3R – 436

GROUNDWATER INVESTIGATION REPORT

DATE: 06/11/2012

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Prepared for:
Mr. Glenn von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Drive
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Prepared on behalf of:
Enterprise Products Company
614 Reilly Avenue
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Groundwater Investigation Report
Enterprise Products Company
Jacquez Gas Com F#1 Pipeline Release
NW¼, SW¼, Section 4, T29N, R9W, San Juan County, New Mexico

June 11, 2012

Prepared by:
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1.0 Introduction

Animas Environmental Services, LLC (AES), on behalf of Enterprise Products Company, Inc. (Enterprise), has prepared this Groundwater Investigation Report for the Jacquez Gas Com F #1 pipeline release that was discovered and confirmed in July 2011.

1.1 Site Location and NMOCD Ranking

The release area is located on private land within the NW¼ SW¼, Section 4, T29N, R9W, San Juan County, New Mexico. Latitude and longitude of the release were recorded as N36.75175 and W107.7909, respectively. The release is within the floodplain of the San Juan River and is located on the north side of the river. Surface runoff drains southwest towards an unnamed irrigation return ditch, which flows south and discharges directly into the San Juan River approximately 0.3 mile to the south. Depth of groundwater is approximately 2 feet below ground surface (bgs). A topographic site location map is included as Figure 1, and an aerial site map showing the release location is included as Figure 2.

Prior to initial site work, the New Mexico Oil Conservation Division (NMOCD) database was reviewed along with the New Mexico Office of the State Engineer (NMOSE) database for information to assist in site ranking. Once on-site, AES personnel assessed the NMOCD ranking criteria using topographical interpretation, Global Position System (GPS) elevation readings, and visual reconnaissance. No domestic or private registered water wells were identified within 1,000 feet of the location. Due to the shallow depth to groundwater, the location was assessed a NMOCD ranking score of 20.

1.2 Release Information

A release was reported at the location on July 28, 2011, and on July 30, 2011, Ross Kennemer of AES met with Enterprise representatives at the release location during repair activities. The cause of the release was attributed to a line leak due to a corrosion hole.

1.3 Initial Release Assessment, October 2011

Repair of the pipeline was completed on October 10, 2011, and was delayed as a result of negotiating access with the property owner. Initial excavation activities were conducted on October 10, 2011. During the excavation, Ross Kennemer of AES collected five soil samples from the base and mid-walls of the excavation, which measured approximately 20 feet by 12 feet by 6 feet deep. Additionally, due to inflow of shallow groundwater, dewatering of the excavation was necessary for completing the line repair work and sample collection. Total petroleum hydrocarbon (TPH) concentrations in three of the five soil samples collected (S-1, S-4, and S-5) were above the applicable New Mexico Oil Conservation Division (NMOCD) action level for total petroleum hydrocarbon (TPH) of 100 mg/kg. One soil sample (S-1) also

had reported total benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations above the NMOCD action level for BTEX (50 mg/kg) in soil. Approximately 58 cubic yards of contaminated soil were transported for disposal at the Envirotech Landfarm, near Bloomfield, New Mexico.

On October 10, 2011, AES also collected one groundwater sample from the open excavation. Dissolved phase total xylene concentrations in this sample were reported at 840 µg/L, which is above the New Mexico Water Quality Control Commission (WQCC) standard of 620 µg/L. Approximately 1,680 barrels (bbls) of groundwater removed from the excavation was disposed at Basin Disposal, Inc. in Aztec, New Mexico.

Based on the field screening readings, laboratory analytical results, and the shallow depth of groundwater, AES and Enterprise determined that a limited groundwater investigation would assist in determining further possible mitigation measures. Details of the initial release assessment were submitted to Enterprise in a letter report dated October 27, 2011. A work plan detailing the proposed groundwater investigation was submitted to NMOCD on November 9, 2011, and included the installation of four soil borings via direct push GeoProbe to be completed as shallow permanent groundwater monitor wells. However, the property owner declined the proposed scope of work, and it was then proposed by AES and Enterprise to investigate the extent of petroleum hydrocarbon impacts to groundwater through HydroPunch points installed manually.

2.0 Groundwater Investigation – March 2012

On March 15, 2012, AES completed a groundwater investigation in order to delineate the full extent of petroleum hydrocarbon impact on groundwater resulting from the release. The investigation included the installation of five temporary wells using a HydroPunch sampling tool and the collection of groundwater samples in accordance with U.S. Environmental Protection Agency (USEPA) Environmental Response Team's Standard Operating Procedures (SOPs), and applicable American Society of Testing and Materials (ASTM) standards.

2.1 Permits and Access Agreements

Enterprise obtained access approval from the property owner prior to initiating the investigation.

2.2 Utilities Notification

AES utilized the New Mexico One-Call system to identify and mark all underground utilities at the site before initiating the investigation.

2.3 *Project Notification*

AES notified Aaron Daily of Enterprise by telephone 48 hours prior to beginning the investigation.

2.4 *Health and Safety Plan*

AES has a company health and safety plan in place, and each employee is required to complete a health and safety orientation prior to participating in field operations for the first time. All on-site personnel are 40-hour HazWoper trained in accordance with OSHA regulations outlined in 29 CFR 1910.120(e). Prior to the start of the site investigation, AES prepared and implemented a comprehensive site-specific Job Safety Analysis (JSA) addressing the site investigation activities and associated groundwater sampling. All employees and subcontractors were required to read and sign the JSA to acknowledge their understanding of the information contained within the JSA. The JSA was implemented and enforced on site by the assigned Site Safety and Health Officer.

2.5 *HydroPunch Investigation*

At the property owner's request, no permanent groundwater monitoring wells were installed at the release location. Therefore, it was determined that the most appropriate sampling method for site condition was a HydroPunch, which allows for in-situ collection of groundwater samples.

On March 15, 2012, AES personnel installed five temporary wells (HP-1 through HP-5) in order to define the lateral extent of groundwater impact. The local site lithology was noted as sandy clay from surface to 3 feet bgs. The locations of the temporary wells are presented on Figure 3.

Each temporary well was installed by hand by driving the HydroPunch screen with a fencepost driver. The HydroPunch screens were driven to a total depth of 3 feet bgs. The internal slotted screen of the HydroPunch was set across the top of the shallow groundwater table at 1.5 feet bgs and left in place to allow groundwater to infiltrate and equilibrate.

2.5.1 Groundwater Sampling

Groundwater was encountered at approximately 1.5 feet bgs. A total of five groundwater samples (HP-1 through HP-5) were collected for laboratory analysis using a peristaltic pump. Prior to collection of each groundwater sample, depth to groundwater was measured with a water level indicator. Depth to groundwater in each temporary well was recorded on groundwater sample collection forms. Additionally, water quality parameters (pH, temperature, electrical conductivity, and oxygen reduction potential) were also recorded on the groundwater sample collection forms. Once collected, all samples were preserved in laboratory-supplied containers and stored in an insulated cooler containing ice. Samples

were shipped via bus to the analytical laboratory in insulated coolers containing ice at less than 6°C. Water sample collection forms are included in Appendix A.

2.5.2 Laboratory Analyses

All groundwater samples were analyzed at Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico, for the following parameters:

- BTEX per USEPA Method 8021B;
- TPH for gasoline range organics (GRO) and diesel range organics (DRO) per USEPA Method 8015B.

3.0 Site Investigation Results

3.1 Water Quality Measurements

Water quality measurements were recorded prior to sample collection, and temperature readings ranged from 6.45°C to 8.64°C. Conductivity readings were between 0.611 mS in HP-3 and 0.832 mS in HP-5, and pH ranged from 6.36 to 7.22. Oxidation reduction potential ranged from -63.4 mV in HP-1 down to -99.8 mV in HP-5. Water sample collection forms are included in Appendix A.

3.2 Laboratory Analytical Results

Groundwater laboratory analytical results for HP-1 through HP-5 showed that BTEX concentrations were well below applicable WQCC standards in HP-1 through HP-5. A dissolved phase benzene concentration of 2.1 µg/L was noted in HP-1, and trace concentrations of xylene were reported in HP-3 (4.1 µg/L) and HP-5 (2.9 µg/L). Dissolved phase TPH (as GRO/DRO) concentrations were below laboratory detection limits for all samples collected. Tabulated groundwater analytical results are presented in Table 1 and on Figure 3. Groundwater laboratory analytical reports are presented in Appendix A.

Table 1. Groundwater Laboratory Analytical Results
Jacquez Gas Com F #1 Groundwater Investigation, March 2012

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylene (µg/L)	GRO (mg/L)	DRO (mg/L)
WQCC Standard		10	750	750	620	NE	NE
HP-1	3/15/12	2.1	<2.0	<2.0	<8.3	<0.10	<1.0
HP-2	3/15/12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
HP-3	3/15/12	<1.0	<1.0	<1.0	4.1	<0.050	<1.0
HP-4	3/15/12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
HP-5	3/15/12	<1.0	<1.0	<1.0	2.9	<0.050	<1.0

NE- Not Established

4.0 Conclusions and Recommendations

A total of five HydroPunch temporary wells (HP-1 through HP-5) were installed by AES on March 15, 2012, as part of a subsequent investigation to the October 2011 release assessment. Elevated concentrations of dissolved phase xylene were reported in October 2011 and are believed to be associated with the mixing of shallow groundwater and petroleum hydrocarbon contaminated soils that were being excavated at the time. Note that 1,680 bbls (70,560 gallons) of petroleum hydrocarbon impacted water were removed from the release area and disposed of at an authorized facility in October 2011.

Groundwater analytical results from the March 2012 groundwater investigation showed that concentrations for benzene, toluene, ethylbenzene, and xylene were below laboratory detection limits, with the exception of HP-1, which had a benzene concentration slightly above the laboratory detection limit of 2 µg/L. Trace concentrations of xylene were also noted in HP-3 (4.1 µg/L) and HP-5 (2.9 µg/L) and are well below the WQCC standard for xylene. Based on the groundwater investigation results, it appears that impacts to groundwater from the July 2011 release have been fully mitigated, and no further work is recommended.

5.0 Certification

I, the undersigned, am personally familiar with the information presented in this Groundwater Investigation Report, prepared on behalf of Enterprise Products Company, Inc. for the July 2011 Jacquez Gas Com F #1 pipeline release. I attest that it is true and complete to the best of my knowledge.

Ross Kennemer
Project Manager

Elizabeth McNally, P.E.
Principal

6.0 References

American Society for Testing and Materials (ASTM) International. *D5730 Guide for Site Characterization for Environmental Purposes with Emphasis on Soil, Rock, the Vadose Zone and Groundwater.*

Animas Environmental Services, LLC (AES). *Jacquez Gas Com F #1 Pipeline Release Letter Report, October 27, 2011.* Enterprise Products Company.

AES. *Jacquez Gas Com F #1 Pipeline Release Soil and Groundwater Investigation Work Plan, November 9, 2011.* Enterprise Products Company.

New Mexico Oil Conservation Division. *Guidelines for Remediation of Leaks, Spills, and Releases. October 13, 1993.*

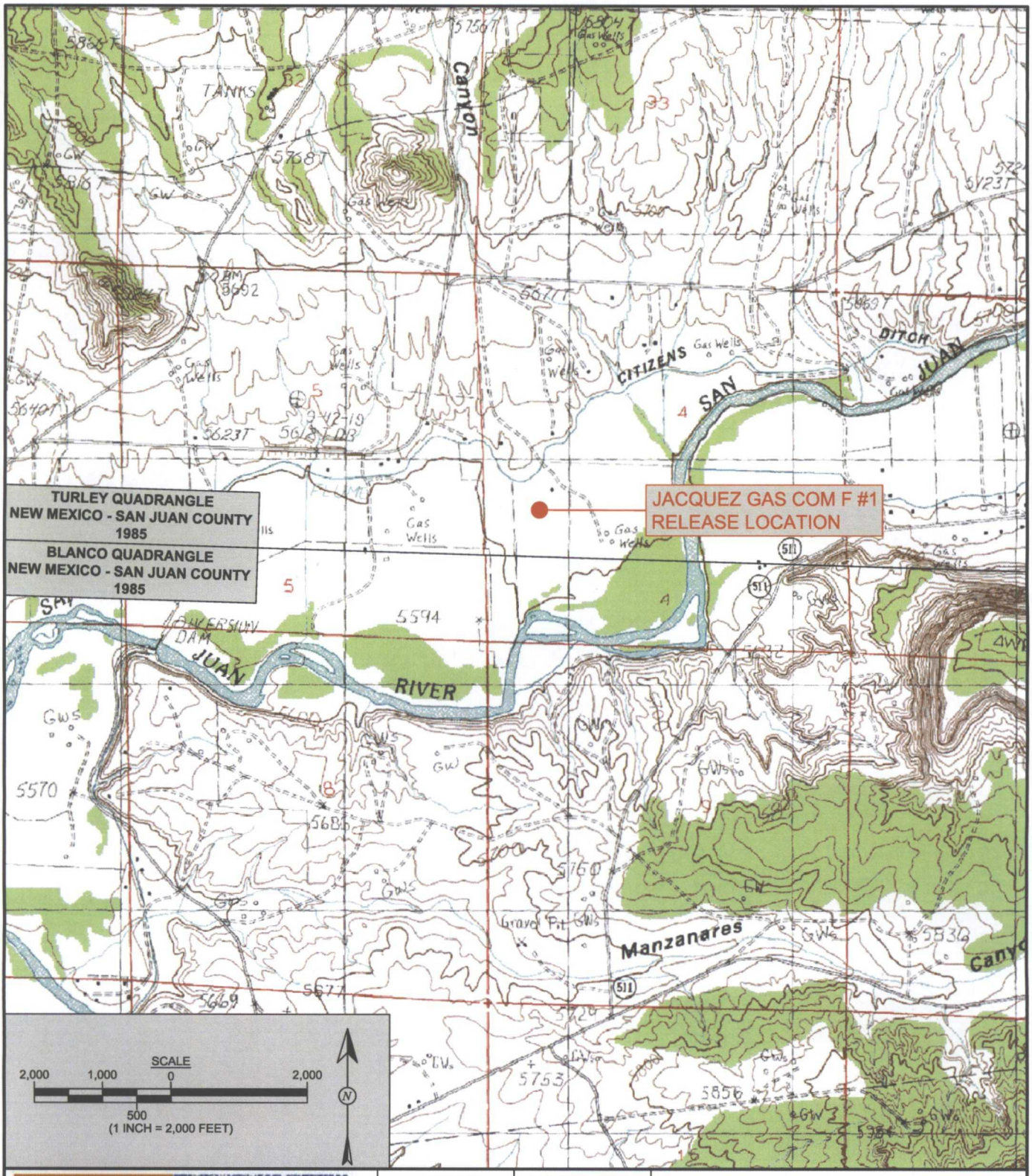
U.S. Environmental Protection Agency (USEPA). 1982. *Methods for Chemical Analysis for Water and Wastes.* Document EPA-600, July, 1982.

USEPA. 1992. SW-846, 3rd Edition, *Test Methods for Evaluating Solid Waste: Physical Chemical Methods*, dated November, 1986, and as amended by Update One, July, 1992.

USEPA. 1991. *Site Characterization for Subsurface Remediation*, EPA 625/4-91-026, November, 1991.

USEPA. 1997. *Expedited Site Assessment Tools for Underground Storage Tank Sites.* OSWER 5403G and EPA 510B-97-001, March, 1997.

USEPA. 2001. Contract Laboratory Program (CLP) Guidance for Field Samplers. OSWER 9240.0-35, EPA 540-R-00-003. June, 2001.

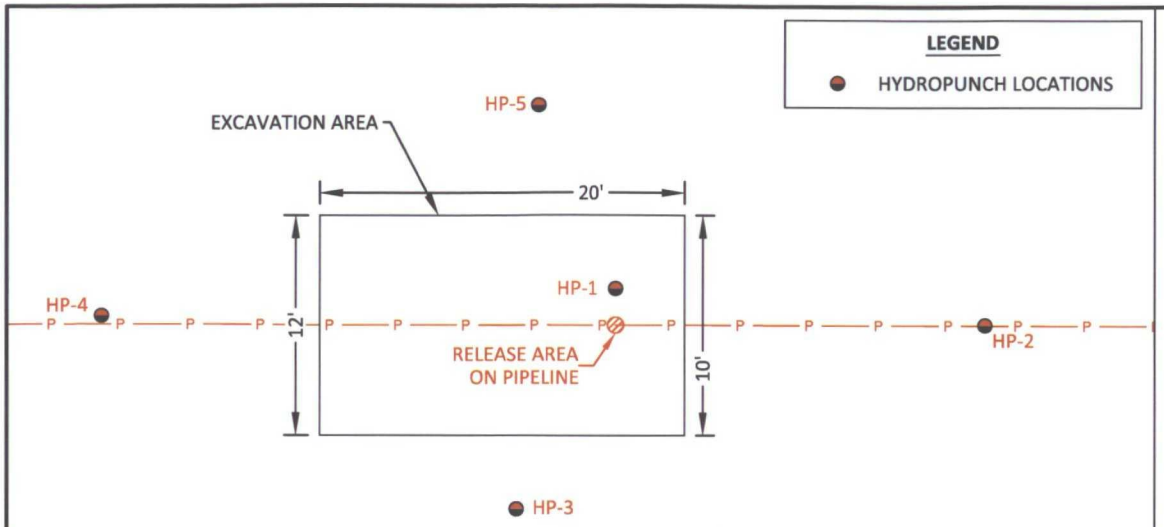


DRAWN BY: C. Lameman	**DATE DRAWN:** October 21, 2011	**FIGURE 1**
REVISIONS BY: C. Lameman	**DATE REVISED:** October 21, 2011	**TOPOGRAPHIC SITE LOCATION MAP**
CHECKED BY: B. Watson	**DATE CHECKED:** October 26, 2011	ENTERPRISE PRODUCTS COMPANY JACQUEZ GAS COM F #1 PIPELINE RELEASE LOCATION SAN JUAN COUNTY, NEW MEXICO NW ¼, SW ¼, SEC. 4, T29N, R9W N36°45.105', W107°47.454'
APPROVED BY: E. McNally	**DATE APPROVED:** October 27, 2011	

AES
Animas Environmental Services, LLC

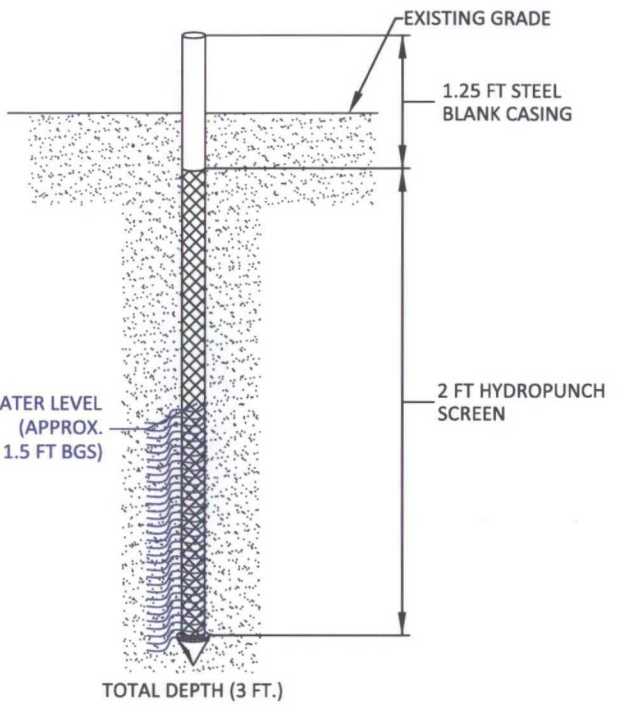
Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** October 21, 2011	**FIGURE 2**
REVISIONS BY: C. Lameman	**DATE REVISED:** October 21, 2011	**AERIAL SITE MAP**
CHECKED BY: B. Watson	**DATE CHECKED:** October 26, 2011	ENTERPRISE PRODUCTS COMPANY JACQUEZ GAS COM F #1 PIPELINE RELEASE LOCATION SAN JUAN COUNTY, NEW MEXICO NW ¼, SW ¼, SEC. 4, T29N, R9W N36°45.105', W107°47.454'
APPROVED BY: E. McNally	**DATE APPROVED:** October 27, 2011	

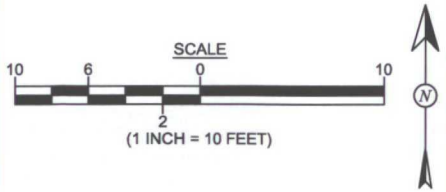


Groundwater Laboratory Analytical Results							
Sample ID	***Date***	***Benzene (µg/L)***	***Toluene (µg/L)***	***Ethyl-benzene (µg/L)***	***Xylene (µg/L)***	***TPH-GRO (mg/L)***	***TPH-DRO (mg/L)***
WQCC STANDARD		***10***	***750***	***750***	***620***	***NE***	***NE***
HP-1	3/15/12	2.1	<2.0	<2.0	<8.3	<0.10	<1.0
HP-2	3/15/12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
HP-3	3/15/12	<1.0	<1.0	<1.0	4.1	<0.050	<1.0
HP-4	3/15/12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0
HP-5	3/15/12	<1.0	<1.0	<1.0	2.9	<0.050	<1.0
NE - NOT ESTABLISHED							

HYDROPUNCH SCHEMATIC



NOT TO SCALE



Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** August 18, 2011
REVISIONS BY: C. Lameman	**DATE REVISED:** May 22, 2012
CHECKED BY: T. Ross	**DATE CHECKED:** May 22, 2012
APPROVED BY: E. McNally	**DATE APPROVED:** May 22, 2012

FIGURE 3

HYDROPUNCH GROUNDWATER SAMPLING LOCATIONS AND RESULTS, MARCH 2012
ENTERPRISE PRODUCTS COMPANY
JACQUEZ GAS COM F #1
GROUNDWATER INVESTIGATION
SAN JUAN COUNTY, NEW MEXICO
NW ¼, SW ¼, SEC. 4, T29N, R9W
N36.75175, W107.7909

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

March 26, 2012

Ross Kennemer
Animas Environmental Services
624 East Comanche
Farmington, NM 87401
TEL: (505) 564-2281
FAX (505) 324-2022

RE: Enterprise Prod Co Jacquez Gas Com F #1 Pipeline OrderNo.: 1203649

Dear Ross Kennemer:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/17/2012 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.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1203649**
Date Reported: **3/26/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: HP-1
Project: Enterprise Prod Co Jacquez Gas Com F #
Collection Date: 3/15/2012 2:30:00 PM
Lab ID: 1203649-001 **Matrix:** AQUEOUS **Received Date:** 3/17/2012 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/20/2012 7:56:54 PM
Surr: DNOP	98.7	61.3-164		%REC	1	3/20/2012 7:56:54 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.10		mg/L	2	3/22/2012 1:33:16 AM
Surr: BFB	91.2	69.3-120		%REC	2	3/22/2012 1:33:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	2.1	2.0		µg/L	2	3/22/2012 1:33:16 AM
Toluene	ND	2.0		µg/L	2	3/22/2012 1:33:16 AM
Ethylbenzene	ND	2.0		µg/L	2	3/22/2012 1:33:16 AM
Xylenes, Total	8.3	4.0		µg/L	2	3/22/2012 1:33:16 AM
Surr: 4-Bromofluorobenzene	91.9	55-140		%REC	2	3/22/2012 1:33:16 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: HP-2
Project: Enterprise Prod Co Jacquez Gas Com F #
Collection Date: 3/15/2012 3:01:00 PM
Lab ID: 1203649-002 **Matrix:** AQUEOUS **Received Date:** 3/17/2012 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/20/2012 8:18:25 PM
Surr: DNOP	98.7	61.3-164		%REC	1	3/20/2012 8:18:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.10		mg/L	2	3/22/2012 2:03:34 AM
Surr: BFB	91.5	69.3-120		%REC	2	3/22/2012 2:03:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	2.0		µg/L	2	3/22/2012 2:03:34 AM
Toluene	ND	2.0		µg/L	2	3/22/2012 2:03:34 AM
Ethylbenzene	ND	2.0		µg/L	2	3/22/2012 2:03:34 AM
Xylenes, Total	ND	4.0		µg/L	2	3/22/2012 2:03:34 AM
Surr: 4-Bromofluorobenzene	92.2	55-140		%REC	2	3/22/2012 2:03:34 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: HP-3
Project: Enterprise Prod Co Jacquez Gas Com F #
Collection Date: 3/15/2012 3:20:00 PM
Lab ID: 1203649-003 **Matrix:** AQUEOUS **Received Date:** 3/17/2012 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/20/2012 8:39:49 PM
Surr: DNOP	97.5	61.3-164		%REC	1	3/20/2012 8:39:49 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/22/2012 2:33:44 AM
Surr: BFB	74.7	69.3-120		%REC	1	3/22/2012 2:33:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/22/2012 2:33:44 AM
Toluene	ND	1.0		µg/L	1	3/22/2012 2:33:44 AM
Ethylbenzene	ND	1.0		µg/L	1	3/22/2012 2:33:44 AM
Xylenes, Total	4.1	2.0		µg/L	1	3/22/2012 2:33:44 AM
Surr: 4-Bromofluorobenzene	76.5	55-140		%REC	1	3/22/2012 2:33:44 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: HP-4
Project: Enterprise Prod Co Jacquez Gas Com F #
Collection Date: 3/15/2012 3:32:00 PM
Lab ID: 1203649-004 **Matrix:** AQUEOUS **Received Date:** 3/17/2012 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/20/2012 9:01:17 PM
Surr: DNOP	99.9	61.3-164		%REC	1	3/20/2012 9:01:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.10		mg/L	2	3/22/2012 3:03:47 AM
Surr: BFB	96.2	69.3-120		%REC	2	3/22/2012 3:03:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	2.0		µg/L	2	3/22/2012 3:03:47 AM
Toluene	ND	2.0		µg/L	2	3/22/2012 3:03:47 AM
Ethylbenzene	ND	2.0		µg/L	2	3/22/2012 3:03:47 AM
Xylenes, Total	ND	4.0		µg/L	2	3/22/2012 3:03:47 AM
Surr: 4-Bromofluorobenzene	96.7	55-140		%REC	2	3/22/2012 3:03:47 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: HP-5
Project: Enterprise Prod Co Jacquez Gas Com F #
Collection Date: 3/15/2012 3:58:00 PM
Lab ID: 1203649-005 **Matrix:** AQUEOUS **Received Date:** 3/17/2012 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/20/2012 9:44:09 PM
Surr: DNOP	99.7	61.3-164		%REC	1	3/20/2012 9:44:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/22/2012 3:33:59 AM
Surr: BFB	73.1	69.3-120		%REC	1	3/22/2012 3:33:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/22/2012 3:33:59 AM
Toluene	ND	1.0		µg/L	1	3/22/2012 3:33:59 AM
Ethylbenzene	ND	1.0		µg/L	1	3/22/2012 3:33:59 AM
Xylenes, Total	2.9	2.0		µg/L	1	3/22/2012 3:33:59 AM
Surr: 4-Bromofluorobenzene	75.5	55-140		%REC	1	3/22/2012 3:33:59 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Project: Enterprise Prod Co Jacquez Gas Com F #
Lab ID: 1203649-006 **Matrix:** AQUEOUS

Client Sample ID: Trip Blank
Collection Date:
Received Date: 3/17/2012 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/22/2012 4:04:13 AM
Surr: BFB	74.1	69.3-120		%REC	1	3/22/2012 4:04:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/22/2012 4:04:13 AM
Toluene	ND	1.0		µg/L	1	3/22/2012 4:04:13 AM
Ethylbenzene	ND	1.0		µg/L	1	3/22/2012 4:04:13 AM
Xylenes, Total	ND	2.0		µg/L	1	3/22/2012 4:04:13 AM
Surr: 4-Bromofluorobenzene	75.4	55-140		%REC	1	3/22/2012 4:04:13 AM

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203649**

26-Mar-12

Client: Animas Environmental Services

Project: Enterprise Prod Co Jacquez Gas Com F #1 Pipel

Sample ID **MB-1149**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range**
Client ID: **PBW**	Batch ID: **1149**	RunNo: **1548**
Prep Date: **3/20/2012**	Analysis Date: **3/20/2012**	SeqNo: **44156** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Surr: DNOP	0.96		1.000		96.1	61.3	164			

Sample ID **LCS-1149**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range**
Client ID: **LCSW**	Batch ID: **1149**	RunNo: **1548**
Prep Date: **3/20/2012**	Analysis Date: **3/20/2012**	SeqNo: **44157** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	74	157			
Surr: DNOP	0.49		0.5000		97.9	61.3	164			

Sample ID **LCSD-1149**	SampType: **LCSD**	TestCode: **EPA Method 8015B: Diesel Range**
Client ID: **LCSS02**	Batch ID: **1149**	RunNo: **1548**
Prep Date: **3/20/2012**	Analysis Date: **3/20/2012**	SeqNo: **44158** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	113	74	157	9.48	23	
Surr: DNOP	0.50		0.5000		100	61.3	164	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203649**

26-Mar-12

Client: Animas Environmental Services

Project: Enterprise Prod Co Jacquez Gas Com F #1 Pipel

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBW**	Batch ID: **R1606**	RunNo: **1606**
Prep Date:	Analysis Date: **3/21/2012**	SeqNo: **45288** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		89.5	69.3	120			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R1606**	RunNo: **1606**
Prep Date:	Analysis Date: **3/21/2012**	SeqNo: **45289** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.62	0.050	0.5000	0	125	101	123			S
Surr: BFB	20		20.00		102	69.3	120			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203649**

26-Mar-12

Client: Animas Environmental Services

Project: Enterprise Prod Co Jacquez Gas Com F #1 Pipel

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **R1606**	RunNo: **1606**
Prep Date:	Analysis Date: **3/21/2012**	SeqNo: **45333** 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	19		20.00		95.2	55	140			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R1606**	RunNo: **1606**
Prep Date:	Analysis Date: **3/21/2012**	SeqNo: **45334** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	80	120			
Toluene	23	1.0	20.00	0	113	80	120			
Ethylbenzene	22	1.0	20.00	0	112	80	120			
Xylenes, Total	68	2.0	60.00	0	113	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		106	55	140			

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

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: 1203649

Received by/date: AF 03/17/2012

Logged By: **Anne Thorne** 3/17/2012 10:30:00 AM — Anne Thorne

Completed By: **Anne Thorne** 3/19/2012 — Anne Thorne

Reviewed By: 03/19/12

Chain of Custody

1. Were seals intact? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.2	Good	Yes			

Chain-of-Custody Record

Client: Animas Environmental Services

Mailing Address: 624 E Comanche Farmington NM 87401

Phone #: 505-564-2281

email or Fax#: 505-324-2022

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other______

☐ EDD (Type)______

Turn-Around Time:

☐ Standard ☐ Rush______

Project Name:
Enterprise Production Company
Jacquez Gas Com F #1 Pipeline Release

Project #:
AES 110801

Project Manager:

Ross Kennemer

Sampler: R. Kennemer & N. Willis

On Ice: ☒ Yes ☐ No

Sample Temperature: [illegible]

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. 1203549	8021B (BTEX Only)	8015B TPH (Gas/Diesel)	Air Bubbles (Y or N)
-15-12	1430	H2O	HP-1	6 - 40mL glass	5 - HCl 1 - Non	-001	X	X	
	1501	H2O	HP-2	6 - 40mL glass	5 - HCl 1 - Non	-002	X	X	
	1520	H2O	HP-3	6 - 40mL glass	5 - HCl 1 - Non	-003	X	X	
	1532	H2O	HP-4	6 - 40mL glass	5 - HCl 1 - Non	-004	X	X	
	1558	H2O	HP-5	6 - 40mL glass	5 - HCl 1 - Non	-005	X	X	
		H2O	Trip Blanks	2 - 40mL glass	2 - HCl	-006	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/16/12	1656	Natt Willis	Christine Walters	3/16/12	1656
3/16/12	1732	Christine Walters	[signature]	3/17/12	10:30

Remarks:

Bill Enterprise Production Company

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

Water Sampling Record

Monitor Well No: HP-1

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

Project:	Site Assessment	Project No.:	
Site:	Enterprise Products Company	Date:	3-15-12
Location:	Jacquez Gas Com F#1	Time:	1400
Sampler:	R. Kennemer / N. Willis	Weather:	Clear
Sampling Method:	Peristaltic Pump	Air Temperature:	70°F
Depth of Well (ft):	3 Ft.	Well Diam. (in.):	1.5 In.
Depth to Water (ft):	1.71 BGS	Site Elevation (ft):	

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1425	8.36	0.801	|	7.14	-69.8	1	
1427	8.91	0.759	|	7.16	-63.9	1	
1429	8.64	0.693	|	7.22	-63.4	1	
1430	Samples Collected						

Analytical Parameters Sampled For (include Method #): BTEX 8021B and GRO-DRO 8015B

Disposal of Purged Water: Ground Surface

Chain of Custody Record Complete? (Y/N) Yes

Analytical Laboratory: Hall

Equipment Used During Sampling: Stainless steel Hydropunch screen; Water level; YSI Water Quality meter; Global Water Peristaltic sampling pump

Other Notes/Comments

Water Sampling Record

Monitor Well No: HP-2

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

Project: Site Assessment
Site: Enterprise Products Company
Location: Jaquez Gas Com F #1
Sampler: R. Kennemer / N. Willis
Sampling Method: Peristaltic Pump
Depth of Well (ft): 3 Ft.
Depth to Water (ft): 2.01 Ft BGS

Project No.:
Date: 3-15-12
Time: 1451
Weather: clear
Air Temperature: 70°F
Well Diam. (in.): 1.5 IN.
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1453	9.84	0.826		6.55	-81.0	1	
1456	7.88	0.834		6.33	-90.3	1	
1459	7.09	0.808		6.69	-93.5	1	
1501	Samples Collected						

Analytical Parameters Sampled For (include Method #): BTEX 8021B and GRO-DRO 8015B

Disposal of Purged Water: Ground Surface
Chain of Custody Record Complete? (Y/N) Yes
Analytical Laboratory: Hall
Equipment Used During Sampling: Stainless steel Hydropunch screen; water level; YSI Water Quality Meter; Global water Peristaltic sampling pump.
Other Notes/Comments

Water Sampling Record

Animas Environmental Services

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

Monitor Well No: HP-3

Project: Site Assessment
Site: Enterprise Products Company
Location: Jaquez Gas Com F#1
Sampler: R. Kennemer / M. Willis
Sampling Method: Peristaltic Pump
Depth of Well (ft): 3 Ft.
Depth to Water (ft): 1.51 Ft. BGS

Project No.:
Date: 3-15-12
Time: 1508
Weather: ~~BBE~~ Clear
Air Temperature: 70'F
Well Diam. (in.): 1.5 IN.
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1512	8.74	0.655	|	5.28	-81.6	1	
1515	7.53	0.618	|	6.21	-68.2	1	
1519	6.45	0.611	|	6.36	-64.3	1	
1520	Samples Collected						

Analytical Parameters Sampled For (include Method #): BTEX 8021B and GRO-DRO 8015B

Disposal of Purged Water: Ground Surface
Chain of Custody Record Complete? (Y/N) Yes
Analytical Laboratory: Hall
Equipment Used During Sampling: Stainless Steel Hydropunch screen. Water level; YSI Water Quality meter; Global Water Peristaltic Sampling Pump
Other Notes/Comments

Water Sampling Record

Monitor Well No: HP-4

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

Project:	Site Assessment	**Project No.:**	
Site:	Enterprise Products Company	**Date:**	3-15-12
Location:	Jacquez Gas Com F#1	**Time:**	1525
Sampler:	R. Kellermer / N. Willis	**Weather:**	Clear
Sampling Method:	Peristaltic Pump	**Air Temperature:**	70°F
Depth of Well (ft):	3 Ft.	**Well Diam. (in.):**	1.5 IN.
Depth to Water (ft):	1.55 Ft. BGS	**Site Elevation (ft):**	

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1526	7.86	0.706		6.85	-89.9	1	
1528	7.38	0.695		6.87	-90.1	1	
1530	6.71	0.684		6.84	-87.2	1	
1532	Samples Collected						

Analytical Parameters Sampled For (include Method #): BTEX 8021B and GRO-DRO 8015B

Disposal of Purged Water: Ground Surface

Chain of Custody Record Complete? (Y/N) Yes

Analytical Laboratory: Hall

Equipment Used During Sampling: Stainless Steel Hydropunch Screen; Water Level; YSI Water Quality meter; Global Water Peristaltic sampling Pump.

Other Notes/Comments

Water Sampling Record

Monitor Well No: HP-5

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

Project: Site Assessment
Site: Enterprise Products Company
Location: Jacquez Gas Com F #1
Sampler: R. Kennemer / N. Willis
Sampling Method: Peristaltic Pump
Depth of Well (ft): 3 Ft.
Depth to Water (ft): 1.72 Ft. BGS

Project No.:
Date: 3-15-12
Time: 1550
Weather: Clear
Air Temperature: 70°F
Well Diam. (in.): 1.5 IN.
Site Elevation (ft):

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (gallons)	Notes/Observations
1552	8.79	0.818	|	6.80	-96.7	1	
1555	8.27	0.822	|	6.81	-100.9	1	
1557	7.88	0.832	L	6.77	-99.8	1	
1558							

Analytical Parameters Sampled For (include Method #): BTEX 8021B and GRO-DRO 8015B

Disposal of Purged Water: Ground Surface
Chain of Custody Record Complete? (Y/N) Yes
Analytical Laboratory: Hall
Equipment Used During Sampling: Stainless steel Hydropunch Screen; water level; YSI Water Quality meter; Colebal Water Peristaltic Sampling Pump
Other Notes/Comments