

3R - 442

REPORT

12 / 18 / 2012

[illegible]

Chen, P., L. Chen, and
F. Jiang. 2005. "The
Effect of the
Government's
Policy on the
Development of
the Chinese
Economy."

Schizothorax sinensis (Steindachner) (Fig. 1)

Prior to the initial release assessment in March 2012, and 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. No records for nearby well locations with similar surface elevations were found to assist in determining NMOCD ranking. Additionally, the New Mexico Office of the State Engineer

(NMOSE) database was reviewed for nearby private domestic water wells, and no registered water wells were reported to be located within 1,000 feet of the 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. Additionally, AES personnel assessed the NMOCD ranking criteria using topographical interpretation and visual reconnaissance on-site. The release location is within Lapis Wash, and groundwater was estimated to be less than 50 feet below ground surface (bgs). Depth to groundwater was confirmed at 12 feet bgs during the initial release assessment and mitigation. Based on this information, the location was assessed a ranking score of 40.

1.3 Initial Release and Mitigation Report Summary

On March 31, 2012, a condensate release was discovered from the 4-inch diameter Lateral 2C-45 pipeline. Upon repair of the pipeline, Enterprise contractors excavated an area measuring 35 feet by 30 feet by 13 feet deep around the March 2012 release location. On April 1, 2012, Enterprise completed an inspection of the Lateral 2C-45 pipeline and determined that there were two historical release points south of the March 2012 release point. As a result, 140 feet of pipeline, including the March 2012 release point, were abandoned in place at 12 feet bgs, and a new pipeline segment was installed at 8 feet bgs. The new pipeline trench, which extended from the March 2012 release excavation, measured 120 feet by 4 feet by 8 feet deep.

On April 9 through April 24, 2012, Enterprise contractors expanded the excavation to continue the removal of petroleum contaminated soil (PCS). The final excavation area measured approximately 8,800 square feet ranging from 10 to 19 feet deep and was backfilled with stockpiled overburden and clean imported material. AES monitored the progress of the excavation via field screening for volatile organic compounds (VOCs) and confirmation laboratory analysis of soil samples.

Groundwater was encountered at approximately 12 feet bgs within the excavation on the western side of the pipeline. Three groundwater samples (GW-1 through GW-3) were collected from the excavation for laboratory analysis.

Based on soil laboratory analytical results, PCS was removed to below NMOCD action levels for benzene, total benzene, toluene, ethyl-benzene, and xylenes (BTEX), and total petroleum hydrocarbons (TPH) within the accessible areas of the excavation. Groundwater laboratory analytical results confirmed that groundwater was impacted by dissolved phase benzene with concentrations exceeding the applicable New Mexico Water Quality Commission (WQCC) standard in GW-2 (60 µg/L) and GW-3 (34 µg/L). Dissolved phase toluene, ethylbenzene, and total xylenes were below applicable WQCC standards.

AES recommended the installation of a temporary soil boring using a Geoprobe in order to investigate PCS that may exist in the southwestern portion of the excavation where access was restricted due to cave-ins along with the installation of Hydropunch points to delineate the dissolved phase contaminant plume.

2.0 Continued Site Assessment – November 2012

On November 7, 2012, AES completed a continued site assessment along the Lateral 2C-45 pipeline. Using a GeoProbe DT 6620 track-mounted direct push rig operated by Earth Worx, Los Lunas, New Mexico, one soil boring (SB-1) was installed within the southwestern portion of the former excavation where access was restricted during the initial release assessment. Soil samples were collected from SB-1 for field screening and laboratory analysis.

A temporary monitor well (GW-2) was installed within SB-1. Additionally, four Hydropunch points (GW-1 and GW-3 through GW-5) were installed using the Geoprobe. GW-1 was installed in the area that groundwater contamination was previously confirmed, and GW-3 was installed downgradient of that location. GW-4 was installed downgradient within Lapis Wash, and GW-5 was installed upgradient of the release area, along the east side of the access road. Groundwater samples were collected from each well for laboratory analysis. The soil boring and temporary well locations are included on Figure 3.

2.1 Notifications

AES notified Enterprise by telephone 48 hours prior to field activities. AES also utilized the New Mexico One-Call system to identify and mark all underground utilities at the site before initiating the continued assessment.

3.0 Soil Sampling

AES installed one soil boring (SB-1) to define the lateral and vertical extent of near surface and subsurface soil contamination in the southwestern portion of the former excavation, in an area that was inaccessible during the initial release assessment in April 2012. The soil boring was advanced to a total depth of 28 feet bgs. The location of SB-1 is presented on Figure 3.

3.1 Soil Lithology

Soils encountered in SB-1 consisted of probable fill material from the mitigation excavation to a depth of approximately 12 feet bgs, combined with slough material derived from the excavation and backfill process. Soils in this zone consisted of medium brown, moist to very moist sandy lean clay with no odor. Soils below this zone to a depth of approximately 22 feet bgs consisted of native, very dark grey to black, wet sandy lean clay, and exhibited a hydrocarbon odor. Below 22 feet bgs, the soils consisted of interbedded greyish-brown, wet clayey sand and sandy lean clay with no odor noted.

3.2 Soil Sample Collection

Soil samples from SB-1 were collected from continuously driven core-barrel samplers during advancement of the soil borings. At 4-ft intervals, a soil sample was collected from the core barrel sampler and transferred to appropriately labeled sample containers.

3.2.1 Field Screening

The sample was split for field screening of VOCs with a photo-ionization detector (PID) organic vapor meter (OVM), which was calibrated to 100 parts per million (ppm) with isobutylene gas. The soil sample collected for laboratory analysis was collected from the interval with the highest VOC reading.

3.2.2 Laboratory Analyses - Soil

The soil sample collected from SB-1 for laboratory analysis was submitted to Hall Environmental Analysis Laboratory (Hall), Albuquerque, New Mexico, for laboratory analysis of the following parameters:

- BTEX – USEPA Method 8021;
- TPH Gasoline Range Organics (GRO) and Diesel Range Organics (DRO)– EPA Method 8015 Modified.

Once collected, the sample was preserved in laboratory-supplied containers and stored in an insulated cooler containing ice. The sample was shipped by Hall personnel in insulated coolers containing ice at less than 6°C via bus to the laboratory.

3.3 Soil Field Screening and Laboratory Analytical Results

Field screening VOC vapor readings in SB-1 ranged from 8.1 ppm at near surface up to 44.0 ppm at 16 to 20 feet bgs. Soil analytical results showed that benzene, total BTEX, and TPH concentrations in SB-1 at 16 to 20 feet bgs were below laboratory detection

limits. The field screening and laboratory analytical results have been tabulated and are presented in Table 1 and on Figure 3. Soil analytical laboratory reports are attached.

Table 1. Soil Field Screening and Laboratory Analytical Results
 Lateral 2C-45 March 2012 Release
 November 2012 Continued Site Assessment

Sample ID	Sample Date	Depth (ft)	VOCs OVM (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
NMOCD Action Level			100	10	50	100*	
SB-1	11/7/12	0 to 4	8.1	NA	NA	NA	NA
		4 to 8	16.2	NA	NA	NA	NA
		8 to 12	20.0	NA	NA	NA	NA
		12 to 16	37.9	NA	NA	NA	NA
		16 to 20	44.0	<0.048	<0.24	<4.8	<10
		24 to 28	14.7	NA	NA	NA	NA

*Action level determined by the NMOCD ranking score per *NMOCD Guidelines for Leaks, Spills, and Releases* (August 1993).

4.0 Groundwater Sampling

On November 7, 2012, AES installed and collected samples from a total of five temporary Hydropunch points (GW-1 through GW-5). Groundwater was encountered at depths ranging from 12 to 28 feet bgs.

4.1 Laboratory Analyses

Groundwater samples were collected using new disposable bailers, preserved in laboratory-supplied containers, and stored in an insulated cooler containing ice. Samples were shipped in insulated coolers containing ice at less than 6°C to the analytical laboratory (Hall). Groundwater samples were laboratory analyzed for:

- BTEX per USEPA Method 8021B.

4.2 Laboratory Analytical Results

Dissolved phase analytical results show reported concentrations for benzene, toluene, ethylbenzene, and xylenes were below laboratory detection limits in each sample (GW-1 through GW-5). The analytical results for groundwater samples have been tabulated and are presented in Table 2 and on Figure 3. Groundwater analytical laboratory reports are attached.

Table 2. Groundwater Laboratory Analytical Results
Lateral 2C-45 March 2012 Release
November 2012 Continued Release Assessment

<i>Sample ID</i>	<i>Sample Date</i>	<i>Benzene (µg/L)</i>	<i>Toluene (µg/L)</i>	<i>Ethyl- benzene (µg/L)</i>	<i>Total Xylenes (µg/L)</i>
WQCC Standard		10	750	750	620
GW-1	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-2	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-3	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-4	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-5	11/7/12	<2.0	<2.0	<2.0	<4.0

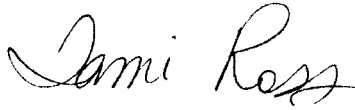
5.0 Conclusions and Recommendations

On November 7, 2012, AES personnel completed a continued site assessment at the Lateral 2C-45 March 2012 release location. As part of the continued site assessment, one soil boring (SB-1) was installed to approximately 28 feet bgs. Groundwater samples were collected from SB-1 and from four additional temporary wells. Soil analytical results from SB-1 were below laboratory detection limits for benzene, total BTEX and TPH and confirmed that petroleum contaminated soils have been removed to below NMOCD action levels within the southwestern portion of the excavation that was previously inaccessible for sampling during the release assessment in March and April 2012.

Groundwater analytical results for GW-1 through GW-5 were also below laboratory detection limits for BTEX and confirm that natural attenuation of residual dissolved phase contaminants has occurred at the release location since source removal of soils in March and April 2012.

Based on field observations, field screening, and soil and groundwater laboratory analytical results, soil concentrations are below NMOCD action levels, and groundwater concentrations are well below applicable WQCC standards. AES recommends no further action. If you have any questions about this report or site conditions, please do not hesitate to contact me or Ross Kennemer at (505) 564-2281.

Sincerely,



Tami C. Ross, CHMM
Project Manager

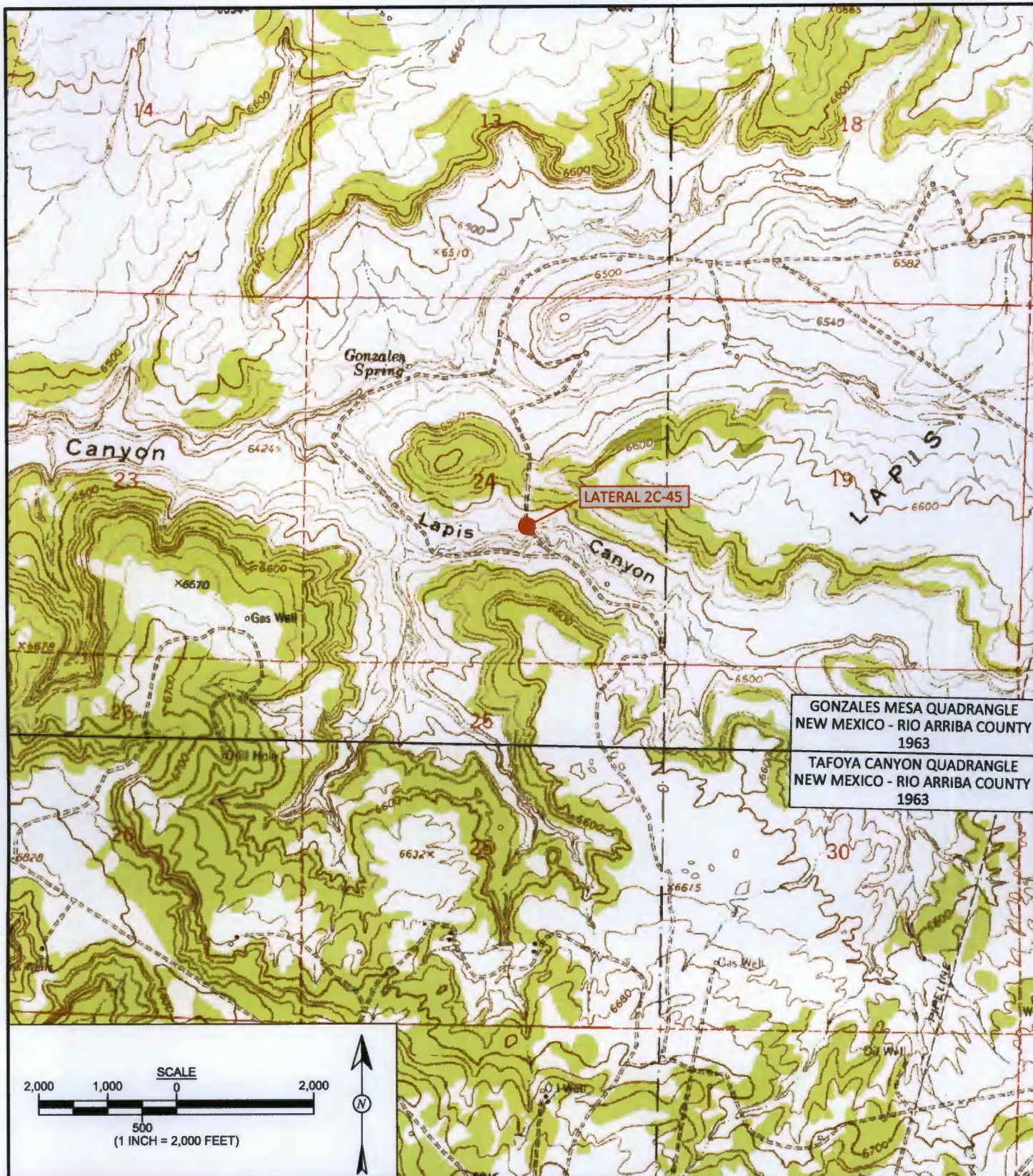


Elizabeth McNally, P.E.

Attachments:

- Figure 1. Topographic Site Location Map
- Figure 2. Aerial Site Map
- Figure 3. Hydropunch and Soil Boring Locations and Results, November 2012
- Soil Boring Log SB-1
- Laboratory Analytical Reports (Hall 1211354)

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Release Assessment Report 121812.docx



Animas Environmental Services, LLC

DRAWN BY:

C. Lameman

DATE DRAWN:

November 8, 2012

REVISIONS BY:

C. Lameman

DATE REVISED:

December 14, 2012

CHECKED BY:

T. Ross

DATE CHECKED:

December 14, 2012

APPROVED BY:

E. McNally

DATE APPROVED:

December 17, 2012

TOPOGRAPHIC SITE LOCATION MAP
ENTERPRISE FIELD SERVICES, LLC
LATERAL 2C-45 CONTINUED SITE ASSESSMENT
RIO ARriba COUNTY, NEW MEXICO
NW¼ SE¼, SECTION 24, T25N, R6W
N36.38347, W107.41676



AERIAL SOURCE: (c) MICROSOFT CORPORATION - AVAILABLE EXCLUSIVELY BY DIGITALGLOBE



Animas Environmental Services, LLC

DRAWN BY: C. Lameman	DATE DRAWN: November 8, 2012
REVISIONS BY: C. Lameman	DATE REVISED: December 14, 2012
CHECKED BY: T. Ross	DATE CHECKED: December 14, 2012
APPROVED BY: E. McNally	DATE APPROVED: December 17, 2012

FIGURE 2

AERIAL SITE MAP
ENTERPRISE FIELD SERVICES, LLC
LATERAL 2C-45 CONTINUED SITE ASSESSMENT
RIO ARriba COUNTY, NEW MEXICO
NW¼ SE¼, SECTION 24, T25N, R6W
N36.38347, W107.41676

FIGURE 3

HYDROPUNCH AND SOIL BORING
LOCATIONS AND RESULTS
NOVEMBER 2012

ENTERPRISE FIELD SERVICES, LLC
LATERAL 2C-45 CONTINUED SITE ASSESSMENT
RIO ARriba COUNTY, NEW MEXICO
NW¼ SE¼, SECTION 24, T25N, R6W
N36.38347, W107.41676

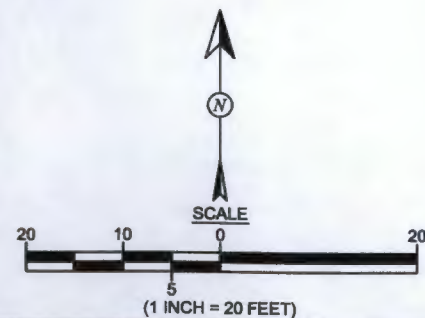


Animas Environmental Services, LLC

DRAWN BY: C. Lameman	DATE DRAWN: November 8, 2012
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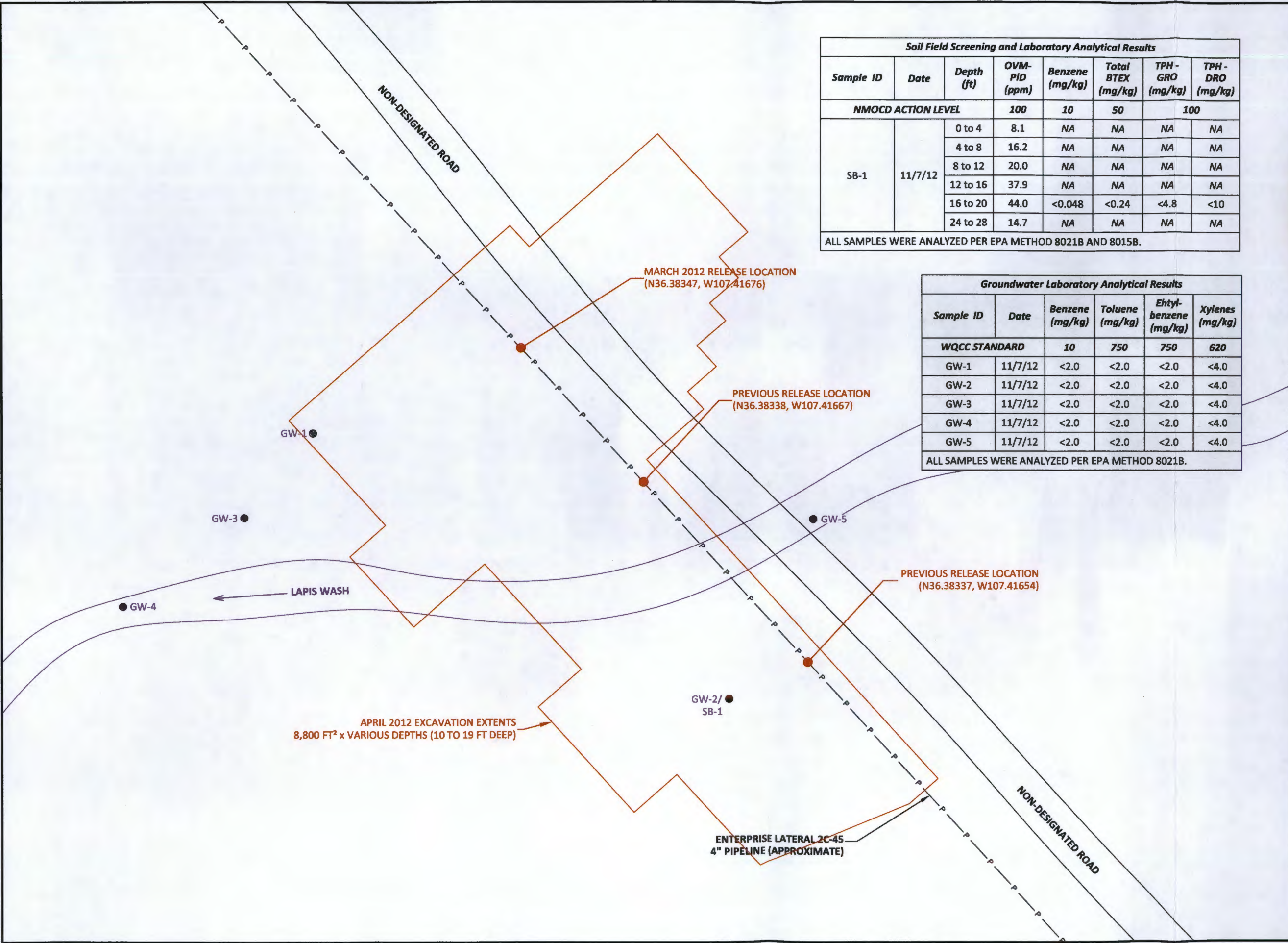
LEGEND

- HYDROPUNCH LOCATIONS
- SOIL BORING LOCATION



Soil Field Screening and Laboratory Analytical Results							
Sample ID	Date	Depth (ft)	OVM-PID (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH - GRO (mg/kg)	TPH - DRO (mg/kg)
NMOCD ACTION LEVEL			100	10	50	100	
SB-1	11/7/12	0 to 4	8.1	NA	NA	NA	NA
		4 to 8	16.2	NA	NA	NA	NA
		8 to 12	20.0	NA	NA	NA	NA
		12 to 16	37.9	NA	NA	NA	NA
		16 to 20	44.0	<0.048	<0.24	<4.8	<10
		24 to 28	14.7	NA	NA	NA	NA
ALL SAMPLES WERE ANALYZED PER EPA METHOD 8021B AND 8015B.							

Groundwater Laboratory Analytical Results					
Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ehtyl-benzene (mg/kg)	Xylenes (mg/kg)
WQCC STANDARD		10	750	750	620
GW-1	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-2	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-3	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-4	11/7/12	<2.0	<2.0	<2.0	<4.0
GW-5	11/7/12	<2.0	<2.0	<2.0	<4.0
ALL SAMPLES WERE ANALYZED PER EPA METHOD 8021B.					





Arriba
Environmental
Services, LLC

624 East Comanche St.
Farmington, NM 87401

SB-1

ENTERPRISE PRODUCTS COMPANY
FEDERAL 2C-45
RIO ARriba COUNTY, NEW MEXICO
NW1/4, SE1/4, SECTION 24, T25N, R6W

Date Started : 11/7/12
Date Completed : 11/7/12
Hole Diameter : 2.25"
Drilling Method : GeoProbe
Sampling Method : Core Barrel

Latitude : N36.38347
Longitude : W107.41676
Survey By : GPS
Logged By : A. Riling

Depth in Feet	Surf. Elev. 6451	USCS	GRAPHIC	DESCRIPTION	Water Level	OVM (ppm)
0	6451	CL		Sandy LEAN CLAY; medium brown, moist, no odor		16.2
2	6449					
4	6447					
6	6445					
8	6443			Very moist, no odor.		
10	6441					
12	6439			Very dark grey to black, organic staining, slight odor, roots.		
14	6437					
16	6435			Petroleum odor.		
18	6433			Organic odor.		
20	6431			No odor.		
22	6429	SC		Clayey SAND; fine- to medium-grained, greyish-brown, wet, no odor.		14.7
24	6427	CL		Sandy LEAN CLAY; fine- to medium-grained, greyish-brown, wet, no odor.		
26	6425			Interbedded Sandy LEAN CLAY and Clayey SAND.		
28	6423					
30						



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

November 21, 2012

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

RE: Enterprise Lateral 2C-45 Contd. Release Assesment

OrderNo.: 1211354

Dear Tami Ross:

Hall Environmental Analysis Laboratory received 6 sample(s) on 11/8/2012 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,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1211354

Date Reported: 11/21/2012

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Animas Environmental Services**Client Sample ID:** GW-1**Project:** Enterprise Lateral 2C-45 Contd. Release**Collection Date:** 11/7/2012 11:15:00 AM**Lab ID:** 1211354-001**Matrix:** AQUEOUS**Received Date:** 11/8/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	2.0	p	µg/L	2	11/13/2012 6:44:10 PM
Toluene	ND	2.0	p	µg/L	2	11/13/2012 6:44:10 PM
Ethylbenzene	ND	2.0	p	µg/L	2	11/13/2012 6:44:10 PM
Xylenes, Total	ND	4.0	p	µg/L	2	11/13/2012 6:44:10 PM
Surr: 4-Bromofluorobenzene	99.9	69.7-152	p	%REC	2	11/13/2012 6:44:10 PM

Qualifiers:

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

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

Analytical Report

Lab Order 1211354

Date Reported: 11/21/2012

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Animas Environmental Services**Client Sample ID:** GW-2**Project:** Enterprise Lateral 2C-45 Contd. Release**Collection Date:** 11/7/2012 12:16:00 PM**Lab ID:** 1211354-002**Matrix:** AQUEOUS**Received Date:** 11/8/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	2.0		µg/L	2	11/13/2012 7:14:22 PM
Toluene	ND	2.0		µg/L	2	11/13/2012 7:14:22 PM
Ethylbenzene	ND	2.0		µg/L	2	11/13/2012 7:14:22 PM
Xylenes, Total	ND	4.0		µg/L	2	11/13/2012 7:14:22 PM
Surr: 4-Bromofluorobenzene	97.8	69.7-152		%REC	2	11/13/2012 7:14:22 PM

Qualifiers:

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

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

Analytical Report

Lab Order 1211354

Date Reported: 11/21/2012

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Animas Environmental Services**Client Sample ID:** GW-3**Project:** Enterprise Lateral 2C-45 Contd. Release**Collection Date:** 11/7/2012 12:56:00 PM**Lab ID:** 1211354-003**Matrix:** AQUEOUS**Received Date:** 11/8/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	2.0	p	µg/L	2	11/10/2012 3:27:01 AM
Toluene	ND	2.0	p	µg/L	2	11/10/2012 3:27:01 AM
Ethylbenzene	ND	2.0	p	µg/L	2	11/10/2012 3:27:01 AM
Xylenes, Total	ND	4.0	p	µg/L	2	11/10/2012 3:27:01 AM
Surr: 4-Bromofluorobenzene	100	69.7-152	p	%REC	2	11/10/2012 3:27:01 AM

Qualifiers:

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

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

Analytical Report

Lab Order 1211354

Date Reported: 11/21/2012

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Animas Environmental Services**Client Sample ID:** GW-4**Project:** Enterprise Lateral 2C-45 Contd. Release**Collection Date:** 11/7/2012 1:25:00 PM**Lab ID:** 1211354-004**Matrix:** AQUEOUS**Received Date:** 11/8/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	2.0	p	µg/L	2	11/10/2012 3:57:20 AM
Toluene	ND	2.0	p	µg/L	2	11/10/2012 3:57:20 AM
Ethylbenzene	ND	2.0	p	µg/L	2	11/10/2012 3:57:20 AM
Xylenes, Total	ND	4.0	p	µg/L	2	11/10/2012 3:57:20 AM
Surr: 4-Bromofluorobenzene	98.9	69.7-152	p	%REC	2	11/10/2012 3:57:20 AM

Qualifiers:

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

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

Analytical Report

Lab Order 1211354

Date Reported: 11/21/2012

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Animas Environmental Services**Client Sample ID:** GW-5**Project:** Enterprise Lateral 2C-45 Contd. Release**Collection Date:** 11/7/2012 1:42:00 PM**Lab ID:** 1211354-005**Matrix:** AQUEOUS**Received Date:** 11/8/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	2.0		µg/L	2	11/12/2012 4:53:40 PM
Toluene	ND	2.0		µg/L	2	11/12/2012 4:53:40 PM
Ethylbenzene	ND	2.0		µg/L	2	11/12/2012 4:53:40 PM
Xylenes, Total	ND	4.0		µg/L	2	11/12/2012 4:53:40 PM
Surr: 4-Bromofluorobenzene	106	69.7-152		%REC	2	11/12/2012 4:53:40 PM

Qualifiers:

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

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

Analytical Report

Lab Order 1211354

Date Reported: 11/21/2012

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Animas Environmental Services**Client Sample ID:** SB-1**Project:** Enterprise Lateral 2C-45 Contd. Release**Collection Date:** 11/7/2012 11:54:00 AM**Lab ID:** 1211354-006**Matrix:** SOIL**Received Date:** 11/8/2012 10:00:00 AM

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	11/12/2012 9:56:00 PM
Surr: DNOP	98.9	77.6-140		%REC	1	11/12/2012 9:56:00 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/13/2012 1:35:14 AM
Surr: BFB	96.0	84-116		%REC	1	11/13/2012 1:35:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.048		mg/Kg	1	11/13/2012 1:35:14 AM
Toluene	ND	0.048		mg/Kg	1	11/13/2012 1:35:14 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/13/2012 1:35:14 AM
Xylenes, Total	ND	0.096		mg/Kg	1	11/13/2012 1:35:14 AM
Surr: 4-Bromofluorobenzene	98.8	80-120		%REC	1	11/13/2012 1:35:14 AM

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1211354

21-Nov-12

Client: Animas Environmental Services

Project: Enterprise Lateral 2C-45 Contd. Release Assesm

Sample ID	MB-4760	SampType:	MBLK	TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	PBS	Batch ID:	4760	RunNo:	6820					
Prep Date:	11/9/2012	Analysis Date:	11/12/2012	SeqNo:	197266	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

8.3

10.00

83.2

77.6

140

Sample ID	LCS-4760	SampType:	LCS	TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	4760	RunNo:	6820					
Prep Date:	11/9/2012	Analysis Date:	11/12/2012	SeqNo:	197915	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)

47

10

50.00

0

93.6

52.6

130

Surr: DNOP

3.9

5.000

78.2

77.6

140

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1211354

21-Nov-12

Client: Animas Environmental Services

Project: Enterprise Lateral 2C-45 Contd. Release Assessm

Sample ID	MB-4753		SampType:	MBLK		TestCode:	EPA Method 8015B: Gasoline Range				
Client ID:	PBS		Batch ID:	4753		RunNo:	6807				
Prep Date:	11/8/2012		Analysis Date:	11/9/2012		SeqNo:	197818		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	980		1000		97.6	84	116				

Sample ID	LCS-4753		SampType: LCS		TestCode: EPA Method 8015B: Gasoline Range					
Client ID:	LCSS		Batch ID: 4753		RunNo: 6807					
Prep Date:	11/8/2012		Analysis Date: 11/9/2012		SeqNo: 197819		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	74	117			
Surr: BFB	1000		1000		102	84	116			

Qualifiers:

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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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1211354

21-Nov-12

Client: Animas Environmental Services

Project: Enterprise Lateral 2C-45 Contd. Release Assesm

Sample ID	MB-4753		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	PBS		Batch ID:	4753		RunNo:	6807			
Prep Date:	11/8/2012		Analysis Date:	11/9/2012		SeqNo:	197845		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		103	80	120			

Sample ID	LCS-4753		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSS		Batch ID:	4753		RunNo:	6807			
Prep Date:	11/8/2012		Analysis Date:	11/9/2012		SeqNo:	197846		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	100	76.3	117			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	77	116			
Xylenes, Total	3.1	0.10	3.000	0	102	76.7	117			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Qualifiers:

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ND Not Detected at the Reporting Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1211354

21-Nov-12

Client: Animas Environmental Services
Project: Enterprise Lateral 2C-45 Contd. Release Assesm

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R6828	RunNo:	6828					
Prep Date:		Analysis Date:	11/9/2012	SeqNo:	197771	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	20		20.00		99.2	69.7	152			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R6828	RunNo:	6828					
Prep Date:		Analysis Date:	11/9/2012	SeqNo:	197772	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.9	80	120			
Toluene	19	1.0	20.00	0	97.5	80	120			
Ethylbenzene	20	1.0	20.00	0	99.8	80	120			
Xylenes, Total	62	2.0	60.00	0	103	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		105	69.7	152			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R6845	RunNo:	6845					
Prep Date:		Analysis Date:	11/12/2012	SeqNo:	198278	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	20		20.00		101	69.7	152			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R6845	RunNo:	6845					
Prep Date:		Analysis Date:	11/12/2012	SeqNo:	198279	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	80	120			
Toluene	21	1.0	20.00	0	104	80	120			
Ethylbenzene	21	1.0	20.00	0	107	80	120			
Xylenes, Total	65	2.0	60.00	0	108	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		110	69.7	152			

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 |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1211354

21-Nov-12

Client: Animas Environmental Services

Project: Enterprise Lateral 2C-45 Contd. Release Assesm

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R6882	RunNo:	6882					
Prep Date:		Analysis Date:	11/13/2012	SeqNo:	199164	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	21		20.00		103	69.7	152			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R6882	RunNo:	6882					
Prep Date:		Analysis Date:	11/13/2012	SeqNo:	199165	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	80	120			
Toluene	23	1.0	20.00	0	116	80	120			
Ethylbenzene	23	1.0	20.00	0	117	80	120			
Xylenes, Total	71	2.0	60.00	0	119	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		110	69.7	152			

Qualifiers:

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- 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
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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Animas Environmental

Work Order Number: 1211354

Received by/date:

AT

11/08/12

Logged By: Lindsay Mangin

11/8/2012 10:00:00 AM

[Signature]

Completed By: Lindsay Mangin

11/8/2012 12:45:02 PM

[Signature]

Reviewed By:

[Signature]

11/08/12

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 $>0^{\circ}\text{C}$ 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	1.0	Good	Yes			

