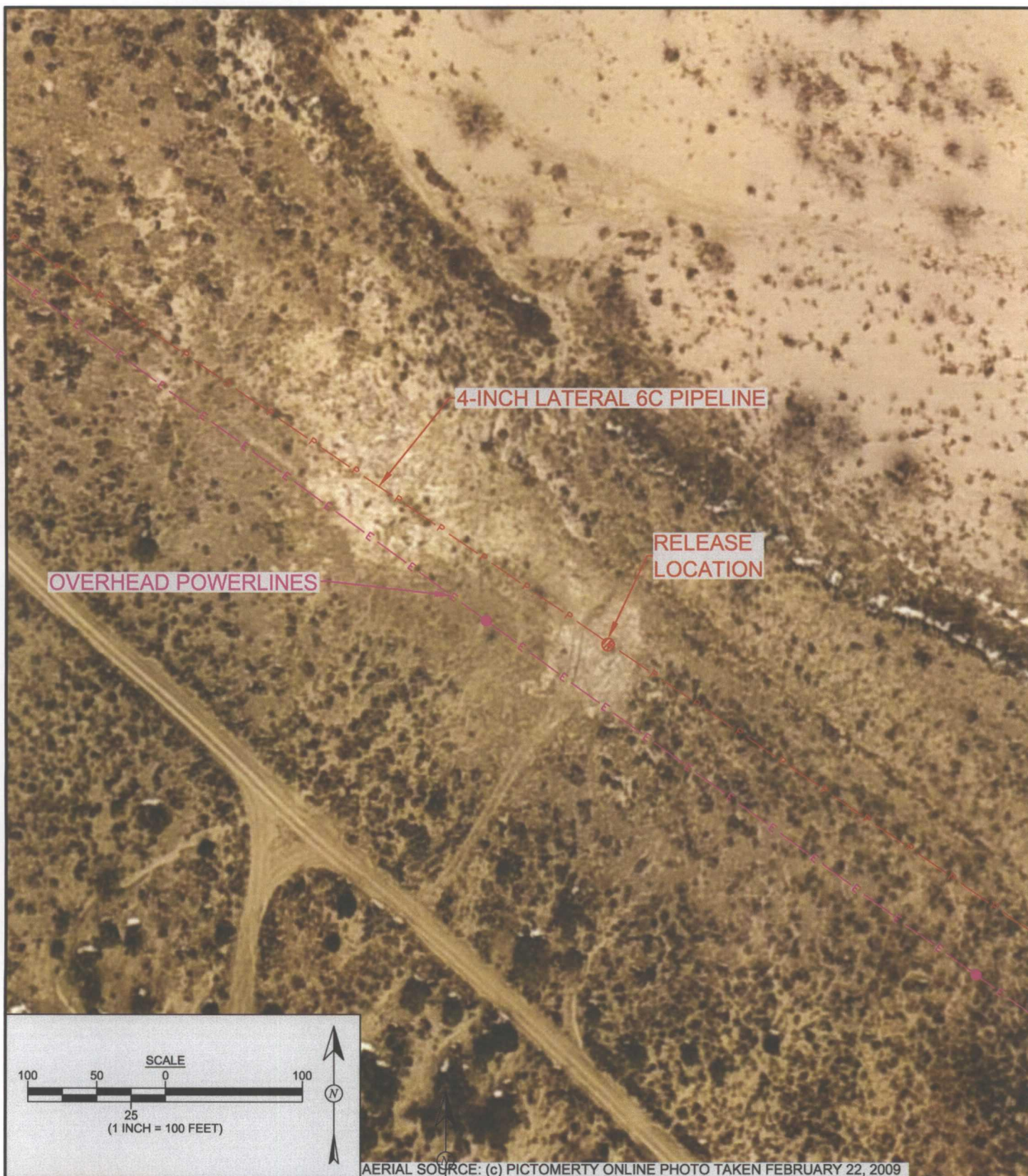
S:\Animas 2000\2011 Projects\Enterprise Products\Lateral 6C\Enterprise Lateral 6C letter report 102811.docx



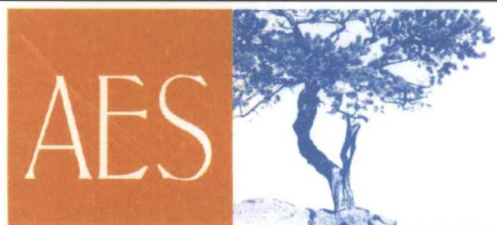
DRAWN BY: C. Lameman	DATE DRAWN: September 22, 2011
REVISIONS BY: C. Lameman	DATE REVISED: October 26, 2011
CHECKED BY: B. Watson	DATE CHECKED: October 26, 2011
APPROVED BY: E. McNally	DATE APPROVED: October 28, 2011

TOPOGRAPHIC SITE LOCATION MAP

ENTERPRISE PRODUCTS COMPANY
LATERAL 6C PIPELINE RELEASE LOCATION
SAN JUAN COUNTY, NEW MEXICO
NE ¼, SW ¼, SEC. 26, T28N, R11W
N36°37.921', W107°58.440'



AERIAL SOURCE: (c) PICTOMERTY ONLINE PHOTO TAKEN FEBRUARY 22, 2009



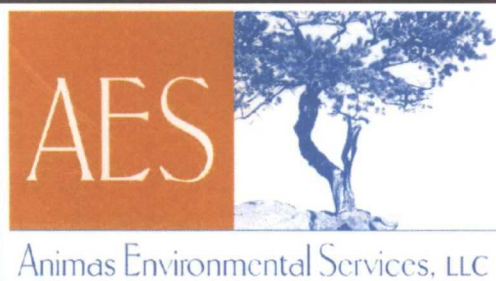
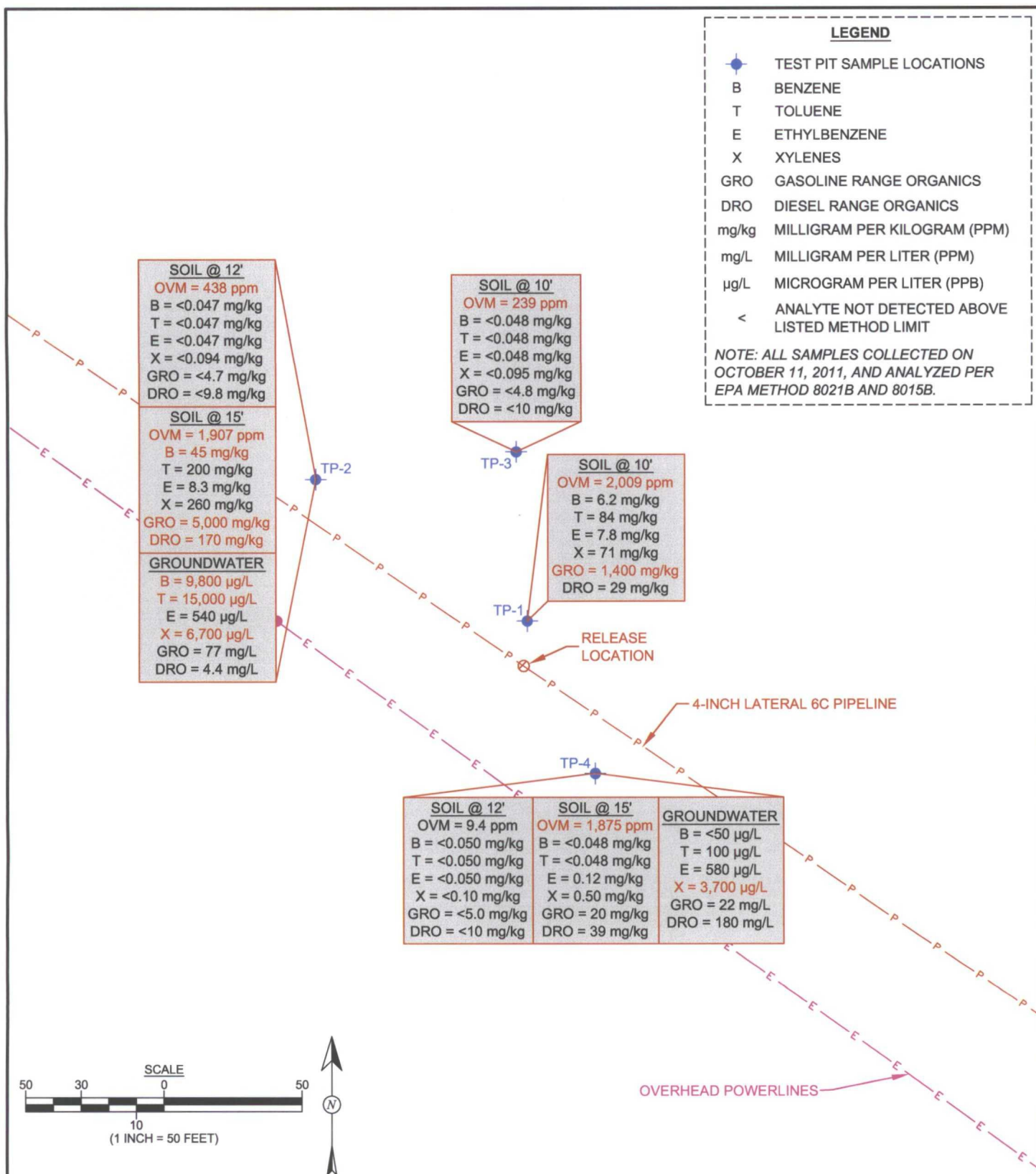
Animas Environmental Services, LLC

DRAWN BY: C. Lameman	DATE DRAWN: September 22, 2011
REVISIONS BY: C. Lameman	DATE REVISED: October 26, 2011
CHECKED BY: B. Watson	DATE CHECKED: October 26, 2011
APPROVED BY: E. McNally	DATE APPROVED: October 28, 2011

FIGURE 2

AERIAL SITE MAP

ENTERPRISE PRODUCTS COMPANY
LATERAL 6C PIPELINE RELEASE LOCATION
SAN JUAN COUNTY, NEW MEXICO
NE ¼, SW ¼, SEC. 26, T28N, R11W
N36°37.921', W107°58.440'

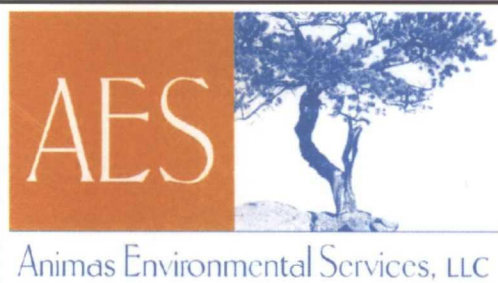
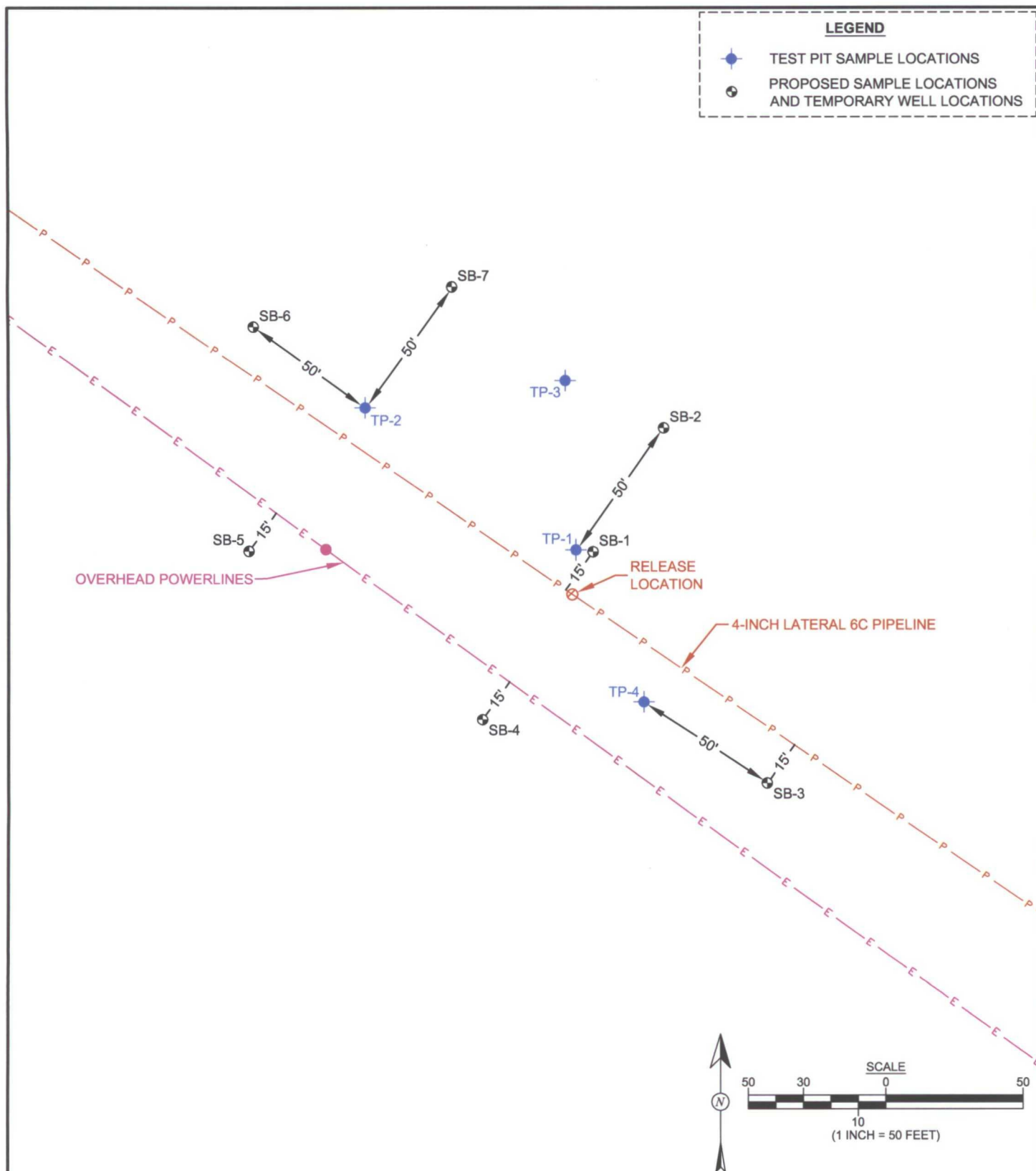


DRAWN BY: C. Lameman	DATE DRAWN: October 25, 2011
REVISIONS BY: C. Lameman	DATE REVISED: October 25, 2011
CHECKED BY: B. Watson	DATE CHECKED: October 26, 2011
APPROVED BY: E. McNally	DATE APPROVED: October 28, 2011

FIGURE 3

**SOIL AND GROUNDWATER
SAMPLE RESULTS, OCTOBER 2011**

ENTERPRISE PRODUCTS COMPANY
 LATERAL 6C PIPELINE RELEASE LOCATION
 SAN JUAN COUNTY, NEW MEXICO
 NE ¼, SW ¼, SEC. 26, T28N, R11W
 N36°37.921', W107°58.440



DRAWN BY: C. Lameman	DATE DRAWN: October 25, 2011
REVISIONS BY: C. Lameman	DATE REVISED: October 25, 2011
CHECKED BY: B. Watson	DATE CHECKED: October 26, 2011
APPROVED BY: E. McNally	DATE APPROVED: October 28, 2011

FIGURE 4

PROPOSED INVESTIGATION LOCATIONS

ENTERPRISE PRODUCTS COMPANY
LATERAL 6C PIPELINE RELEASE LOCATION
SAN JUAN COUNTY, NEW MEXICO
NE ¼, SW ¼, SEC. 26, T28N, R11W
N36°37.921', W107°58.440

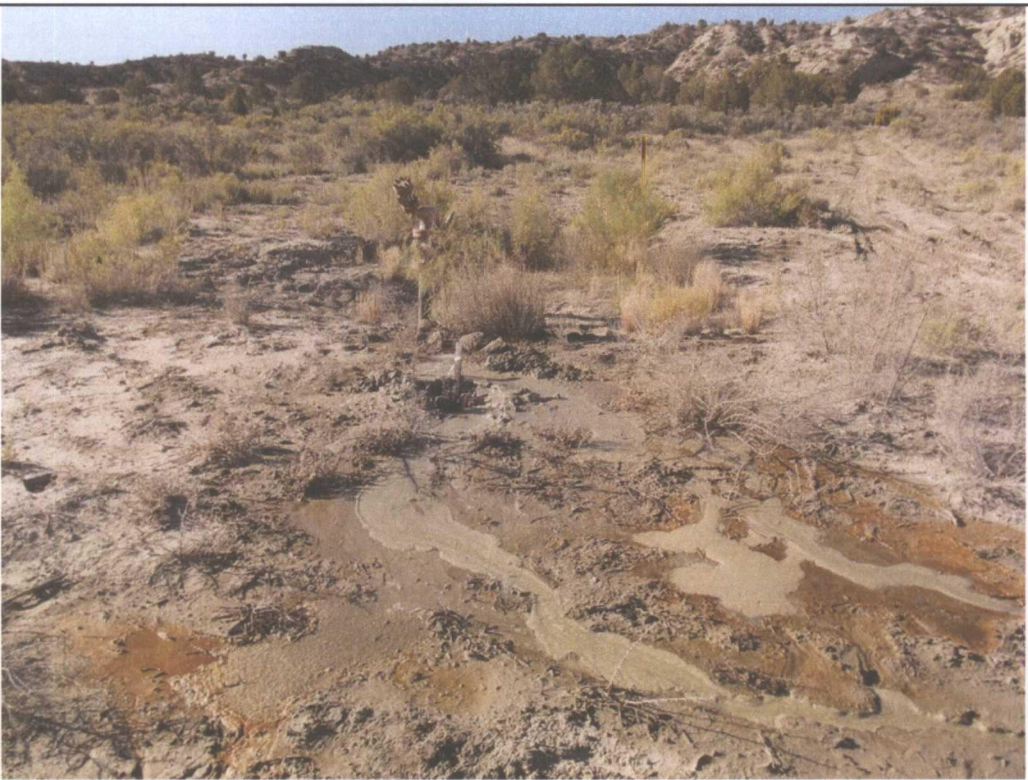
Photo #1	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
September 22, 2011	
AES Project No: 110904	Description: Surface contamination from pipeline release; N 36° 37.921' N; W 107° 58.440.

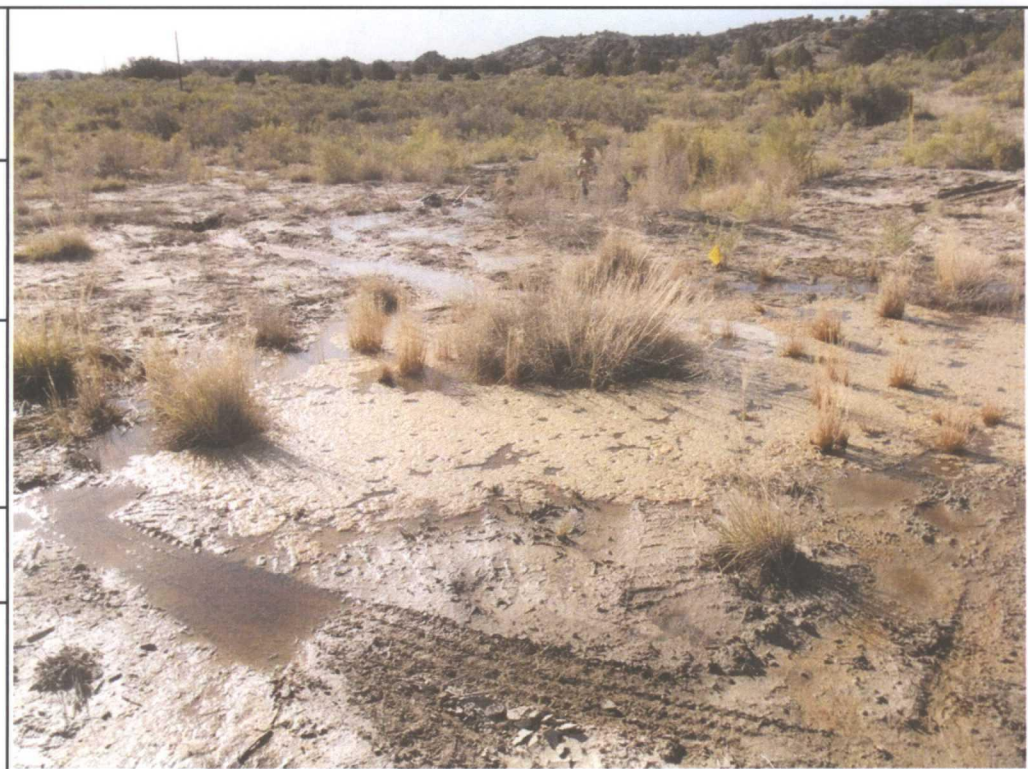
Photo #2	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
September 22, 2011	
AES Project No: 110904	Description: Surface contamination from pipeline release.

Photo #3	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
September 23, 2011	
AES Project No: 110904	Description: Excavated and repaired pipeline.

Photo #4	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
September 23, 2011	
AES Project No: 110904	Description: Excavated and repaired pipeline.


Photo #5	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
October 11, 2011	
AES Project No: 110904	Description: Excavation of Test Pit TP-4, up-gradient of pipeline release point.

Photo #6	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
October 11, 2011	
AES Project No: 110904	Description: Excavating TP-2, down-gradient of pipeline release point.


Photo #7	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
October 11, 2011	
AES Project No: 110904	Description: Excavating TP-2, down-gradient of pipeline release point. Note stained soils.

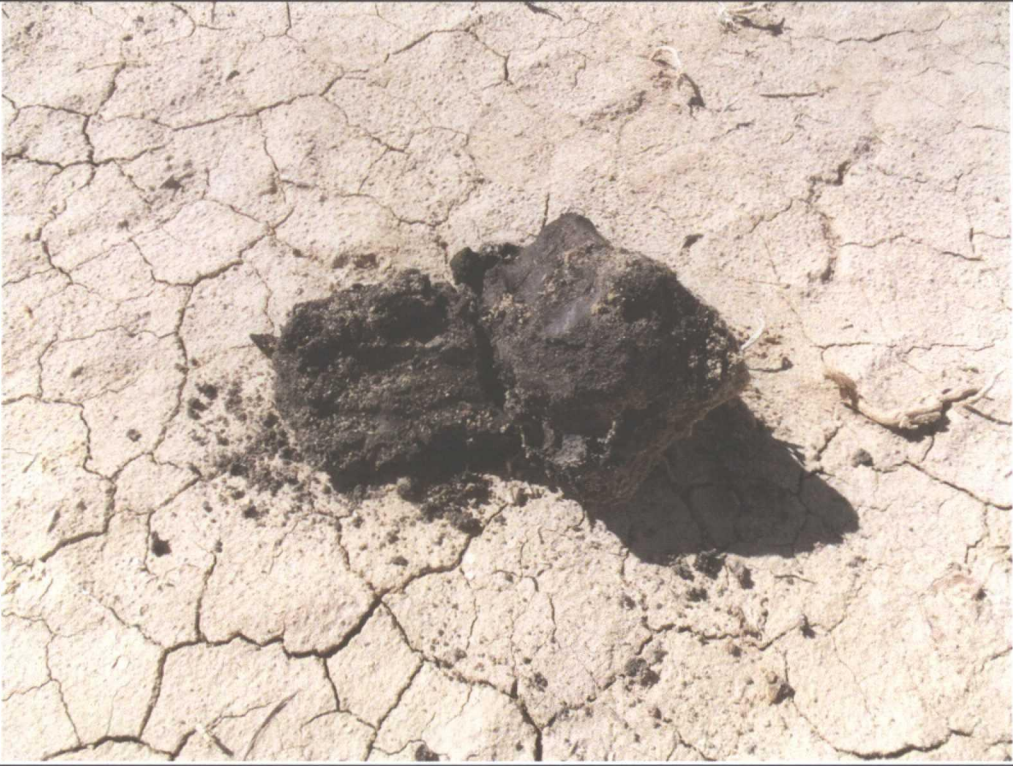
Photo #8	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
October 11, 2011	
AES Project No: 110904	Description: Hydrocarbon contaminated soil excavated from TP-2 at 12 feet below surface.



Photo #9	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
October 11, 2011	
AES Project No: 110904	Description: Excavating TP-3, down and cross-gradient of pipeline release point.

Photo #10	
Client: Enterprise Products Company	
Project: Lateral 6C Pipeline Release	
Taken by: Ross Kennemer	
October 11, 2011	
AES Project No: 110904	Description: TP-1 at pipeline release point.



MANIFEST # 39745

DATE 9.23.11 JOB# 97057-0453

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

TRANSPORTER CO. Moss NAME Dwayne Larsen SIGNATURE Dwayne

COMPANY CONTACT Manuel Chavez PHONE 326-8118 DATE 9-23-11

Signatures required prior to distribution of this legal document.

White - Company Records, Yellow - Billing, Pink - Customer

ACCENT Printing • Form 28-1212

ACCENT Printing • Form 28-1212



COVER LETTER

Monday, October 24, 2011

Ross Kennemer
Animas Environmental Services
624 East Comanche
Farmington, NM 87401

TEL: (505) 564-2281

FAX (505) 324-2022

RE: Enterprise Products Co Lateral 6C

Order No.: 1110780

Dear Ross Kennemer:

Hall Environmental Analysis Laboratory, Inc. received 8 sample(s) on 10/13/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. 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.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", written over a horizontal line.

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT:	Animas Environmental Services	Client Sample ID:	TP4 @ 12' BGS
Lab Order:	1110780	Collection Date:	10/11/2011 10:50:00 AM
Project:	Enterprise Products Co Lateral 6C	Date Received:	10/13/2011
Lab ID:	1110780-01	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/21/2011 2:49:31 AM
Surr: DNOP	105	73.4-123		%REC	1	10/21/2011 2:49:31 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/18/2011 5:28:16 PM
Surr: BFB	96.0	75.2-136		%REC	1	10/18/2011 5:28:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.050		mg/Kg	1	10/18/2011 5:28:16 PM
Toluene	ND	0.050		mg/Kg	1	10/18/2011 5:28:16 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/18/2011 5:28:16 PM
Xylenes, Total	ND	0.10		mg/Kg	1	10/18/2011 5:28:16 PM
Surr: 4-Bromofluorobenzene	86.2	80-120		%REC	1	10/18/2011 5:28:16 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT: Animas Environmental Services
Lab Order: 1110780
Project: Enterprise Products Co Lateral 6C
Lab ID: 1110780-02

Client Sample ID: TP-2 @ 12' BGS
Collection Date: 10/11/2011 11:10:00 AM
Date Received: 10/13/2011
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/21/2011 4:31:25 AM
Surr: DNOP	98.3	73.4-123		%REC	1	10/21/2011 4:31:25 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/19/2011 3:21:56 PM
Surr: BFB	92.4	75.2-136		%REC	1	10/19/2011 3:21:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.047		mg/Kg	1	10/19/2011 3:21:56 PM
Toluene	ND	0.047		mg/Kg	1	10/19/2011 3:21:56 PM
Ethylbenzene	ND	0.047		mg/Kg	1	10/19/2011 3:21:56 PM
Xylenes, Total	ND	0.094		mg/Kg	1	10/19/2011 3:21:56 PM
Surr: 4-Bromofluorobenzene	79.9	80-120	S	%REC	1	10/19/2011 3:21:56 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Page 2 of 8

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT:	Animas Environmental Services	Client Sample ID:	TP-3 @ 10' BGS
Lab Order:	1110780	Collection Date:	10/11/2011 11:30:00 AM
Project:	Enterprise Products Co Lateral 6C	Date Received:	10/13/2011
Lab ID:	1110780-03	Matrix:	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/21/2011 5:40:47 AM
Surr: DNOP	99.7	73.4-123		%REC	1	10/21/2011 5:40:47 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/20/2011 1:53:14 PM
Surr: BFB	93.8	75.2-136		%REC	1	10/20/2011 1:53:14 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	10/20/2011 1:53:14 PM
Toluene	ND	0.048		mg/Kg	1	10/20/2011 1:53:14 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/20/2011 1:53:14 PM
Xylenes, Total	ND	0.095		mg/Kg	1	10/20/2011 1:53:14 PM
Surr: 4-Bromofluorobenzene	79.0	80-120	S	%REC	1	10/20/2011 1:53:14 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Page 3 of 8

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT: Animas Environmental Services
Lab Order: 1110780
Project: Enterprise Products Co Lateral 6C
Lab ID: 1110780-04

Client Sample ID: TP-1 @ 10' BGS
Collection Date: 10/11/2011 12:05:00 PM
Date Received: 10/13/2011
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	29	9.7		mg/Kg	1	10/21/2011 6:15:24 AM
Surr: DNOP	99.7	73.4-123		%REC	1	10/21/2011 6:15:24 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	1400	240		mg/Kg	50	10/18/2011 7:03:30 PM
Surr: BFB	112	75.2-136		%REC	50	10/18/2011 7:03:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	6.2	2.4		mg/Kg	50	10/18/2011 7:03:30 PM
Toluene	84	2.4		mg/Kg	50	10/18/2011 7:03:30 PM
Ethylbenzene	7.8	2.4		mg/Kg	50	10/18/2011 7:03:30 PM
Xylenes, Total	71	4.9		mg/Kg	50	10/18/2011 7:03:30 PM
Surr: 4-Bromofluorobenzene	91.4	80-120		%REC	50	10/18/2011 7:03:30 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Page 4 of 8

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT: Animas Environmental Services
Lab Order: 1110780
Project: Enterprise Products Co Lateral 6C
Lab ID: 1110780-05

Client Sample ID: TP-2 @ 15' BGS
Collection Date: 10/11/2011 1:46:00 PM
Date Received: 10/13/2011
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	170	10		mg/Kg	1	10/21/2011 6:50:02 AM
Surr: DNOP	111	73.4-123		%REC	1	10/21/2011 6:50:02 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	5000	470		mg/Kg	100	10/18/2011 7:33:21 PM
Surr: BFB	129	75.2-136		%REC	100	10/18/2011 7:33:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	45	4.7		mg/Kg	100	10/18/2011 7:33:21 PM
Toluene	200	4.7		mg/Kg	100	10/18/2011 7:33:21 PM
Ethylbenzene	8.3	4.7		mg/Kg	100	10/18/2011 7:33:21 PM
Xylenes, Total	260	9.4		mg/Kg	100	10/18/2011 7:33:21 PM
Surr: 4-Bromofluorobenzene	95.8	80-120		%REC	100	10/18/2011 7:33:21 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Page 5 of 8

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT: Animas Environmental Services
Lab Order: 1110780
Project: Enterprise Products Co Lateral 6C
Lab ID: 1110780-06

Client Sample ID: TP-4 @ 15' BGS
Collection Date: 10/11/2011 2:00:00 PM
Date Received: 10/13/2011
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	39	9.9		mg/Kg	1	10/21/2011 7:24:30 AM
Surr: DNOP	93.7	73.4-123		%REC	1	10/21/2011 7:24:30 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	20	4.8		mg/Kg	1	10/20/2011 2:23:09 PM
Surr: BFB	170	75.2-136	S	%REC	1	10/20/2011 2:23:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	10/20/2011 2:23:09 PM
Toluene	ND	0.048		mg/Kg	1	10/20/2011 2:23:09 PM
Ethylbenzene	0.12	0.048		mg/Kg	1	10/20/2011 2:23:09 PM
Xylenes, Total	0.50	0.095		mg/Kg	1	10/20/2011 2:23:09 PM
Surr: 4-Bromofluorobenzene	84.3	80-120		%REC	1	10/20/2011 2:23:09 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Page 6 of 8

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT: Animas Environmental Services
Lab Order: 1110780
Project: Enterprise Products Co Lateral 6C
Lab ID: 1110780-07

Client Sample ID: TP-2 groundwater
Collection Date: 10/11/2011 1:57:00 PM
Date Received: 10/13/2011
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JB
Diesel Range Organics (DRO)	4.4	1.0		mg/L	1	10/21/2011 2:15:54 AM
Surr: DNOP	106	81.1-147		%REC	1	10/21/2011 2:15:54 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	77	2.5		mg/L	50	10/18/2011 11:34:56 PM
Surr: BFB	98.7	65.4-141		%REC	50	10/18/2011 11:34:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	9800	200		µg/L	200	10/19/2011 1:34:31 PM
Toluene	15000	200		µg/L	200	10/19/2011 1:34:31 PM
Ethylbenzene	540	200		µg/L	200	10/19/2011 1:34:31 PM
Xylenes, Total	6700	400		µg/L	200	10/19/2011 1:34:31 PM
Surr: 4-Bromofluorobenzene	93.9	76.5-115		%REC	200	10/19/2011 1:34:31 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Oct-11

Analytical Report

CLIENT: Animas Environmental Services
Lab Order: 1110780
Project: Enterprise Products Co Lateral 6C
Lab ID: 1110780-08

Client Sample ID: TP-4 groundwater
Collection Date: 10/11/2011 2:15:00 PM
Date Received: 10/13/2011
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JB
Diesel Range Organics (DRO)	180	10		mg/L	10	10/21/2011 7:58:54 AM
Surr: DNOP	0	81.1-147	S	%REC	10	10/21/2011 7:58:54 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	22	2.5		mg/L	50	10/19/2011 12:32:29 AM
Surr: BFB	120	65.4-141		%REC	50	10/19/2011 12:32:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	50		µg/L	50	10/19/2011 12:32:29 AM
Toluene	100	50		µg/L	50	10/19/2011 12:32:29 AM
Ethylbenzene	580	50		µg/L	50	10/19/2011 12:32:29 AM
Xylenes, Total	3700	100		µg/L	50	10/19/2011 12:32:29 AM
Surr: 4-Bromofluorobenzene	103	76.5-115		%REC	50	10/19/2011 12:32:29 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

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

Page 8 of 8

QA/QC SUMMARY REPORT

Client: Animas Environmental Services
 Project: Enterprise Products Co Lateral 6C

Work Order: 1110780

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range Organics											
Sample ID: 1110780-01AMSD	MSD										
Diesel Range Organics (DRO)	43.97	mg/Kg	9.9	49.36	4.815	79.3	61.9	125	11.2	22.3	
Sample ID: MB-28938	MBLK										
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Sample ID: LCS-28938	LCS										
Diesel Range Organics (DRO)	59.50	mg/Kg	10	50	0	119	66.7	119			
Sample ID: 1110780-01AMS	MS										
Diesel Range Organics (DRO)	49.18	mg/Kg	10	50.05	4.815	88.6	61.9	125			
Method: EPA Method 8015B: Diesel Range											
Sample ID: MB-28936	MBLK										
Diesel Range Organics (DRO)	ND	mg/L	1.0								
Sample ID: LCS-28936	LCS										
Diesel Range Organics (DRO)	2.617	mg/L	1.0	2.5	0	105	74	157			
Sample ID: LCSD-28936	LCSD										
Diesel Range Organics (DRO)	2.165	mg/L	1.0	2.5	0	86.6	74	157	18.9	23	
Method: EPA Method 8015B: Gasoline Range											
Sample ID: 5ML-RB	MBLK										
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: MB-28931	MBLK										
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: 5ML-RB	MBLK										
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: 2.5 GRO LCS	LCS										
Gasoline Range Organics (GRO)	26.72	mg/Kg	5.0	25	0	107	86.4	132			
Sample ID: LCS-28931	LCS										
Gasoline Range Organics (GRO)	28.69	mg/Kg	5.0	25	0	115	86.4	132			
Sample ID: 2.5 GRO LCS	LCS										
Gasoline Range Organics (GRO)	26.42	mg/Kg	5.0	25	0	106	86.4	132			
Method: EPA Method 8015B: Gasoline Range											
Sample ID: 1110780-07A MSD	MSD										
Gasoline Range Organics (GRO)	97.22	mg/L	2.5	25	77.01	80.8	66.1	127	7.47	15.5	
Sample ID: 5ML-RB	MBLK										
Gasoline Range Organics (GRO)	ND	mg/L	0.050								
Sample ID: 2.5 GRO LCS	LCS										
Gasoline Range Organics (GRO)	0.5344	mg/L	0.050	0.5	0	107	92.1	117			
Sample ID: 1110780-07A MS	MS										
Gasoline Range Organics (GRO)	104.8	mg/L	2.5	25	77.01	111	66.1	127			

Qualifiers:

E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 H Holding times for preparation or analysis exceeded
 NC Non-Chlorinated
 R RPD outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Animas Environmental Services
 Project: Enterprise Products Co Lateral 6C

Work Order: 1110780

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8021B: Volatiles

Sample ID: 1110780-01AMSD

MSD

Batch ID: 28931

Analysis Date: 10/19/2011 12:34:18 AM

Benzene	0.9411	mg/Kg	0.050	0.990	0	95.1	67.2	113	0.842	14.3	
Toluene	0.8647	mg/Kg	0.050	0.990	0	87.3	62.1	116	1.92	15.9	
Ethylbenzene	0.9431	mg/Kg	0.050	0.990	0	95.3	67.9	127	0.748	14.4	
Xylenes, Total	2.840	mg/Kg	0.099	2.97	0	95.6	60.6	134	0.995	12.6	

Sample ID: 5ML-RB

MBLK

Batch ID: R48488

Analysis Date: 10/18/2011 9:51:53 AM

Benzene	ND	mg/Kg	0.050								
Toluene	ND	mg/Kg	0.050								
Ethylbenzene	ND	mg/Kg	0.050								
Xylenes, Total	ND	mg/Kg	0.10								

Sample ID: MB-28931

MBLK

Batch ID: 28931

Analysis Date: 10/18/2011 2:28:30 PM

Benzene	ND	mg/Kg	0.050								
Toluene	ND	mg/Kg	0.050								
Ethylbenzene	ND	mg/Kg	0.050								
Xylenes, Total	ND	mg/Kg	0.10								

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R48488

Analysis Date: 10/18/2011 6:46:44 PM

Benzene	0.9228	mg/Kg	0.050	1	0.0139	90.9	83.3	107			
Toluene	0.9042	mg/Kg	0.050	1	0	90.4	74.3	115			
Ethylbenzene	0.9076	mg/Kg	0.050	1	0	90.8	80.9	122			
Xylenes, Total	2.712	mg/Kg	0.10	3	0	90.4	85.2	123			

Sample ID: LCS-28931

LCS

Batch ID: 28931

Analysis Date: 10/18/2011 1:58:28 PM

Benzene	0.9082	mg/Kg	0.050	1	0.0168	89.1	83.3	107			
Toluene	0.8359	mg/Kg	0.050	1	0	83.6	74.3	115			
Ethylbenzene	0.9127	mg/Kg	0.050	1	0	91.3	80.9	122			
Xylenes, Total	2.782	mg/Kg	0.10	3	0	92.7	85.2	123			

Sample ID: 1110780-01AMS

MS

Batch ID: 28931

Analysis Date: 10/19/2011 12:04:31 AM

Benzene	0.9332	mg/Kg	0.050	0.997	0	93.6	67.2	113			
Toluene	0.8815	mg/Kg	0.050	0.997	0	88.4	62.1	116			
Ethylbenzene	0.9501	mg/Kg	0.050	0.997	0	95.3	67.9	127			
Xylenes, Total	2.869	mg/Kg	0.10	2.991	0	95.9	60.6	134			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Animas Environmental Services
 Project: Enterprise Products Co Lateral 6C

Work Order: 1110780

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 1110780-08A MSD		MSD				Batch ID: R48488	Analysis Date: 10/19/2011 2:56:20 AM				
Benzene	869.5	µg/L	50	1000	15.73	85.4	76.6	119	11.8	16.4	
Toluene	933.8	µg/L	50	1000	102.2	83.2	77.3	118	11.8	13.9	
Ethylbenzene	1365	µg/L	50	1000	579.7	78.5	76.6	114	8.57	13.5	
Xylenes, Total	5744	µg/L	100	3000	3718	67.5	82	113	9.53	12.9	S
Sample ID: 5ML-RB		MBLK				Batch ID: R48488	Analysis Date: 10/18/2011 9:51:53 AM				
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 5ML-RB		MBLK				Batch ID: R48530	Analysis Date: 10/19/2011 10:31:25 AM				
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100NG BTEX LCS		LCS				Batch ID: R48488	Analysis Date: 10/18/2011 6:46:44 PM				
Benzene	18.46	µg/L	1.0	20	0	92.3	80	120			
Toluene	18.08	µg/L	1.0	20	0	90.4	80	120			
Ethylbenzene	18.15	µg/L	1.0	20	0	90.8	80	120			
Xylenes, Total	54.25	µg/L	2.0	60	0	90.4	80	120			
Sample ID: 100NG BTEX LCS		LCS				Batch ID: R48530	Analysis Date: 10/19/2011 11:33:34 PM				
Benzene	19.28	µg/L	1.0	20	0.2698	95.1	80	120			
Toluene	18.94	µg/L	1.0	20	0	94.7	80	120			
Ethylbenzene	18.98	µg/L	1.0	20	0	94.9	80	120			
Xylenes, Total	56.18	µg/L	2.0	60	0	93.6	80	120			
Sample ID: 1110780-08A MS		MS				Batch ID: R48488	Analysis Date: 10/19/2011 2:27:35 AM				
Benzene	978.4	µg/L	50	1000	15.73	96.3	76.6	119			
Toluene	1051	µg/L	50	1000	102.2	94.9	77.3	118			
Ethylbenzene	1487	µg/L	50	1000	579.7	90.8	76.6	114			
Xylenes, Total	6320	µg/L	100	3000	3718	86.7	82	113			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name ANIMAS ENVIRONMENTAL

Date Received:

10/13/2011

Work Order Number 1110780

Received by: AT

Checklist completed by:

Signature

Date

Sample ID labels checked by:

Initials

Matrix:

Carrier name: Courier

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Not Shipped ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

N/A ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Water - VOA vials have zero headspace?

No VOA vials submitted ☐

Yes ☒

No ☐

Water - Preservation labels on bottle and cap match?

Yes ☐

No ☐

N/A ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

Container/Temp Blank temperature?

1.6°

<6° C Acceptable

If given sufficient time to cool.

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

Chain-of-Custody Record

Client: Animas Environmental

Mailing Address: 624 E. Comanche
Farmington, NM 87401

Phone # (505) 514-2281

email or Fax#: 324-2022

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush

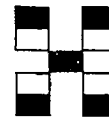
Project Name:
Enterprise Products Company
Lateral 6 C

Project #:

Project Manager:
Ross Kemmer

Sampler: Ross Kemmer

Sample Temperature: 16°



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	HEAL No.	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)	680, D60 8015	Air Bubbles (Y or N)
10-11-11	1050	Soil	TP-4 @ 12' BGS	4oz glass / 1	4°C	1110-780	-1	X										X	
	1110		TP-2 @ 12' BGS				-2	X										X	
	1130		TP-3 @ 10' BGS				-3	X										X	
	1205		TP-1 @ 10' BGS				-4	X										X	
	1346		TP-2 @ 15' BGS				-5	X										X	
	1400		TP-4 @ 15' BGS				-6	X										X	
	1357	H ₂ O	TP-2 groundwater	5 40 ml VOA	4°C / HCl		-7	X										X	
	1415		TP-4 groundwater				-8	X										X	

Date: 10-12-11 Time: 1447 Relinquished by: Ross Kemmer

Date: 10/12/11 Time: 1332 Relinquished by: Christie Walter

Received by: Christie Walter Date: 10/12/11 Time: 1447

Received by: Christie Walter Date: 10/13/11 Time: 1250

Received by: Christie Walter Date: 10/13/11 Time: 1250

Remarks: Invoice to Enterprise.